

**Achlaena piptostachya** Griseb. *Cat. Pl. Cub.* 229 (1866).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Arthropogon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *C. Wright* 3487, Cuba (NY-71022, US-927103, US-75310 (fragm.)).

**Recent Synonyms:** *Arthropogon piptostachyus* (Griseb.) Pilger, *Rev. Mus. Paulista* 13: 1250 (1922).

**Illustrations (Books):** A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (158, Fig. 100).

**Derivation** (Clifford & Bostock 2007): Gk. *pipto*, fall down; *stachys*, ear of corn. Spikelets deciduous.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms 30–75 cm long. Culm-nodes glabrous. Leaves mostly basal. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades linear or lanceolate, 10–30 cm long, 2–6 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 7–10 cm long, 4–7 cm wide, contracted about primary branches. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6–7 mm long, falling entire. Spikelet callus linear, 2 mm long, pilose. Spikelet callus hairs 0.33 length of spikelet.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume subulate, 10–35 mm long. Upper glume oblong, 1 length of spikelet, coriaceous, without keels, 5–7 -veined. Upper glume surface scabrous. Upper glume awned, 1 -awned, awn 10–35 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, coriaceous, 5–7 -veined, scabrous, rough above, obtuse. Fertile lemma linear, membranous, without keel, 3 -veined, 0–3 -veined. Lemma apex obtuse. Palea hyaline, without keels.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 2. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba, Jamaica.

**Achnatherum acutum** (Swallen) Valdis-Reyna & Barkworth. *Contr. U.S. Natl. Herb.* 48: 15 (2003).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa acuta* Swallen, *Journ. Wash. Acad. Sc.* 30 (5): 212 (1940). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Shreve* 8545, 1 Sep 1938, Mexico: Coahuila (US-1760238).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *acuo*, sharpen. Spikelets acute to acuminate.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 95 cm long. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, lacerate, acute. Leaf-blades involute, 10–23 cm long, 1–2 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–20 cm long. Primary panicle branches ascending or spreading, 3–6 cm long. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 11–12 mm long, 1.1–1.2 length of upper glume, hyaline, purple, without keels, 3 -veined. Lower glume lateral veins with cross-veins. Lower glume apex acute. Upper glume lanceolate, 9–10 mm long, hyaline, purple, without keels, 5–7 -veined. Upper glume lateral veins with cross-veins. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex

awned, 1 -awned. Principal lemma awn bigenulate, 45–50 mm long overall, with 30–35 mm long limb, with twisted column.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Mexico.** Northeast Mexico.

**TDWG4.** Coahuila.

**Achnatherum altum** (Swallen) P.S. Hoge & M.E. Barkworth. *Phytologia*, 74(1): 5 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa alta* Swallen, *Proc. Biol. Soc. Wash.* 56: 79 (1943). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.H. Mueller 3261*, 10 Sep 1939, Mexico: Coahuila: Cuatro Ciénegas Mun. (US-2209361; IT: US-2871136 (fragm.)).

**Illustrations (Books):** G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990).

**Derivation** (Clifford & Bostock 2007): *altus* (L.) tall. Culms tall, relative to those of other members of the genus.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, robust, 136.8–233.99 cm long. Culm-internodes distally glabrous. Leaves basal and cauline. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule 4–8 mm long on basal shoots. Leaf-blades flat or involute, 30–60 cm long, 3–7 mm wide, stiff. Leaf-blade surface scabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate, antrorsely scabrous.

**Inflorescence.** Panicle contracted, linear, 23.24–33.6 cm long, 1.24–1.8 cm wide, bearing few spikelets. Primary panicle branches appressed, 5–10 cm long, bearing 10–11 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets. Spikelets lanceolate, subterete, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus straight, base acute. Floret callus pubescent, acute.

**Glumes.** Glumes persistent, similar, subequal in width, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–11 mm long, 1 length of upper glume, hyaline, 3 -veined. Upper glume lanceolate, 7–8 mm long, hyaline, 3 -veined. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear or lanceolate, subterete, 4–5 mm long, coriaceous, dark brown, without keel. Lemma surface pilose. Lemma margins covering most of palea. Lemma apex awned, 1–2 -awned. Principal lemma awn geniculate, 8–12 mm long overall, with twisted column. Palea 2 -veined, without keels.

**Flower and Fruit.** Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Mexico.** Northeast Mexico.

**TDWG4.** Coahuila.

**Achnatherum aridum** (M.E. Jones) M.E. Barkworth. *Phytologia*, 74(1): 6 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa arida* M. E. Jones, *Proc. Calif. Acad. Ser.2.*, 5: 725. (1895). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M.E. Jones 5377*, 4 Jun 1894, USA: Utah: Piute Co.: Marysvale (?; IT: US-236787).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (132).

**Derivation** (Clifford & Bostock 2007): *aridus* L. dry. Growing in arid places.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–85 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous or pubescent. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades flat or involute, 15–25 cm long, 1–2.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 8–15 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, with lower wider than upper, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–15 mm long, 1.2–1.3 length of upper glume, hyaline, much thinner above, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 7–12 mm long, 1.7–2 length of adjacent fertile lemma, hyaline, much thinner above, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 4–6 mm long, coriaceous, pallid, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous, rough above, pubescent, hairy all along or below. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 40–70 mm long overall, with 30–50 mm long limb, with twisted column. Column of lemma awn 10–20 mm long, glabrous. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA, South-central USA. Colorado. Arizona, California, Nevada, Utah. Texas.

**Achnatherum arnowiae** (S.L.Welsh & N.D.Atwood) Barkworth. *Sida* 22(1): 496 (2006).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Oryzopsis*).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa arnowiae* S.L.Welsh & N.D.Atwood, *Utah Fl.*, ed. 3 :799 (2003). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Utah, Johnson Canyon: Welsh & O'Dell 28062 (BRY holo, NY, UT, UTC).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (140).

**Derivation** (Clifford & Bostock 2007): in honor of Lois Goodell Arnow (1921-) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm. Culms erect, 15–75 cm long. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane, 1–4 mm long. Leaf-blades involute, 2 mm wide. Leaf-blade surface smooth or scaberulous. Leaf-blade apex attenuate, simple or filiform.

**Inflorescence.** Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle contracted, linear, 5–20 cm long, 0.5–2.8 cm wide. Primary panicle branches appressed or ascending, 0.5–2.5(–5) cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, dorsally compressed, 5.1–6.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.2–0.4 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 5.1–6.1 mm long, 1.2 length of upper glume, membranous, without keels, 3 -veined. Lower glume lateral veins prominent. Lower glume surface puberulous. Lower glume apex acuminate. Upper glume ovate, 4.3–5.2 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume lateral veins prominent. Upper glume surface puberulous. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, dorsally compressed, 2.9–3.7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface hirsute, hairy on back or on veins. Lemma margins convolute, covering most of palea. Lemma hairs white, 2–3 mm long. Lemma apex awned, 1 -awned. Principal lemma awn straight, 3–4.4 mm long overall, deciduous. Palea coriaceous, 2 -veined, without keels.

**Flower and Fruit.** Anthers 3, 1 mm long.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA. Utah.

**Achnatherum botschantzevii** Tsvelev. *Novosti Sist. Vyssh. Rast.*, 1 1: 4 (1974).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Kirgizstan. **Basionym or Replaced Name:** *Achnatherum botschantzevii* Tsvelev, *Novosti Sist. Vyssh. Rast.*, 1 1: 4 (1974). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Alai range, Karabulak: Bochantsev 113 (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Victor Petrovic Botschantzev (1910-) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Cataphylls evident. Basal innovations extravaginal. Culms erect, 15–25 cm long. Culm-internodes smooth, distally glabrous. Leaves basal and cauline. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 0.2–0.3 mm long on basal shoots. Leaf-blades filiform, convolute, 0.4–0.6 mm wide. Leaf-blade surface scabrous, rough adaxially, pubescent, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 5–8 cm long. Primary panicle branches bearing 1–4 fertile spikelets on each lower branch. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pilose, obtuse.

**Glumes.** Glumes persistent, similar, subequal in width, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 3 -veined. Lower glume apex attenuate. Upper glume lanceolate, 5.5–6.5 mm long, membranous, without keels, 3 -veined. Upper glume apex attenuate.

**Florets.** Fertile lemma linear to lanceolate, subterete, 1.8–2.2 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2-fid, with lobes 0.3–0.5 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 20–25 mm long overall, with twisted column. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3, 1.7–2.3 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Middle Asia.** Kirgizistan, Tadjikistan.

**TDWG4.**

**Achnatherum bracteatum** (Swallen) Valdis-Reyna & Barkworth. *Contr. U.S. Natl. Herb.* 48: 15 (2003).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa bracteata* Swallen, *Journ. Wash. Acad. Sc.* 30: 213 (1940). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *I.L. Wiggins 5153*, 4 Apr 1931, Mexico: Baja California: collected on grassy flats 25 miles north of Ensenada, Baja California (US-1721797).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. bractus, bract; -ata, possessing. Panicle or inflorescence branches subtended by leafy bracts.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 75–135 cm long, 3 -noded. Culm-internodes distally pubescent (below nodes), with reflexed hairs. Leaf-sheaths pubescent. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane. Leaf-blades flat or involute, 25–40 cm long, 1–3 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle tipped by a glumaceous appendage (4–6mm long). Panicle open, elliptic, 35–42 cm long. Primary panicle branches 4–10 cm long. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, curved, pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–11 mm long, 1.2 length of upper glume, hyaline, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 8–9 mm long, 1.4–1.5 length of adjacent fertile lemma, hyaline, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 5.5–6.5 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 10–24 mm long overall, with twisted column. Palea 2 -veined, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Mexico.** Northwest Mexico.

**TDWG4.** Baja California.



**Achnatherum breviaristatum** Keng & P.C. Kuo. *Fl. Tsinlingensis*, 1 (1): 442 (1976).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa nomnov*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Gansu: Minxian, ca. 2100 m, (HT: ?).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 281).

**Derivation** (Clifford & Bostock 2007): L., *brevis*, short; *arista*, bristle; *-ata*, possessing. Lemma shortly awned.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China North-Central.

**TDWG4.** Gansu.

**Achnatherum bromoides** (L.) P.Beauv. *Ess. Agrostogr.* 20, [146], 147 (1812).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *Stipa*), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from France. **Basionym or Replaced Name:** *Agrostis bromoides* L., *Mant. Pl.* 30 (1767). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: France, Montpellier: *Gouan* in Herb. Linn. 84/4 (LINN holo).

**Recent Synonyms:** *Stipa bromoides* (L.) Dörf., *Herb. Norm., Cent.* 34: 129, No. 3386 (1897).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 347).

**Derivation** (Clifford & Bostock 2007): Gk. *-oides*, resembling. Resembling *Bromus*, usually with respect to the inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Cataphylls evident. Rhizomes short, firm. Culms erect, 50–100 cm long. Leaves basal and cauline, differentiated into sheath and blade. Leaf-sheaths wider than blade at the collar, smooth, outer margin glabrous or hairy. Leaf-sheath auricles absent or erect. Ligule an eciliate membrane, 0.5 mm long, membranous, truncate. Leaf-blades filiform, convolute, 15–35 cm long, 0.5–1 mm wide. Leaf-blade surface glabrous or pubescent (minutely), hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or elliptic, loose to effuse, 15–30 cm long. Primary panicle branches appressed to ascending, naked below or bearing spikelets almost to the base. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flattened, straight, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.2–0.3 mm long, bearded, obtuse.

**Glumes.** Glumes similar, subequal in width, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–11 mm long, 1 length of upper glume, membranous, 3 -veined (vains very prominent). Lower glume lateral veins without connecting veins or with cross-veins. Lower glume surface glabrous or puberulous. Lower glume apex acute to acuminate, mucronate. Upper glume lanceolate, 7–10 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume lateral veins without cross-veins or with cross-veins. Upper glume apex acute to acuminate.

**Florets.** Fertile lemma linear to lanceolate, subterete, 5.5–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface villous, hairy below. Lemma margins convolute, covering most of palea. Lemma apex lobed, 2 -fid, with a short cylindrical neck, awned, 1 -awned. Principal lemma awn apical, straight, 1.5–2.5 mm long overall, limb scaberulous. Palea lanceolate, 0.6–0.7 length of lemma, membranous, 2 -veined, without keels. Palea apex lobed.

**Flower and Fruit.** Lodicules 3. Anthers 3, 5 mm long. Stigmas 2. Caryopsis with adherent pericarp, fusiform.

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Southwestern Europe, Southeastern Europe, Eastern Europe, Middle Europe.

**Country /Province /State.** : Hungary. : Balears, Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym, Ukraine. **Northern Africa.** Morocco. **Middle Asia, Caucasus, Western Asia.** Turkmenistan. Transcaucasus. Iran, Iraq.

**TDWG4.**

**Achnatherum calamagrostis** (L.) Beauv. *Agrost.* 19. t. 6. f. 146 (1812).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Europe. **Basionym or Replaced Name:** *Stipa calamagrostis* (L.) Wahlenb., *Veg. Helv.* 23. (1813). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: [Europe] Scheuch. Gram. 146.,

**Recent Synonyms:** *Calamagrostis argentea* DC., *Fl. Fr.* 3: 25 (1805).

**Illustrations (Books):** No illustration found (BKS).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): Gk. *kalamos*, reed; *agrostis*, a type of grass.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Culms robust, 60–120 cm long. Leaf-sheaths smooth, outer margin glabrous or hairy. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane, 0.3 mm long. Leaf-blades involute, 2–3 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface glabrous or puberulous. Lower glume apex acute. Upper glume lanceolate, 8–9 mm long, membranous, without keels, 3 -veined. Upper glume surface glabrous or puberulous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, subterete, 3–4 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface villous. Lemma margins convolute, covering most of palea. Lemma hairs 3–4 mm long. Lemma apex awned, 1 -awned. Principal lemma awn straight or curved, 10 mm long overall. Palea without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3, 3.5–4 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

$2n = 24$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe.

**Region.** Northern Europe (\*), Middle Europe, Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Austria, Germany, Switzerland. : France, Spain. : Albania, Bulgaria, Greece, Italy, Romania, Yugoslavia.

**Achnatherum capense** (L.) P. Beauv. *Ess. Agrostogr.* 146: 167 (1812).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. **Basionym or Replaced Name:** *Milium capense* L., *Mantissa Plantarum* 75 (1771). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Habitat ad Cap. b. spei.", ; South Africa, Cape: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From the Cape of Good Hope, South Africa.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms decumbent, 10–30 cm long. Ligule an eciliate membrane. Leaf-blades involute, 5–15 cm long, 1–1.5 mm wide, glaucous. Leaf-blade surface glabrous or pubescent, hairy adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 5–15 cm long, 1 cm wide. Primary panicle branches appressed, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1 mm long, bearded, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–20 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral

veins absent. Lower glume apex acuminate. Upper glume lanceolate, 10–20 mm long, 2 length of adjacent fertile lemma, hyaline, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma apex entire, surmounted by a ring of hairs, awned, 1 -awned. Principal lemma awn bigeniculate, twisted together, 60–70 mm long overall, with twisted column. Column of lemma awn 30 mm long, hirtellous. Palea elliptic, 0.4 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 2, oblanceolate, membranous. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Western Cape.

**Achnatherum caragana** (Trin.) Nevski. *Trudy Bot. Inst. Akad. Nauk S.S.S.R., Ser. 1, Fl. Sist. Vyssh. Rast.* 4: 337–336 (1937).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Stipa*), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. **Basionym or Replaced Name:** *Stipa caragana* Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 1(1): 74 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia: "V. ssp. e littore orientalis maris Caspici.", *Eichwald* (HT: LE).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): From Tjuk-Caragan peninsula which projects into the Caspian Sea.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 30–100 cm long. Ligule an eciliate membrane, 0.7–0.9 mm long. Leaf-blades filiform, convolute, 10–20 cm long, 1–3 mm wide, glaucous. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 15–25 cm long, with spikelets clustered towards branch tips. Primary panicle branches 7–14 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4.2–6.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.3 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 1 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume apex acute or acuminate. Upper glume elliptic, 4.2–6.3 mm long, membranous, without keels, 3 -veined. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma elliptic, subterete, 3–4 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight or curved, 7–15 mm long overall, without a column or with a straight or slightly twisted column, deciduous. Palea 2 -veined, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** Siberia, Middle Asia, Caucasus, Western Asia, China, Russia. Altay, West Siberia. Kazakhstan, Kirgizistan, Turkmenistan, Tadzhikistan, Uzbekistan. North Caucasus, Transcaucasus. Afghanistan, Iran, Turkey. Xinjiang. **Indian Subcontinent.** Pakistan.

**TDWG4.**

**Achnatherum chingii** (Hitchcock) Keng.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*).

**Basionym or Replaced Name:** *Stipa chingii* Hitchcock, *Proc. Biol. Soc. Wash.* 43 :94. (1930).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 286).

**Derivation** (Clifford & Bostock 2007): In honor of Ching Ren-chang (1898–1986) Chinese botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 80 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades flexuous, filiform, 15–20 cm long, 0.5–1 mm wide. Leaf-blade surface ribbed, scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–20 cm long, with spikelets clustered towards branch tips. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels. Lower glume apex obtuse. Upper glume lanceolate, 7–9 mm long, membranous, without keels. Upper glume apex obtuse.

**Florets.** Fertile lemma lanceolate, subterete, 6 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy below. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigenulate, 13 mm long overall, with twisted column. Middle segment of lemma awn 4 mm long. Column of lemma awn 1 mm long, puberulous. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central, China North-Central, Qinghai, Tibet.

**Achnatherum constrictum** (Hitchc.) Valdis-Reyna & Barkworth. *Contr. U.S. Natl. Herb.* 48: 15 (2003).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa constricta* Hitchc., *Contrib. U. S. Nat. Herb.* 24: 244 (1925). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 6742, 6 Sep 1910–7 Sep 1910, Mexico: *Hidalgo* (US-993345).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. constringo*, bind together.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 80 cm long, 4–6 -noded. Lateral branches sparse, arising from lower culm. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades involute, 5–15 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–20 cm long. Primary panicle branches ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent (white), acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 25–40 mm long, membranous, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 14–16 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex with a short cylindrical neck or surmounted by a ring of hairs, with this appendage 1.2–1.4 mm long, awned, 1 -awned. Principal lemma awn bigenulate, 20–25 mm long overall, with twisted column. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico.

**TDWG4.** Mexico State. Hidalgo.

**Achnatherum contractum** (B.L. Johnson) M.E. Barkworth. *Phytologia*, 74(1): 6 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Oryzopsis*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Oryzopsis hymenoides* var. *contracta* B.L.Johnson, *Phytologia* 167: 428 (1989). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Wyoming: Freezeout Hills, Carbon County, *Elias Nelson 4850* (HT: (University of Wyoming Herb., US)).

*Oryzopsis contracta* (B. L. Johnson) Shechter, *Brittonia* 18: 342 (1967).

*Muhlenbergia rigida* (Kunth) Kunth, *Révis. Gramin.* 1: 63 (1829).

**Illustrations (Books):** M.E. Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (140).

**Derivation** (Clifford & Bostock 2007): *L. contracta*. Inflorescence a narrow panicle.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 25–50 cm long. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades filiform, involute, 4–20 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 6–20 cm long. Primary panicle branches appressed, 2-nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, dorsally compressed, 5.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.8 mm long, pilose.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 5.5–6 mm long, 1 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume surface glabrous or puberulous. Lower glume apex acuminate. Upper glume ovate, 5.5–6 mm long, 2 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume surface glabrous or puberulous. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, dorsally compressed, 3 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs 0.5–1.5 mm long. Lemma apex dentate, 2-fid, with lobes 0.5 mm long, awned, 1-awned. Principal lemma awn from a sinus, curved, 7–8 mm long overall, deciduous.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA. Montana, Wyoming.

**Achnatherum coronatum** (Thurb.) M.E. Barkworth. *Phytologia*, 74(1): 6 (1993).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Stipa*), U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa coronata* Thurb. ex S. Wats., *Bot. Calif.* 2: 287. (1880). T: <Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *H.N. Bolander s.n.*, Apr 1872, USA: California: San Diego Co.: in a canyon around springs on hillside near Julian City (US-745778). ST: *Parry & Lemmon 422*, USA: California: San Bernardino.

**Illustrations (Books):** M.E. Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (128).

**Images:** R. Darke, *Ornamental Grasses* (2004);, R. Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);

**Derivation** (Clifford & Bostock 2007): *L. corona*, crown; *-ata*, possessing. Lemma densely appressed-villous with the hairs projecting above the apex to form a pappus-like crown.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–200 cm long, 2–6 mm diam. Culm-internodes distally glabrous or pubescent. Leaf-sheaths smooth, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 2 mm long. Leaf-blades flat or involute, 15–30 cm long, 3–7 mm wide. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 20–50 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, curved, 1.5 mm long, pilose, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 20 mm long, 1.1–1.5 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 13–18 mm long, 2 length of adjacent fertile lemma, hyaline, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7.5–9 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface villous. Lemma margins convolute, covering most of palea. Lemma hairs 2–4 mm long. Lemma apex awned, 1-awned. Principal lemma awn bigeniculate, 35–50 mm long overall, with twisted column. Column of lemma awn 10 mm long. Palea 2 -veined, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.  
**Country /Province /State.** Southwestern USA, Mexico. California.

**Achnatherum curvifolium** (Swallen) M.E. Barkworth. *Phytologia*, 74(1) 7 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa curvifolia* Swallen, *Journ. Wash. Acad. Sc.* 23: 456 (1933). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *H. Wilkens 1660*, 29 Apr 1932, USA: New Mexico: Eddy Co.: Guadalupe Mountains (US-1538063).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (134).

**Derivation** (Clifford & Bostock 2007): *L. curvus*, bent; *folium*, leaf. The leaf-blades become spirally coiled in senescence, or on drying.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths pubescent. Culms erect, 35 cm long. Leaves mostly basal. Ligule an eciliate membrane. Leaf-blades curved, filiform, involute, 10–15 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 7–8 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 10 mm long, hyaline, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5.5 mm long, coriaceous, light brown, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex acute, awned, 1 -awned. Principal lemma awn geniculate or bigeniculate, 22–25 mm long overall, with twisted column. Column of lemma awn hirsute. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, 2 mm long. Anthers 3, 3–4 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** South-central USA, Mexico. New Mexico, Texas. Northeast Mexico. Chihuahua.

**Achnatherum diegoense** (Swallen) M.E. Barkworth. *Phytologia*, 74(1): 7 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa diegoensis*, *Journ. Wash. Acad. Sci.* 30 (5): 212, f. 2. 1940. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F.F. Gander 5778*, 23 May 1938, USA: California: San Diego Co. (US-1761177).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (130).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From San Diego County, California, USA.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 70–100 cm long. Culm-internodes scaberulous, distally pubescent. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 1–2 mm long, truncate or obtuse. Leaf-blades flat or involute, 15–40 cm long, 2–4 mm wide. Leaf-blade surface scabrous, rough abaxially, pubescent, hairy adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 15–30 cm long. Primary panicle branches appressed. Panicle branches glabrous in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets lanceolate, subterete, 9–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–10 mm long, 1.1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 8–9 mm long, hyaline, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 6.5–7.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, with conspicuous apical hairs. Lemma margins convolute, covering most of palea. Lemma hairs 1–2 mm long. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 20–33 mm long overall, with twisted column. Column of lemma awn scabrous, glabrous. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA, Mexico. California. Northwest Mexico. Baja California.

**Achnatherum duthiei** (Hook. f.) P.C. Kuo & S.L. Lu. *Fl. Reipubl. Popularis Sin.* 9(3): 322, pl. 80, f. 9–14 (1987).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from India. **Basionym or Replaced Name:** *Stipa duthiei* Hook. f. *Fl. Brit. India* 7(22): 232 (1897) [1896]. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: Garwhal, 12–13,000 ft, *Duthie* 273 (HT: ?).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 281).

**Derivation** (Clifford & Bostock 2007): in honor of John Firminger Duthie (1845–1922) English botanist who collected in India.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 100–160 cm long. Ligule an eciliate membrane, obtuse. Leaf-blades flat or convolute, 30–45 cm long, 2–3 mm wide. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 20–25 cm long. Primary panicle branches 4–7 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 10–12 mm long, 1 length of upper glume, hyaline, pallid, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 10–12 mm long, hyaline, pallid, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15 mm long overall, with twisted column. Column of lemma awn pubescent. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China. China South Central, China North-Central, Qinghai, Tibet. **Indian Subcontinent.** Eastern Himalaya, Nepal.

**Achnatherum editorum** (E. Fourn.) Valdis-Reyna ex Barkworth. *Contr. U.S. Natl. Herb.* 48: 16 (2003).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa editorum* Fourn. *Mex. Pl. Enum., Gram.* 75 (1886). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *W.F. von Karwinski 1009C*, Mexico: in valle edita inter La Noria del Viejo et La Miquiguana (LE; IT: US-866119 (fragm. ex P)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. editus*, high place. Of high places, that is growing on mountains.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths pubescent. Culms erect, 80–100 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades flat or involute, 20–40 cm long, 2–3 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–20 cm long. Primary panicle branches appressed, 5–10 cm long, naked below or bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent (white), acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 9 mm long, hyaline, without keels, 3 -veined. Upper glume lateral veins obscure. Upper glume apex attenuate.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, pallid, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 30–40 mm long overall, with a straight or slightly twisted column. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3, anther tip penicillate. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico.

**TDWG4.** Puebla. Coahuila, Neuvo Leon, Zacatecas.

**Achnatherum emiens** (Cav.) M.E. Barkworth. *Phytologia*, 74(1): 7 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa emiens* Icon. 5: 42, t. 467, f. 1. 1799. T:<Type of Basionym>; *vide* TROPICOS and Kew Synonymy Database: HT: *Nie s.n.*, Mexico: Mixico: Chalma (MA; IT: US-866118 (fragm.)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (132), R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983) (as *Stipa*).

**Derivation** (Clifford & Bostock 2007): *L. emineo*, stand out. Conspicuous with respect to inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 50–120 cm long, wiry. Culm-internodes distally glabrous. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1.5–6 mm long. Leaf-blades flat or involute, 20–35 cm long, 1–2(–3) mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, nodding, 10–20 cm long. Primary panicle branches spreading, 3–4 -nate. Panicle branches capillary, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, with lower wider than upper, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–15 mm long, 1.1–1.3 length of upper glume, hyaline, much thinner above, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 7–12 mm long, 1.5–1.7 length of adjacent fertile lemma, hyaline, much thinner above, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 4.5–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy all along. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 35–60 mm long overall, with twisted column. Column of lemma awn glabrous. Palea without keels.

**Flower and Fruit.** Lodicules 2. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.



**Country /Province /State.** Southwestern USA, South-central USA, Mexico. Arizona, California. New Mexico, Texas. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico.

**TDWG4.** Distrito Federal, Mexico State, Puebla. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo Leon, Queretaro, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Sonora. Jalisco, Nayarit, Oaxaca.

**Achnatherum hendersonii** Vasey. *Contrib. U. S. Nat. Herb.* 1. 267. (1893).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Oryzopsis*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Oryzopsis hendersonii*, *Contr. U.S. Natl. Herb.* 1(8): 267 (1893). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Henderson 2249*, 1892, USA: Washington: North Yakima, Clements Mountain.

**Recent Synonyms:** *Stipa hendersonii* (Vasey) Mehlenb., *Canad. J. Bot.* 49(9): 1568. 1971.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (138).

**Derivation** (Clifford & Bostock 2007): in honor of Louis Fourniquet Henderson (1853–1942) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 10–30 cm long. Culm-internodes solid, antrorsely scabrous. Leaves mostly basal. Leaf-sheaths puberulous. Ligule an eciliate membrane, 0.5–1 mm long, pubescent on abaxial surface, truncate. Leaf-blades involute, 5–10 cm long, 0.5–1 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle open, lanceolate, 4–12 cm long, bearing few spikelets. Primary panicle branches appressed, 2–8 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, dorsally compressed, 3.8–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume oblong, 3.5–5.5 mm long, 0.9 length of upper glume, membranous, without keels, 5 -veined. Lower glume apex obtuse. Upper glume oblong, 3.8–6 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, dorsally compressed, 3.8–6 mm long, coriaceous, dark brown, without keel. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn 6–10 mm long overall, deciduous. Palea 1 length of lemma, coriaceous, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 2 mm long, purple.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA. Oregon, Washington.

**Achnatherum henryi** (Rendle) S.M. Phillips & Z.L. Wu. *Novon* 15(3): 475. (2005).

Regarded by K as a synonym.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Oryzopsis*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Stipa henryi* Rendle, *J. Linn. Soc., Bot.* 36(254): 382 (1904). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *A. Henry 5530*, China: Sichuan: S. Wushan (K). LT designated by Phillips & Wu, *Novon* 15(3): 475 (2005). ST: *A. Henry 3444*, China: Hupeh: Ichang ST: *Faber 1160*, China (?).

**Recent Synonyms:** *Oryzopsis henryi* (Rendle) Keng, *Fl. Tsinlingensis*, 1(1): 145 (1976).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Augustine Henry (1857–1936) Irish physician and forester.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms 30–60 cm long. Ligule an eciliate membrane, 0.2 mm long. Leaf-blades flat or convolute, 15–30 cm long, 2–4 mm wide. Leaf-blade surface ribbed. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 30 cm long. Primary panicle branches appressed, 5–10 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 3.3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.3 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex obtuse. Upper glume ovate, 3.3–3.5 mm long, membranous, without keels, 3 -veined. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, subterete, 3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface puberulous. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 10 mm long overall, limb puberulous. Palea without keels.

**Flower and Fruit.** Lodicules 2, 0.5–0.75 mm long. Anthers 3, 2 mm long, anther tip smooth. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, China North-Central, China Southeast.

**Achnatherum hirticulme** (S.L. Hatch, Valdis-Reyna & Morden) Valdis-Reyna & Barkworth. *Contr. U.S. Natl. Herb.* 48: 16 (2003).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa hirticulmis* S.L. Hatch, Valdis-Reyna & Morden. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *S.L. Hatch & J. Valdis 5007*, 22 Aug 1983, Mexico: Nuevo Lesn: 8 mi E of San Roberto Jct. along Hwy. 58 on the road to Galeana, 24:40'N 100:14'W, 1890 m, *Pinus cembroides*, *Juniperus*, *Yucca carnerosana*, *Opuntia*, *Larrea tridentat*, *Dasylyrion*, *Condalia ericoides*, *Aristida curvifolia*, *Bouteloua curtispindula*, *B. gracilis*, *B. uniflora* (TAES; IT: ANSM, CHAPA, ENCB, MEXU, MO-3291427, NY, TEX, US-3037668).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. hirtus*, hairy; culmus, stem. Culm bases densely hirsute.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths not bulbous. Culms geniculately ascending, 30–60 cm long, wiry, 6–11 -noded. Culm-internodes distally hispid, with reflexed hairs. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades straight or curved, 1.5–6 cm long, 1 mm wide. Leaf-blade surface pilose, hairy on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 8–16 cm long, 1–2 cm wide. Primary panicle branches ascending, 2–3 -nate, bearing 2–4 fertile spikelets on each lower branch. Panicle axis with lower internodes 1–4.2 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–13 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–10.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.7–1 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–8 mm long, 1.1–1.2 length of upper glume, chartaceous, much thinner on margins, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 6–8 mm long, membranous, with hyaline margins, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3.5–5 mm long, coriaceous, light brown, without keel, 5 -veined, more than 3-veined. Lemma surface villous. Lemma margins convolute, covering most of palea. Lemma apex surmounted by a ring of hairs, with this appendage 0.7–1 mm long, awned, 1 -awned. Principal lemma awn bigenulate, 29–50 mm long overall, with 11–27 mm long limb, with twisted column. Middle segment of lemma awn 10–13 mm long. Column of lemma awn 8–10 mm long. Palea 3–4 mm long, 2 -veined, without keels. Palea surface pilose, hairy on back.

**Flower and Fruit.** Lodicules 2, 1–1.2 mm long, veinless. Anthers 3, 2 mm long, brown. Stigmas 2. Caryopsis fusiform, 3–4 mm long, light brown. Embryo 0.25 length of caryopsis.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Northeast Mexico.

**TDWG4.** Coahuila, Neuvo Leon.

**Achnatherum hymenoides** (Roem. & Schult.) M.E. Barkworth. *Phytologia*, 74(1): 7 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Oryzopsis*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa hymenoides* Roem. & Schult., *Systema Vegetabilium* 2: 339. 1817. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Bradbury s.n.*, USA: banks of the Missouri River.

**Recent Synonyms:** *Oryzopsis hymenoides* (Roem. & Schult.) Ricker ex Piper, *Contrib. U. S. Nat. Herb.* xi. 109 (1906).

**Illustrations (Books):** K.F.Best, et al, *Prairie Grasses* (1971) (167 as *Oryzopsis*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (140), F.W.Gould, *The Grasses of Texas* (1975) (as *Oryzopsis hymenoides*).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);

**Derivation** (Clifford & Bostock 2007): Gk. *hymen*, membrane; *-oides*, resembling. Spikelets with papery glumes.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–70 cm long. Leaves basal and cauline. Ligule an eciliate membrane, 3–7 mm long, entire or lacerate. Leaf-blades filiform, involute, 10–30 cm long, 1–2 mm wide, coriaceous, stiff. Leaf-blade surface ribbed. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, obovate, effuse, 7–15 cm long. Primary panicle branches spreading, 2-nate, branching divaricately. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, curved, 7–30 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, dorsally compressed, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.8 mm long, pilose.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume ovate, 5–8 mm long, 1 length of upper glume, membranous, without keels, 3-veined. Lower glume surface glabrous or puberulous. Lower glume apex attenuate. Upper glume ovate, 5–8 mm long, 1.6–2 length of adjacent fertile lemma, membranous, without keels, 3-veined. Upper glume surface glabrous or puberulous. Upper glume apex attenuate.

**Florets.** Fertile lemma ovate, dorsally compressed, 3–4 mm long, coriaceous, dark brown to black, without keel, 5-veined, more than 3-veined. Lemma surface villous. Lemma margins convolute, covering most of palea. Lemma hairs white, 2–4 mm long. Lemma apex obtuse, awned, 1-awned. Principal lemma awn straight, 3–6 mm long overall, deciduous. Palea coriaceous, 2-veined, without keels.

**Distribution (TDWG). Continent.** Temperate Asia, North America.

**Country /Province /State.** **Western Asia.** Turkey. **Subarctic America, Western Canada, Northwest USA, North-central USA, Southwestern USA, South-central USA, Mexico.** Yukon. Alberta, British Columbia, Manitoba, Saskatchewan. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. North Dakota, Nebraska, South Dakota. Arizona, California, Nevada, Utah. New Mexico, Texas. Northeast Mexico, Northwest Mexico.

Chihuahua. Baja California Sur.

**GenBank** (L36507).

**Achnatherum inaequiglume** Keng. *Fl. Tsinlingensis*, 1 (1): 443, 151 (1976).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Stipa*).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Li Hsien: Wang 21668.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 284).

**Derivation** (Clifford & Bostock 2007): L. *inaequalis*, unequal; *gluma*, husk. Glumes differing in length and/or shape.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long, 0.8–1 mm diam., 2–3-noded. Leaf-sheaths glabrous on surface or puberulous. Ligule an eciliate membrane, 0.5–1 mm long, scarious, entire or erose, truncate. Leaf-blades filiform, involute, 4–12(–20) cm long, 1–2 mm wide. Leaf-blade surface glabrous or puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 7–13 cm long, 1 cm wide. Primary panicle branches ascending, 1.5–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 7–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus 0.3 mm long, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets. Lower glume lanceolate, 7–8 mm long, 1.1–1.4 length of upper glume, membranous, pallid or light green, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acuminate. Upper glume lanceolate, 5–7 mm long, membranous, pallid or light green, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3–4 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins convergent above. Lemma surface hirsute, hairy above. Lemma margins convolute, covering most of palea. Lemma hairs 3 mm long. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–20 mm long overall, with a straight or slightly twisted column. Column of lemma awn 0.33–0.5 length of limb. Palea 1 length of lemma, 2 -veined, without keels. Palea surface puberulous, hairy on back.

**Flower and Fruit.** Anthers 3, 2–2.5 mm long, anther tip smooth. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, China North-Central.

**TDWG4.** Gansu. Sichuan.

**Achnatherum inebrians** (Hance) Keng. *Rast. Tsentral. Azii* 4: 40 (1968).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Stipa inebrians* Hance, *Journ. Bot.* 14: 212 (1876). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China, Alachan Mts.: Hance 19204 (BM holo, K, LE).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 290).

**Derivation** (Clifford & Bostock 2007): *L. inebrio*, intoxicate. When grazed by cattle in Mongolia they exhibit symptoms of intoxication.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–60 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, truncate. Leaf-blades involute, 20 cm long, 4–6 mm wide. Leaf-blade surface ribbed, scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 12–18 cm long. Primary panicle branches 2.5–5 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 5 mm long, membranous, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3 mm long, coriaceous, dark brown, without keel, 3 -veined, 0–3 -veined. Lemma surface pilose, with conspicuous apical hairs. Lemma margins convolute, covering most of palea. Lemma apex pubescent, awned, 1 -awned. Principal lemma awn geniculate, 10 mm long overall, with twisted column. Column of lemma awn puberulous. Palea 1 -veined, without keels.

**Flower and Fruit.** Anthers 3, anther tip penicillate. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China and Mongolia. China South Central, Inner Mongolia, China North-Central, Qinghai, Tibet, Xinjiang. Mongolia.

**Achnatherum jacquemontii** (Jaubert & Spach) P.C. Kuo & S. L. Lu.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Stipa*).

**Basionym or Replaced Name:** *Stipa jacquemontii* Jaub. & Spach, *Illustr.* 4: 60. (1851).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 281).

**Derivation** (Clifford & Bostock 2007): In honor of Victor Jacquemont (1801–1832) French naturalist and traveller.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 30–90 cm long. Ligule an eciliate membrane, 0.2–0.4 mm long. Leaf-blades filiform, involute, 10–20 cm long, 1–2 mm wide, stiff, glaucous. Leaf-blade surface puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 6–16 cm long, 2 cm wide. Primary panicle branches ascending, 2–3 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3–0.4 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate or elliptic, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume lanceolate or elliptic, 5–7 mm long, membranous, without keels, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, subterete, 4.3–5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn bigenulate, 35 mm long overall, with twisted column. Column of lemma awn 15 mm long, puberulous. Palea 2 -veined, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **Western Asia** and **China.** Afghanistan. Tibet. **Indian Subcontinent.** Eastern Himalaya, Pakistan, West Himalaya.

**Achnatherum latiglume** (Swallen) M.E. Barkworth. *Phytologia*, 74(1): 8 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa latiglumis* Swallen, *Journal of the Washington Academy of Sciences* 23(4): 198, f. 1. 1933. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. Abrams 4469*, 22 Jun 1911, USA: California (US-992334).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (126).

**Derivation** (Clifford & Bostock 2007): *L. latus*, broad; gluma, husk. Glumes broad.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, slender, 50–110 cm long. Culm-internodes distally pubescent. Leaf-sheaths pubescent. Ligule an eciliate membrane, 1–4 mm long. Leaf-blades flat or involute, 1–2 mm wide. Leaf-blade surface pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 15–30 cm long. Primary panicle branches distant, 5–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 13–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, without keels, 3 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 25–40 mm long, membranous, purple, without keels, 3 -veined. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 8–9 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigenulate, 35–45 mm long overall, with twisted column. Column of lemma awn ciliate. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** **Southwestern USA.** California.

**Achnatherum lemmonii** (Vasey) M.E. Barkworth. *Phytologia*, 74(1): 8 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa pringlei* var. *lemmonii* Vasey, *Contrib. US Nat. Herb.* 3:55 (1892). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J.G. Lemmon 5456*, May 1889, USA: California: Plumas Co.: Mohawk Valley (US).

**Recent Synonyms:** *Stipa lemmonii* (Vasey) Scribn., *U.S. Dept. Agric Div. Agrost. Circ.*, 30: 3 (1901). *Stipa columbiana* Macoun, *Catal. Canad. Pl.* 4: 191 (1888).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (126 as subsp. *lemmonii* and subsp. *pubescens*).

**Derivation** (Clifford & Bostock 2007): in honor of John Gill Lemmon (1832–1908) United States forester and botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–70 cm long. Culm-internodes scaberulous. Leaf-sheaths glabrous on surface to hirsute. Ligule an eciliate membrane, 1–2.2 mm long, entire or erose, obtuse. Leaf-blades involute, 10–20 cm long, 1.5–2.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 4–15 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 7–12 mm long, hyaline, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5–7.5 mm long, 1.2 mm wide, coriaceous, light brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex emarginate, awned, 1 -awned. Principal lemma awn bigeniculate, 18–29 mm long overall, with twisted column, limb glabrous or puberulous. Middle segment of lemma awn pubescent. Column of lemma awn pubescent, with 0.5 mm long hairs. Palea 0.66 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, 1.5 mm long. Anthers 3, 3–3.5 mm long, purple. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Western Canada, Northwest USA, Southwestern USA. British Columbia. Idaho, Oregon, Washington, Wyoming. California, Nevada.

**Achnatherum lettermanii** (Vasey) M.E. Barkworth. *Phytologia*, 74(1): 9 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa lettermanii* Vasey, *Bull. Torrey Bot. Club.* 13: 53. (1881). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *G.W. Letterman 102*, Aug 1885, USA: Idaho: Snake River (US-556904). LT designated by A. S. Hitchcock, *Manual. Grass. US* ed. 1, 964 (1935) as to the collection no. 102. Barkworth & Maze identified the US specimen number, *Taxon* 31(2): p. 294 f. 6 (1982).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (119).

**Derivation** (Clifford & Bostock 2007): in honor of George Washington Letterman (1841–1913), United States teacher and botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 20–60 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.3–0.8 mm long, truncate. Collar glabrous. Leaf-blades filiform, involute, 1–1.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–15 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–1 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 6–9 mm long, hyaline, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 4.5–6 mm long, 1 mm wide, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 1 -awned. Principal lemma awn bigeniculate, 15–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 3.5 mm long, 0.66–0.75 length of lemma, 2 -veined, without keels. Palea surface pubescent.

**Flower and Fruit.** Lodicules 2, 1.5 mm long. Anthers 3, 2.5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA, South-central USA. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Arizona, California, Nevada, Utah. New Mexico, Texas.

**Achnatherum lobatum** (Swallen) M.E. Barkworth. *Phytologia*, 74(1): 9 (1993).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa lobata* Swallen, *J. Wash. Acad. Sci.* 23:199 (1933). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 13502, 3–6 Sep 1915, USA: New Mexico: Guadalupe Co.: Queen, Guadalupe Mountains (US-905722, IT: L).

*Stipa robusta* (Vasey) Scribn. **Illustrations (Books):** M.E. Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (130).

**Derivation** (Clifford & Bostock 2007): L. lobus, lobe; -ata, possessing. Lemma lobed.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 40–100 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.2–0.5 mm long. Leaf-blades flat or conduplicate, 25–50 cm long, 1–4 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle scaberulous above. Panicle contracted, linear, 15–25 cm long, 1–1.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–15 mm long, 1.2–1.3 length of upper glume, hyaline, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 7–12 mm long, 1–1.5 length of adjacent fertile lemma, hyaline, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 7–8 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy all along. Lemma margins convolute, covering most of palea. Lemma hairs 1.5–2 mm long. Lemma apex dentate, 2 -fid, with lobes 0.7–1.5 mm long, awned, 1 -awned. Principal lemma awn from a sinus, geniculate or bigeniculate, 10–20 mm long overall, with a straight or slightly twisted column. Column of lemma awn hispidulous. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA, South-central USA. Arizona. New Mexico, Texas.

**Achnatherum mongholicum** (Turcz. ex Trin.) Ohwi. *Journal of Japanese Botany* 17(7): 403 (1941).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Stipa*).

**TYPE** from Mongolia. **Basionym or Replaced Name:** *Stipa mongholica* Turcz. ex Trin., *Bull. Sc. Acad. Petersb.* 1: 67. (1836). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Turcz. ined."; "... transbaical.", (US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Mongolia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 15–60 cm long. Culm-internodes mid-green or purple, distally glabrous. Leaves basal and cauline. Leaf-sheaths mostly shorter than adjacent culm internode, scaberulous, glabrous on surface. Ligule an eciliate membrane, obtuse. Leaf-blades filiform, 1–2 mm wide. Leaf-blade venation with 3–7 secondary veins. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle, comprising 8–20 fertile spikelets. Panicle open, ovate, 5–15 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.2–0.8 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, subequal in width, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, hyaline, pallid or purple. Lower glume apex acute. Upper glume lanceolate, 4.5–6.5 mm long, hyaline, pallid or purple, without keels. Upper glume apex acute.

**Florets.** Fertile lemma linear to lanceolate, subterete, 3.3–5.3 mm long, coriaceous, dark brown, without keel, 3 -veined, 0–3 -veined. Lemma surface puberulous, hairy below, hairy on veins. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, bigenulate, 15–30 mm long overall, with twisted column, limb plumose. Middle segment of lemma awn plumose. Column of lemma awn plumose. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3, anther tip smooth or pubescent. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

$2n = 22$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** Siberia, **Middle Asia, China, Mongolia, Eastern Asia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva, Yakutiya. Kazakhstan, Kirgizistan, Tadzhikistan. China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, Tibet, Xinjiang. Mongolia. Korea. **Indian Subcontinent.** Eastern Himalaya, Nepal, West Himalaya.

**Achnatherum multinode** (Scribn. ex Beal) Valdis-Reyna & Barkworth. *Contributions from the United States National Herbarium* 48: 17 (2003).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa multinodis* Scribn. ex Beal, *Grasses N. Amer.* 2: 222 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: C.G. Pringle 385, 14 Aug 1885, Mexico: Chihuahua: Santa Eulalia Mountains (MSC; IT: MO-3055693, MO-5114652, US-825176, US-155154, US-90985).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. multus*, many; *nodus*, knot. Culms many-noded.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 60–100 cm long, wiry, 4–6 -noded. Culm-internodes distally glabrous. Lateral branches sparse, arising from mid culm. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades flat or involute, 10–30 cm long, 1–3 mm wide, stiff. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–20 cm long. Primary panicle branches appressed or ascending, distant, 2–6 cm long. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent (tawny), acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, hyaline, pallid, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 25–40 mm long, hyaline, pallid, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5 mm long, coriaceous, pallid, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white or tawny. Lemma apex awned, 1 -awned. Principal lemma awn bigenulate, 25–30 mm long overall, with twisted column. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Northeast Mexico.

**TDWG4.** Chihuahua, Zacatecas.



**Achnatherum nakaii** (Honda) Tateoka. J. Jap. Bot. 30:208 (1955).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Stipa*).

**TYPE** from China. **Basionym or Replaced Name:** *Stipa nakaii* Honda, *Rep. First Sc. Exped. Manchoukuo, Sect. IV. 4 (Index Fl. Jehol.)* 104 (1936). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Manchuria, Chao-yang: Nakai, Honda & Kitagawa.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 289).

**Derivation** (Clifford & Bostock 2007): in honor of Takenoshin Nakai (1822–1952) Japanese botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Butt sheaths pubescent. Culms erect, 60 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths longer than adjacent culm internode, pubescent (below). Ligule an eciliate membrane. Leaf-blades 25–30 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 20–25 cm long. Primary panicle branches appressed, 2-nate. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets. Lower glume lanceolate or oblong, 5.5 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume surface puberulous. Lower glume apex acute. Upper glume lanceolate, 6.5 mm long, membranous, 1-keeled, 3-veined. Upper glume surface puberulous. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong or ovate, subterete, 5 mm long, coriaceous, without keel, 5-veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1-awned. Principal lemma awn geniculate, 12 mm long overall, with twisted column. Palea lanceolate, 4 mm long, 0-veined, without keels. Palea surface puberulous.

**Flower and Fruit.** Anthers 3, 4 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** China and Mongolia. Inner Mongolia, Manchuria, China North-Central. Mongolia.

**TDWG4.** Hebei, Shanxi.

**Achnatherum nelsonii** (Scribn.) M.E. Barkworth. *Phytologia*, 74(1): 9 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa nelsonii* Scribn., *U. S. Dept. Agric. Bull. Agrost.* 9: 46. (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: A. *Nelson 3963*, 9 Aug 1898, USA: Wyoming: Albany Co.: Woods Landing, alt. 2600 m (US-556901).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (124).

**Derivation** (Clifford & Bostock 2007): in honor of Aven Nelson (1859–1952) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–100 cm long. Culm-internodes distally pubescent. Leaf-sheaths pubescent. Ligule an eciliate membrane. Leaf-blades flat or involute, 10–20 cm long, 1–5 mm wide. Leaf-blade surface pubescent.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels. Lower glume apex acuminate. Upper glume lanceolate, hyaline, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7 mm long, coriaceous, without keel, 5-veined, more than 3-veined. Lemma surface pubescent, with conspicuous apical hairs. Lemma margins convolute, covering most of palea. Lemma apex awned, 1-awned. Principal lemma awn bigeniculate, 30–50 mm long overall, with twisted column.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Subarctic America, Western Canada, Northwest USA, North-central USA, Southwestern USA, South-central USA. Yukon. Alberta, British Columbia, Manitoba, Saskatchewan. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Kansas, Nebraska. Arizona, California, Nevada, Utah. New Mexico, Texas.

**Achnatherum nevadense** (B.L. Johnson) M.E. Barkworth. *Phytologia* 74(1): 9 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa nevadensis* B.L.Johnson, *Amer. Journ. Bot.* 49: 257 (1962). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B.L. Johnson 211*, USA: California: Mono Co.: Upper Twin Lake, near Bridgeport (UC).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (120).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Nevada, USA.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial (tufted), caespitose, clumped densely. Culms 40–90 cm long. Culm-internodes antrorsely scabrous, distally glabrous. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades filiform, flat or involute, 10–25 cm long, 1–3 mm wide. Leaf-blade surface puberulous (above).

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–25 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 7–10 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–10 mm long, 1 length of upper glume, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 7–10 mm long, hyaline, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5–6.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface villous. Lemma margins convolute, covering most of palea. Lemma hairs 1.5 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn bigeniculate, 20–35 mm long overall, with twisted column, limb plumose (first and second segment), with 0.5–1.5 mm long hairs. Column of lemma awn glabrous. Palea 0.5 length of lemma, 2 -veined, without keels. Palea surface pubescent.

**Flower and Fruit.** Lodicules 2. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA. Oregon, Washington. Arizona, California, Nevada, Utah.

**Achnatherum occidentale** (Thurb.) M.E. Barkworth. *Phytologia* 74(1): 10 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa occidentalis* Thurb. ex S. Wats., *Bot. King's Exp.* 380. (1871). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *H.N. Bolander 5038*, 1860, USA: California: Yosemite Trail (GH; ILT: US- (fragm. ex GH & photo), US-745821, US-992306, US-344178). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 24(7): 242 (1925).

**Recent Synonyms:** *Stipa elmeri* Piper & Brodie, *U. S. Dept. Agric. Agrost. Bull. No.* 11, 46 (1898).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (122 as subsp. *californicum*, *occidentale* and *pubescens*).

**Derivation** (Clifford & Bostock 2007): L. *occident*, west; *-ale*, pertaining to. From the western states of the United States.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 80–120 cm long. Culm-internodes distally glabrous or pubescent. Leaf-sheaths glabrous on surface to pubescent. Ligule an eciliate membrane, 0.5–1 mm long, entire or erose, truncate. Leaf-blades filiform or linear, flat or involute, 10–20 cm long, 1–5 mm wide. Leaf-blade surface glabrous or puberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1–1.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 7–15 mm long, hyaline, without keels, 3–7 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5–8 mm long, coriaceous, light brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, with conspicuous apical hairs. Lemma margins convolute, covering most of palea. Lemma hairs 0.5–1.5 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn bigeniculate, 15–50 mm long overall, with twisted column. Middle segment of lemma awn glabrous or hirtellous. Column of lemma awn glabrous or hirtellous, with 1 mm long hairs. Palea 2–3.5 mm long, 0.33–0.5 length of lemma, 2 -veined, without keels. Palea surface pubescent.

**Flower and Fruit.** Lodicules 3, 1.5 mm long. Anthers 3, 2.5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Western Canada, Northwest USA, Southwestern USA. Alberta, British Columbia. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. California, Nevada, Utah.

**Achnatherum ordubadense** Tzvelev. *Bot. Zhurn.* 78(10): 93 (1993).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*).

**TYPE** from Russia. **Basionym or Replaced Name:** *Stipa ordubadensis* (Tzvelev) FORSAN (2003). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Azerbaijan, Ordubad: Czerepanov, *Egorova & Tzvelev 426* (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ense*, deniting origin. From Ordubad, Azerbaijan.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 30–60 cm long. Ligule an eciliate membrane. Leaf-blades flat or convolute, 10–20 cm long, 0.5–2 mm wide. Leaf-blade surface ribbed, grooved abaxially, scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 15–25 cm long. Panicle branches capillary, flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4.2–5.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels. Lower glume surface smooth, glabrous. Lower glume apex acute or acuminate. Upper glume elliptic, 4.2–6.5 mm long, membranous, without keels. Upper glume surface smooth, glabrous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma elliptic, 2.3–3.2 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn curved, 11–15 mm long overall, with a straight or slightly twisted column, deciduous. Column of lemma awn 3–5 mm long. Palea 2 -veined, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Caucasus. Transcaucasus.

**Achnatherum parishii** (Vasey) M.E. Barkworth. *Phytologia* 74(1): 11 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa parishii* Vasey in *Coult. Bot. Gaz.* vii. 33. (1882). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *S.B. Parish & W.F. Parish 1079*, Aug 1881, USA: California: San Bernardino Co.: San Bernardino Mountains (US-556918; ILT: US-556918). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 24(7): 227 (1925); specimen annotated by M.E. Barkworth in 1993 as a lectotype.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (128 as subsp. *parishii* & subsp. *depauperatum*).

**Derivation** (Clifford & Bostock 2007): in honor of Samuel Bonsall Parish (1838–1928) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–45 cm long. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane. Leaf-blades conduplicate or involute, 7–15 cm long, stiff.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 15 cm long. Primary panicle branches 1–3 -nate, 5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 12–14 mm long, 1.1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 10–12 mm long, hyaline, without keels, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, subterete, 6–8 mm long, coriaceous, light brown, without keel, 5 -veined, more than 3-veined. Lemma surface villous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 1 -awned. Principal lemma awn bigenulate, 18 mm long overall, with twisted column.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** **Southwestern USA** and **Mexico.** Arizona, California, Nevada, Utah. Northeast Mexico.

Coahuila, Neuvo Leon.

**Achnatherum pekinense** (Hance) Ohwi. *Bull. Nat. Sci. Mus., Tokyo*, No. 33, 66 (1953).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from China. **Basionym or Replaced Name:** *Stipa pekinensis* Hance, *Journ. Bot.* 15: 268 (1877). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Peking: *Williams 13831*.

**Recent Synonyms:** *Achnatherum extremiorientale* (H. Hara) Keng, *Fl. Ill. Pl. Prim. Sin., Gram.* 590, f. 524 (1959).

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (208, Fig 74), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 291).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Peking, now Beijing, China.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Butt sheaths persistent and investing base of culm. Culms erect, 70–150 cm long, 2.5–4 mm diam., 3–4 -noded. Leaf-sheaths loose. Ligule an eciliate membrane, 0.5–1 mm long, erose, truncate. Leaf-blades involute, 30–60 cm long, 7–15 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially, glabrous or pubescent, hairy adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic or ovate, loose or effuse, 15–40 cm long, 2–4 cm wide. Primary panicle branches 2–6 -nate, 4–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface glabrous to pubescent. Lower glume apex acute. Upper glume lanceolate, 8–11 mm long, membranous, without keels, 3 -veined. Upper glume surface glabrous to pubescent. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma lanceolate, subterete, 6–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins convergent above. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–25 mm long overall, with twisted column. Palea 5 mm long, 2 -veined, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Anthers 3, 4–6 mm long, anther tip penicillate. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, 4–5 mm long. Hilum linear.

$2n = 24$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, Russian far east, **China, Eastern Asia.** Buryatiya, Chita, Irkutsk. Kuril Is. China South Central, Inner Mongolia, Manchuria, China North-Central, China Southeast. Japan, Korea. Japan Hokkaido, or Honshu.

**TDWG4.** Gansu, Hebei, Shaanxi, Shandong, Shanxi. Anhui, Henan. Yunnan.

**Achnatherum perplexum** P.S. Hoge & M.E. Barkworth. *Phytologia* 74(1): 11 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa perplexa* (Hoge & Barkworth) J.K. Wipff & S.D. Jones. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M.E. Barkworth 4764*, 8 Sep 1985, USA: New Mexico: Bernalillo Co. (US-3239133).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (134).

**Derivation** (Clifford & Bostock 2007): L. possessing the characters of two related species.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms erect, 30–70 cm long. Culm-internodes smooth or scaberulous, distally glabrous. Leaf-sheaths longer than adjacent culm internode, smooth or scaberulous, glabrous on surface, outer margin glabrous or hairy. Ligule a ciliate membrane, 0.3–0.8 mm long. Leaf-blades 1–3 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 6–20 cm long, 1–2 cm wide. Primary panicle branches ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–0.85 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–14 mm long, 1.2–1.4 length of upper glume, hyaline, without keels, 3–5 -veined. Lower glume surface scabrous. Lower glume apex acuminate. Upper glume lanceolate, 7.5–10 mm long, 1.5–1.7 length of adjacent fertile lemma, hyaline, without keels, 3–5 -veined. Upper glume surface scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 4.5–6.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy all along. Lemma margins convolute, covering most of palea. Lemma hairs 0.5–1.8 mm long. Lemma apex dentate, 2 -fid, with lobes 0.15–0.45 mm long, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–20 mm long overall, with a straight or slightly twisted column. Palea 2.5–3.75 mm long, without keels.

**Flower and Fruit.** Anthers 3, 2.25–4.2 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA, South-central USA. Colorado. Arizona, Utah. New Mexico.

**Achnatherum petriei** (Buchanan) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 582 (1996).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Stipa petriei* Buchanan, *Man. Indig. Grasses, N. Zeal.* t. 172. f. 2 (1880). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Buchanan folio*, New Zealand (WELT-59622).

*Stipa setacea*. **Illustrations (Books):** T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (105, Fig. 17 as *Stipa setacea*).

**Derivation** (Clifford & Bostock 2007): in honor of Donald Petrie (1846–1925) Scots-born New Zealand educationist and amateur botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Basal innovations extravaginal. Culms erect, 30–60 cm long, wiry. Culm-internodes smooth. Culm-nodes purple, glabrous. Lateral branches lacking or sparse. Leaf-sheaths 1–3 cm long, glabrous on surface or pubescent, with reflexed hairs. Leaf-sheath oral hairs lacking or pubescent.

Leaf-sheath auricles erect, 0.5–1 mm long. Ligule an eciliate membrane, 0.3–0.5 mm long. Leaf-blades aciculate, involute, 15–30 cm long, 0.8 mm wide, stiff. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 15–25 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.1–0.3 mm long, pilose, disarticulating obliquely. Floret callus hairs 1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 5–7 mm long, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 5–7 mm long, hyaline, without keels, 3 -veined. Upper glume lateral veins obscure. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 3–5 mm long, coriaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface pubescent. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 30–40 mm long overall, with a straight or slightly twisted column. Column of lemma awn 5–10 mm long, puberulous. Palea 1 length of lemma, 2 -veined. Palea keels contiguous above a sulcus. Palea surface pilose, hairy on back, hairy above.

**Flower and Fruit.** Lodicules 3, 0.5–1 mm long. Anthers 3, 1.7 mm long, eventually exerted, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 2.5–3.5 mm long. Hilum linear.

Cleistogenes absent.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand South I.

### **Achnatherum pinetorum** (M.E. Jones) M.E. Barkworth. *Phytologia* 74(1): 12 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa pinetorum* M. E. Jones, *Proc. Calif. Acad. Ser.* 2:5 : 724. (1895). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *M.E. Jones 6023*, USA: Utah: Panguitch Lake (US-236788). LT designated (as NT) by Barkworth, *Phytologia* 74: 12 (1993).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (136).

**Derivation** (Clifford & Bostock 2007): L. of the pines. Growing in pine woods.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–30 cm long. Leaves mostly basal. Leaf-sheaths glabrous on surface or puberulous, with reflexed hairs. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades erect, flexuous, filiform, involute, 3–12 cm long, 2.5 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 1 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume linear, 10 mm long, hyaline, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface villous. Lemma margins convolute, covering most of palea. Lemma hairs 1.5–2 mm long. Lemma apex dentate, 2 -fid, with lobes 1–1.5 mm long, acute, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 0.8 length of lemma, 2 -veined, without keels. Palea surface villous.

**Flower and Fruit.** Lodicules 3, 1.5 mm long. Anthers 3, 2 mm long, purple. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA. Idaho, Wyoming. Arizona, California, Nevada, Utah.

**Achnatherum psilanthrum** Keng ex Tzvelev. *Akad. Nauk SSSR Bot. Inst. Komarova. Rast. Tsentral. Azii, Fasc. 4, 4* (1968).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Stipa*), S-L Chen et al, *Flora of China 22* (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China, Labrang: Anon 5892.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *psilos*, bare; *antheros*, blooming. Lemma awns smooth.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect, 40–60 cm long, 1–1.5 mm diam., 2–3 -noded. Leaf-sheaths mostly shorter than adjacent culm internode, smooth. Ligule an eciliate membrane, 0.5 mm long, scarious, entire or erose, truncate. Leaf-blades filiform, involute, 8–12 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–12 cm long, 1 cm wide. Primary panicle branches ascending, 1–2.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus 0.3 mm long, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets. Lower glume lanceolate, 6 mm long, 0.9 length of upper glume, membranous, purple, 1-keeled, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 6 mm long, membranous, purple, 1-keeled, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 4 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins meeting above. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 2 -veined, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Anthers 3, 2 mm long, anther tip smooth. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** China. China South Central, China North-Central, Qinghai. Gansu. Sichuan.

**Achnatherum pubicalyx** Ohwi. *Fl. Tsinling*. 1(1): 153 (1976).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China 22* (Poaceae) (2006) (as *Stipa*).

**TYPE** from Korea. **Basionym or Replaced Name:** *Stipa pubicalyx* Ohwi, *Journ. Jap. Bot.* 17: 401 (1941). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Korea, Mutoho: Cho 58.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 288).

**Derivation** (Clifford & Bostock 2007): L. *pubes*, hair of adulthood; Gk *kalyx*, cup. Glumes hairy.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Cataphylls evident. Culms erect, 60–100 cm long, 3–4 -noded. Leaf-sheaths longer than adjacent culm internode, antrorsely scabrous. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades 20–40 cm long, 3–5 mm wide. Leaf-blade surface scabrous, rough abaxially, pubescent, densely hairy, hairy adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle open, elliptic or ovate, 15–25 cm long. Primary panicle branches ascending, 2–4 -nate, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.8 mm long, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface puberulous. Lower glume apex obtuse or acute. Upper glume lanceolate, 8–9 mm long, membranous, without keels, 3 -veined. Upper glume surface puberulous. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma lanceolate, subterete, 6–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma apex emarginate, awned, 1 -awned. Principal lemma awn geniculate, 10–25 mm long overall, with twisted column, persistent. Column of lemma awn hispidulous. Palea without keels.

**Flower and Fruit.** Anthers 3, 4–5 mm long, anther tip penicillate. Stigmas 2.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China, Mongolia. Inner Mongolia, Manchuria, China North-Central, Qinghai, Xinjiang, Mongolia.  
Henan, Sichuan, Yunnan.

**Achnatherum richardsonii** (Link) M.E. Barkworth. *Phytologia* 74(1): 12 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Canada. **Basionym or Replaced Name:** *Stipa richardsonii* Link, *Hort. Berol.* 2 : 245. (1833). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Cultivated in Hortus Berolensis from seed sent by Richardson (B (destroyed); IT: LE-TRIN-1436.01 (fragm. ex B)).

**Illustrations (Books):** K.F.Best, et al, *Prairie Grasses* (1971) (229 as *Stipa*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (132).

**Derivation** (Clifford & Bostock 2007): in honor of John Richardson (1787–1865) English physician, naturalist and Arctic explorer.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40–100 cm long. Leaves mostly basal. Leaf-sheaths glabrous on surface or puberulous. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades conduplicate or involute, 15–25 cm long, 1.5–3 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 7–20 cm long. Primary panicle branches spreading or drooping. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–10 mm long, 1.3 length of upper glume, membranous, without keels, 5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 6–7.5 mm long, hyaline, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5–6 mm long, coriaceous, light brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 1 -awned. Principal lemma awn bigeniculate, 18–25 mm long overall, with twisted column. Middle segment of lemma awn pubescent. Column of lemma awn hirtellous. Palea 0.5 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 2, 1.5 mm long. Anthers 3, 2 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Western Canada, Northwest USA, North-central USA. Alberta, British Columbia, Manitoba, Saskatchewan. Colorado, Montana, Washington, Wyoming. South Dakota.

**Achnatherum robustum** (Vasey) M.E. Barkworth. *Phytologia* 74(1): 12 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa robusta* (Vasey) Scribn., *US Dept. Agric., Div. Agrost. Bull.* 5:23 (1897). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: CT: *G.R. Vasey s.n.*, 1881, USA: New Mexico (US-993051). see also Barkworth, *Phytologia* 74: 12 (1993); *Taxon* 42: 711 (1993).

**Recent Synonyms:** *Achnatherum lobatum* (Swallen) M.E. Barkworth, *Phytologia*, 74(1): 9 (1993).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (130).

**Derivation** (Clifford & Bostock 2007): *L. robust.* Culms tall, or leaf-blades or spikelets large.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 100–150 cm long, 3–6 mm diam. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5–4 mm long. Collar pubescent. Leaf-blades flat or involute, 30–50 cm long, 5–8 mm wide.



**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 25–50 cm long, 1–2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–13 mm long, 1 length of upper glume, hyaline, without keels, 3–5 -veined. Lower glume apex attenuate. Upper glume lanceolate, 8–13 mm long, 1.3–1.6 length of adjacent fertile lemma, hyaline, without keels, 3–5 -veined. Upper glume apex attenuate.

**Florets.** Fertile lemma linear, subterete, 6–8 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma hairs 1–2 mm long. Lemma apex awned, 1 -awned. Principal lemma awn bigenulate, 20–38 mm long overall, with 12–18 mm long limb, with twisted column. Column of lemma awn glabrous or puberulous. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. North America.

**Country /Province /State.** Northwest USA, Southwestern USA, South-central USA, Mexico. Wyoming, Arizona, California. New Mexico. Northeast Mexico.

Coahuila, Chihuahua, Neuvo Leon, Tamaulipas, Zacatecas.

**Achnatherum saposhnikowii** (Roshev.) Nevski. *Trudy Bot. Inst. Akad. Nauk S.S.S.R., Ser. 1, Fl. Sist. Vyssh. Rast.* 4: 224 (1937).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Stipa*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N. Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Kyrgyzstan. **Basionym or Replaced Name:** *Timouria saposhnikovii* Roshev., *Fl. Aziatsk. Ross.* 12: 174 (1916). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: V. Sapozhnikov & B. Shishk, 8 Aug 1912, Kyrgyzstan: [central Tien Shan] Sary-Jas River near the mouth of Kaında (LE; IT: LE).

**Recent Synonyms:** *Stipa saposhnikovii* (Roshev.) M. Kitagawa, *Rep. Inst. Sci. Res. Manchoukuo*, 6(4): 118: (1942).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 258).

**Derivation** (Clifford & Bostock 2007): in honor of Vasili Vasilievic Sapozhnikov (1861–1924) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls inconspicuous. Rhizomes short. Culms erect, 20–60 cm long. Culm-internodes distally glabrous. Leaves basal and cauline. Leaf-sheaths mostly shorter than adjacent culm internode. Ligule an ciliate membrane, 0.2–0.7 mm long on basal shoots. Leaf-blades filiform, flat or convolute, 1–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 2.5–4.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, obtuse.

**Glumes.** Glumes persistent, similar, subequal in width, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 4–5.5 mm long, membranous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 2.6–3.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 2.5–4 mm long overall, without a column, deciduous. Palea 2 -veined, without keels. Palea surface pubescent.

**Flower and Fruit.** Lodicules 3. Anthers 3, anther tip smooth. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** Middle Asia, China, Mongolia. Kazakhstan, Kirgizistan, Uzbekistan. Inner Mongolia, China North-Central, Qinghai, Xinjiang. Mongolia.

**TDWG4.** Gansu.

**Achnatherum scribneri** (Vasey) M.E. Barkworth. *Phytologia* 74(1): 13 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa scribneri* Vasey, *Bull. Torrey Bot. Club*, 11 :125. (1884). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *G.R. Vasey s.n.*, Aug 1884, USA: New Mexico: Santa Fe Co.: Santa Fe (US-556905; ILT: US-84603). Specimen annotated by M.E. Barkworth in 1993 as a lectotype..

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (134).

**Derivation** (Clifford & Bostock 2007): in honor of Frank Lamson Scribner (1851–1938) United States agrostologist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 30–70 cm long. Culm-internodes distally glabrous or pubescent. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades flat, 15–25 cm long, 2–4 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, dense, 10–25 cm long. Primary panicle branches appressed, 1–5 cm long. Panicle branches pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent (tawny), acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, pallid, without keels, 3 -veined. Lower glume surface asperulous. Lower glume apex attenuate. Upper glume lanceolate, 10–15 mm long, membranous, pallid, without keels, 3 -veined. Upper glume surface asperulous. Upper glume apex attenuate.

**Florets.** Fertile lemma lanceolate, subterete, 8 mm long, coriaceous, pallid, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent or pilose (longer above). Lemma margins convolute, covering most of palea. Lemma hairs white, 1–2 mm long. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 14–20 mm long overall, with twisted column. Middle segment of lemma awn 3–5 mm long. Column of lemma awn 3–5 mm long, glabrous. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, North-central USA, South-central USA. Colorado. Oklahoma. New Mexico.

**Achnatherum sibiricum** (L.) Keng. *Claves Gen. & Spec. Gramin. Sinic.* 212 (1957).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Stipa sibirica*).

**TYPE** from Russia. **Basionym or Replaced Name:** *Stipa sibirica* (L.) Lam., *Illustr.* i. 158. (1791). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: (LINN-95.11). LT designated by Scholz in Cafferty et al., *Taxon* 49(2): 248 (2000).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 287).

**Derivation** (Clifford & Bostock 2007): L. *-ica*, belonging to. From Siberia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Rhizomes short. Culms 60–150 cm long. Ligule an eciliate membrane, 0.4–0.9 mm long. Leaf-blades flat, 20–40 cm long, 3.5–8(–12) mm wide. Leaf-blade surface scaberulous or scabrous, rough on both sides, puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, nodding, 10–40 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7.5–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident or elongated, 0.5–1 mm long, pubescent, obtuse or acute or pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate or elliptic, 1 length of upper glume, membranous, pallid or mid-green, without keels, 3 -veined.

Lower glume apex acute. Upper glume lanceolate or elliptic, 7.5–10 mm long, 1.2 length of adjacent fertile lemma, membranous, pallid or mid-green, without keels, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, subterete, 6–8 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent, hairy all along. Lemma margins convolute, covering most of palea. Lemma apex surmounted by a ring of hairs, awned, 1 -awned. Principal lemma awn bigeniculate, 13–20 mm long overall, with twisted column. Column of lemma awn puberulous, with 0.2 mm long hairs. Palea 2 -veined, without keels.

**Flower and Fruit.** Anthers 3, anther tip penicillate. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

$2n = 24$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Kazakhstan, Kirgizistan, Uzbekistan. Iran. China South Central, Inner Mongolia, Manchuria, Qinghai, China Southeast, Tibet, Xinjiang. Mongolia. **Indian Subcontinent.** Pakistan.

**TDWG4.** Henan. Sichuan, Yunnan.

**Achnatherum splendens** (Trin.) Nevski. *Acta Inst. Bot. Acad. Sci. URSS*, Ser. 1, Fasc. 4, 224 (1937), in obs. ; Ohwi in *Journ. Jap. Bot.* xvii. 404 (1941).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Stipa*), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. **Basionym or Replaced Name:** *Stipa splendens* Trin., *Spreng. Neue Entdeck.* 2 : 54. (1821). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Hab. in transbaicalensibus Sibiriae.",.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (119), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 282).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): L. shining. Lemmas glossy.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms robust, 50–250 cm long. Ligule an eciliate membrane, 2.5–10 mm long. Leaf-blades flat or involute, 20–45 cm long, 4–10 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, dense or loose, 15–50 cm long, 10–35 cm wide. Primary panicle branches whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 4–4.5 mm long, 0.7–0.8 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 5–6 mm long, membranous, without keels, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, subterete, 4.8–5.7 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, with lobes 0.5–1.3 mm long, awned, 1 -awned. Principal lemma awn straight or geniculate, 6–12 mm long overall, with a straight or slightly twisted column. Palea 2 -veined, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Tropical Asia.

**Region.** Eastern Europe.

**Country /Province /State.** Central European Russia, East European Russia, North European Russia, South European Russia. Siberia, **Middle Asia, Western Asia, China, Mongolia, Russia.** Buryatiya, Chita, Irkutsk, Tuva. Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Afghanistan, Iran. Inner Mongolia, Manchuria, China North-Central, Qinghai, China Southeast, Tibet, Xinjiang. Mongolia. **Indian Subcontinent.** India, Pakistan.

**TDWG4.** Gansu, Shanxi. Henan. Sichuan, Yunnan. Himachal Pradesh, Jammu Kashmir, Uttaranchal.

**Achnatherum stillmanii** (Bol.) M.E. Barkworth. *Phytologia* 74(1): 14 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa stillmanii* Boland., *Proc. Calif Acad.* 4 :169. (1870). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.N. Bolander s.n.*, Jul 1870, USA: California: Sierra Nevada, Blue Canyon (NY; IT: US-556922).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (119).

**Derivation** (Clifford & Bostock 2007): in honor of Jacob Davis Babcock Stillman (1819–1888), American physician and amateur botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 70–100 cm long, 4–5 -noded. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades 15–30 cm long, 3–6 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, interrupted, 10–20 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate, awned, 1 -awned, awn 2–3 mm long. Upper glume lanceolate, 15–28 mm long, membranous, without keels, 3–5 -veined. Upper glume surface asperulous. Upper glume apex acuminate, awned, 1 -awned, awn 2–3 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8 mm long, coriaceous, pallid, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex lobed, 2 -fid, with lobes 2–3 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigenulate, 25–30 mm long overall, with twisted column. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA. California.

**Achnatherum swallenii** (C.L. Hitchc. & Spellb.) M.E. Barkworth. *Phytologia* 74(1): 14 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Oryzopsis*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Oryzopsis swallenii* C.L.Hitchcock & Spellberg, *Brittonia*, 20: 164 (1968). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.L. Hitchcock* 23868, 7 Jul 1965, USA: Idaho: Clark Co.: just N of Birch Creek, along Hwy. 28, near the Lemhi Co. line (WTU-227273; IT: TEX, US-3465271).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (136).

**Derivation** (Clifford & Bostock 2007): in honor of Jason Richard Swallen (1903–1991) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA. Idaho, Wyoming.

**Achnatherum thurberianum** (Piper) M.E. Barkworth. *Phytologia* 74(1): 14 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa thurberianum* Piper, *U. S. Dept. Agric. Circ. Agrost.* 27 : 10 (1900). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Pickering & Brackenridge s.n.*, USA: Washington: N branch of the Columbia and Okanogan (?; IT: US-556917).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (126).

**Derivation** (Clifford & Bostock 2007): in honor of George Thurber (1821–90) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 30–70 cm long. Culm-nodes pubescent. Leaf-sheaths glabrous on surface to hirsute. Ligule an eciliate membrane, 2–5 mm long, scaberulous on abaxial surface, lacerate, truncate or acute. Leaf-blades filiform, involute, 10–15 cm long, 1–2.2 mm wide. Leaf-blade surface scabrous, rough abaxially, pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 7–13 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1–1.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 9–14 mm long, hyaline, much thinner above, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7–9 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy all along. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 1 -awned. Principal lemma awn bigeniculate, 40–50 mm long overall, with twisted column. Middle segment of lemma awn 10 mm long, hirsute. Column of lemma awn 10 mm long, hirsute, with 1–2 mm long hairs. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, 2 mm long. Anthers 3, 3–4 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA. Idaho, Oregon, Washington. Arizona, California, Nevada, Utah.

**Achnatherum wallowaensis** J. Maze & K. Robson. *Madroqo* 43(3): 401, f. 1–2. 1996.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Oryzopsis*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa wallowaensis*. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Oregon: Wallowa Co.: Wallowa-Whitman National Forest, Ca. 34 km N of Enterprise, near Boner Gulch along FS road 46, 45: 43' 41.16" N, 117: 08' 10.32" W (SW 1/4 of SE 1/4, sect 24 T3N, R45E), 1481 m, 26 Jun 1993, J. Maze, E. Maze, K.A. Robson & T. Henn 1007 (HT: US; IT: COLO, DAV, ID, NMC, OCS, UBC, UC, UTC, WTU).

**Recent Synonyms:** *Oryzopsis wallowensis* (Maze & Robson) FORSAN.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (138 as *A. wallowaense*).

**Derivation** (Clifford & Bostock 2007): *L. ense*, denoting origin. From Wallawa Mountains, Oregon, USA.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 10–45 cm long. Leaf-sheaths glabrous on surface or puberulous. Ligule an eciliate membrane. Leaf-blades erect, involute, 5–10 cm long, 0.5–1 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 6.3–14.8 cm long. Primary panicle branches drooping. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, curved.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, dorsally compressed, 3.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume oblong, 3.5–7 mm long, 1.1 length of upper glume, membranous, without keels. Lower glume apex obtuse or acute. Upper glume oblong, 3–6.5 mm long, 1 length of adjacent fertile lemma, membranous, without keels. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma oblong, dorsally compressed, 3–3.5 mm long, 1–1.5 mm wide, coriaceous, dark brown or black, without keel. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn 8–11 mm long overall, deciduous. Palea 1 length of lemma.

**Flower and Fruit.** Lodicules 3. Anthers 2 mm long, pallid.

**Distribution (TDWG). Continent.** North America.  
**Country /Province /State.** Northwest USA. Idaho, Oregon.

**Achnatherum webberi** (Thurb.) M.E. Barkworth. *Phytologia* 74(1) 14 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Oryzopsis*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Eriocoma webberi* Thurb., *S. Wats. Bot. Calif.* 2: 283 (1880). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Bolander s.n.*, USA: California: Sierra Valley.

**Recent Synonyms:** *Oryzopsis webberi* (Thurb.) Benth. ex Vasey, *Gram. U. St.* 23. (1883).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (136).

**Derivation** (Clifford & Bostock 2007): in honor of David Gould Webber (1809-) United States physician, miner and miller.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 10–30 cm long. Culm-internodes solid. Leaves mostly basal. Ligule an eciliate membrane, 0.3–0.5 mm long, glabrous on abaxial surface. Leaf-blades elliptic, involute, 5–10 cm long, 0.5 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 4–7 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, subterete, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus 0.3 mm long, bearded, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–9 mm long, 1 length of upper glume, membranous, without keels, 5 -veined. Lower glume lateral veins obscure. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 7–9 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume lateral veins obscure. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6–7 mm long, coriaceous, without keel. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, with lobes 0.5–1 mm long, awned, 1 -awned. Principal lemma awn from a sinus, straight or curved, 5–8 mm long overall, deciduous. Palea coriaceous, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, 1.5 mm long. Anthers 1.5 mm long.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA. Oregon. California, Nevada, Utah.

**Achnatherum x bloomeri** (Bol.) Barkworth. *Phytologia* 74(1): 14 (1993).

Not on *GrassBase*.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Stipa x bloomeri* Boland., *Proc. Calif. Acad.* 4 :168 (1870). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *H.N. Bolander 6116*, no date, USA: California: Bloody Canyon near Mono Lake (US-2947421).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (142).

**Derivation** (Clifford & Bostock 2007): in honor of Hiram G. Bloomer (1821–74) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA. California.

**xAchnella caduca** (Beal) M.E. Barkworth. *Phytologia*, 74(1): 15 (1993).

Not on *GrassBase*.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

**TYPE** from USA. **Basionym or Replaced Name:** *Oryzopsis caduca* Beal, *Coult. Bot. Gaz.* 15: 111 (1890). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Montana, Sixteen Mile Creek: Scribner 16 (US iso).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (170).

**Derivation** (Clifford & Bostock 2007): L,dropping off early. Florets or spikelets shed shortly after anthesis.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA. Montana, Wyoming.

### **Aciachne acicularis** S. Laegaard. *Nordic J. Bot.*, 7(6): 669 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. **Basionym or Replaced Name:** *Acamptocladus sessilispicus* (Buckley) Nash. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Renvoize & Cope 4164*, 08 Apr 1981, Bolivia; LaPaz, Murillo: 3800 m (K; IT: MO, U). det. Laegaard, S. 5/1990.

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (95, Fig. 19).

**Derivation** (Clifford & Bostock 2007): L. *acus*, needle; *-ulus*, diminutive; *-are*, pertaining to. Leaf-blades sharp-pointed.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, cushion forming. Culms 1–3 cm long. Lateral branches ample. Ligule an eciliate membrane, 0.7 mm long. Leaf-blades aciculate, conduplicate, 0.4–1 cm long, 0.3–0.4 mm wide, stiff. Leaf-blade venation comprising 3 vascular bundles, with 3 secondary veins. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade apex acute, pungent.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets, shorter than basal leaves. Spikelets solitary.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4–4.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, truncate.

**Glumes.** Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 1.8–2.2 mm long, 1 length of upper glume, coriaceous, without keels, 3–5 -veined. Lower glume apex obtuse. Upper glume ovate, 1.8–2.2 mm long, 0.5 length of adjacent fertile lemma, coriaceous, without keels, 3–5 -veined. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, subterete, 4–4.6 mm long, coriaceous, shiny, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex rostrate. Palea coriaceous, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, membranous, veinless. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America, Western South America. Costa Rica. Venezuela. Bolivia, Colombia, Ecuador, Peru.

**TDWG4.** Catamarca.

### **Aciachne flagellifera** S. Laegaard. *Nordic J. Bot.* 7(6): 669 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ecuador, Paso de la Virgen: Laegaard 53862 (AAU holo, BM, F, G, GH, K, MO, NY, P, S, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *flagellum*, whip; *fero*, bear. Tip of leaf-blade thread-like.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, cushion forming. Culms 1–3 cm long. Lateral branches ample. Ligule an eciliate membrane, 0.7 mm long. Leaf-blades erect or ascending, aciculate, conduplicate, 0.4–1 cm long, 0.3–0.4 mm wide, stiff. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade apex acute, pungent, filiform (1–1.5mm,flexuous), hairy.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets, shorter than basal leaves. Spikelets solitary.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4–4.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, truncate.

**Glumes.** Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 1.8–2.2 mm long, 1 length of upper glume, coriaceous, without keels, 3–5 -veined. Lower glume apex obtuse. Upper glume ovate, 1.8–2.2 mm long, 0.5 length of adjacent fertile lemma, coriaceous, without keels, 3–5 -veined. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, subterete, 4–4.6 mm long, coriaceous, shiny, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex rostrate. Palea coriaceous, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, membranous, veinless. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia, Ecuador.

**Aciachne pulvinata** Benth. *Hook. Ic. Pl.* t. 1362 (1881).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: Jameson 157, May 1844, Ecuador: abundant near Salinas on marshy ground forming a dense mass (K!; ILT: GH, US). LT designated by Laegaard, *Nord. J. Bot.* 7: 667 (1987).

**Illustrations (Books):** S.A.Rennoize, *Gramineas de Bolivia* (1998) (95, Fig. 19), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (199, Fig. 57), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (23, Fig. 1).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.1362 (1881)), *Ruizia* (13:85, Fig.9e-f (1993)).

**Derivation** (Clifford & Bostock 2007): *L. pulvinus*, cushion; -ata, possessing. Habit cushion-like.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, cushion forming. Culms 1–3 cm long. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane, 0.7 mm long. Leaf-blades aciculate, conduplicate, 0.4–1 cm long, stiff. Leaf-blade venation comprising 3 vascular bundles, with continuous uniform subepidermal sclerenchyma layer on the underside. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade apex acute, pungent.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1(–3) fertile spikelets, shorter than basal leaves. Spikelets solitary.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus truncate.

**Glumes.** Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume oblong, 1.5 mm long, 1 length of upper glume, coriaceous, without keels, 3–5 -veined. Lower glume apex obtuse. Upper glume oblong, 1.5 mm long, 0.5 length of adjacent fertile lemma, coriaceous, without keels, 3–5 -veined. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, lanceolate in profile, 3 mm long, coriaceous, shiny, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex rostrate. Palea coriaceous, 2 -veined, without keels. Palea apex emarginate.

**Flower and Fruit.** Lodicules 3, membranous, veinless. Anthers 3.

$2n = 22$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America, Western South America, Southern South America. Costa Rica. Venezuela. Bolivia, Colombia, Ecuador, Peru. Argentina Northwest.

**Acidosasa breviclavata** W.T. Lin. *Bamboo Res.* 1986(2): 27 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Feng-Kai: Xiao 1905 (SCAC holo).

**Recent Synonyms:** *Acidosasa gracilis* W.T. Lin & X.B. Ye, *Acta Phytotax. Sin.* 26(2): 149, f. 4 (1988).



**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–300 cm long, 10–15 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Lateral branches dendroid. Branch complement three. Culm-sheaths present, deciduous, brown and purple, obscurely mottled with last colour, hispid, with appressed hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule ciliolate. Culm-sheath blade lanceolate, 0.5–1 cm long. Leaves 5–6 per branch. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 7–14 cm long, 8–12 mm wide. Leaf-blade venation with 8 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes or comprising only a few spikelets. Racemes 1, single, bearing few fertile spikelets, bearing 2–3 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 20–40 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 5–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or oblong, laterally compressed, 25–35 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–4 mm long.

**Glumes.** Glumes several, 4 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 5 mm long, chartaceous, without keels. Lower glume apex acute. Upper glume ovate, 11 mm long, chartaceous, without keels. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma ovate, 12 mm long, chartaceous, without keel, more than 3-veined. Lemma surface glabrous. Lemma apex acuminate. Palea 10 mm long. Palea keels ciliolate. Palea apex pubescent. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 6, 3 mm long. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China Southeast.

**TDWG4.** Guangdong.

**Acidosasa brilletii** (A. Camus) C.S. Chao & Renvoize. *Kew Bulletin* 44(2): 351 (1989).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Vietnam. **Basionym or Replaced Name:** *Arundinaria brilletii*. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indochina, Tonkin, Yen-lap: Brillet 90.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of F. Brillet, French botanist who collected in Tonkin.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Butt sheaths absent. Culms woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 12–19 cm long, 12–18 mm wide. Leaf-blade venation with 8–10 secondary veins, with distinct cross veins. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–40 mm long.

**Fertile Spikelets.** Spikelets comprising 10–17 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 40–100 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 5–6 mm long, pubescent, hairy at tip.

**Glumes.** Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 5 mm long, chartaceous, without keels, 7–9 -veined. Lower glume margins ciliate. Lower glume apex acute, mucronate. Upper glume lanceolate or ovate, 12 mm long, chartaceous, without keels, 11–13 -veined. Upper glume margins ciliolate. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma oblong or ovate, 15–18 mm long, chartaceous, without keel, 15–19 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex obtuse, mucronate. Palea 11–14 mm long, 2 -veined. Palea keels scaberulous. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 6, anther tip smooth. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Vietnam.

**Acidosasa chienouensis** (T.H. Wen) C.S. Chao & T.H. Wen. *J. Bamboo Res.* 7(1): 31 (1988).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Jianou: Chang & Hua 81607 (ZJFI holo).

**Recent Synonyms:** *Acidosasa glauca* B.M. Yang, *Acta Phytotax. Sin.* 22 (1): 85–86, f. 1 (1984).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 141).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Jianou, Fujian Province, China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Culms erect, 700–1300 cm long, 40–100 mm diam., woody. Culm-internodes terete, thin-walled, 30–48 cm long. Lateral branches dendroid. Branch complement three. Culm-sheaths present, deciduous, 25–30 cm long, with basal lobes, hispid, hairy on margins, auriculate, ciliate on shoulders. Culm-sheath ligule 3.32–4.8 mm high, ciliate. Culm-sheath blade lanceolate, deciduous, spreading, 10–20 cm long, 10–12 mm wide, pubescent. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, deciduous. Ligule a ciliolate membrane, 1.66–2.4 mm long, pubescent on abaxial surface, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–15 cm long, 8–18 mm wide. Leaf-blade venation with 10–12 secondary veins, with distinct cross veins. Leaf-blade margins eglandular, scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes or comprising only a few spikelets. Racemes 1, single, bearing few fertile spikelets, bearing 2–4 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, 15–65 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous. Lower glume apex acute. Upper glume ovate, chartaceous, without keels. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma ovate, 10–13 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acuminate. Palea 9 -veined, 2-keeled but the uppermost without keels. Palea keels ciliolate, adorned above. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, veined. Anthers 6. Stigmas 3. Caryopsis apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China Southeast.

**TDWG4.** Fujian, Hunan.

**Acidosasa chinensis** C.D. Chu & C.S. Chao ex Keng f. *J. Bamboo Res.* 1: 31 (1982).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Hweishan: Liang Kui 69503.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 140).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500–800 cm long, 30–50 mm diam., woody. Culm-internodes terete, thin-walled, 20 cm long, distally glabrous or hispid. Lateral branches dendroid. Branch complement three. Culm-sheaths present, deciduous, brown and purple, obscurely mottled with last colour, hispid, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule ciliolate. Culm-sheath blade lanceolate, 1.5–4.5 cm long. Leaves 2–5 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Leaf-sheath auricles absent. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 11–30 cm long, 20–65 mm wide. Leaf-blade venation with 12–22 secondary veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes or comprising only a few spikelets. Racemes 1, single, 10–26 cm long, bearing few fertile spikelets, bearing 3–5 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 15–40 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 3–18 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile.

Spikelets linear, laterally compressed, 30–100 mm long, 3–6 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 6–7 mm long, glabrous.

**Glumes.** Glumes several, 4 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 3 mm long, chartaceous, without keels, 3 -veined. Lower glume surface glabrous. Lower glume apex acute. Upper glume ovate, 16 mm long, chartaceous, without keels. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma ovate, 22 mm long, 9–10 mm wide, chartaceous, shiny, without keel, 17–19 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface glabrous. Lemma apex acuminate. Palea 12 mm long. Palea keels eciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 5–6 mm long, glabrous. Anthers 6, 5 mm long, yellow. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China Southeast.

**TDWG4.** Guangdong.

**Acidosasa diffusum** Chia. *Flora Hainanica* 4: 538 (1977).

Not on *GrassBase*.

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Qiongzong, *East Hainan Exped.* 703 (HT: SCBI) 15 Nov. 1954.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. diffusus*, widely spreading; -issimus, most. Panicle branches very widely spreading.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** Hainan.

**Acidosasa edulis** (T.H. Wen) T.H. Wen. *J. Bamboo Res.* 7(1): 31 (1988).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Sinobambusa edulis* T.H. Wen, *J. Bamboo Res.*, 3(2): 30 (1984). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Fuzhou: Hua & Xue F83610 (ZJFI holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. edulis*. Young shoots edible.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 1200 cm long, 60 mm diam., woody. Culm-internodes terete, thin-walled, 25–40 cm long, distally glabrous. Lateral branches dendroid. Branch complement three. Culm-sheaths present, hispid, with dark brown hairs, hairy on margins, auriculate, setose on shoulders, shoulders with straight hairs. Culm-sheath ligule 3–4 mm high, ciliate. Culm-sheath blade linear or lanceolate, reflexed, scabrid. Leaves 4–5 per branch. Leaf-sheaths 50–55 cm long, striately veined, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs lacking. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2 mm long, obtuse. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 11–18 cm long, 17–28 mm wide. Leaf-blade venation with 12–14 secondary veins, with distinct cross veins. Leaf-blade surface glabrous, hairless throughout. Leaf-blade apex attenuate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China Southeast.

**TDWG4.** Fujian, Jiangxi, Zhejiang.

**Acidosasa guangxiensis** Q.H. Dai & C.F. Huang. *Bamboo Res.* 1986(3): 64 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Nanning: Dai & Fuang 8312 (GXFI holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Guangxi Province, China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–300 cm long, 10–20 mm diam., woody. Culm-internodes terete, thin-walled, 16–18 cm long, distally glabrous or pilose. Lateral branches dendroid. Branch complement three. Culm-sheaths present, deciduous, hispid, hairy on margins, auriculate, with 4–5 mm high auricles, with 1 mm wide auricles, setose on shoulders, shoulders with 6–12 mm long hairs. Culm-sheath ligule 2 mm high, ciliolate. Culm-sheath blade lanceolate or triangular, scabrid. Leaves 4–8 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, spreading, 4–5 mm long. Ligule an eciliate membrane, 2 mm long, pubescent on abaxial surface. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–16 cm long, 15–23 mm wide. Leaf-blade venation with 8–10 secondary veins. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes or comprising only a few spikelets. Racemes 1, single, bearing few fertile spikelets, bearing 3–6 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 15–30 mm long, glabrous or pubescent, hairy above.

**Fertile Spikelets.** Spikelets comprising 13–33 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 60–170 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, 8–10 mm long, chartaceous, without keels. Lower glume surface glabrous or puberulous. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 9–13 mm long, chartaceous, without keels. Upper glume surface glabrous or puberulous. Upper glume margins ciliate. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma ovate, 13–15 mm long, 6–7 mm wide, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins ciliate. Lemma apex acuminate. Palea 10–12 mm long. Palea keels ciliolate. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 2 mm long, ciliate. Anthers (4–)6, 5 mm long. Stigmas 3. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG), Continent.** Temperate Asia.

**Country /Province /State.** China. China Southeast.

**TDWG4.** Guangxi.

**Acidosasa lingchuanensis** (C.D. Chu & C.S. Chao) Q.Z. Xie & X.Y. Chen. *Bull. Bot. Res., Harbin* 13(1): 74, f. 1–2 (1993).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *xIndosasa lingchuanensis* C.D. Chu & C.S. Chao, *Acta Phytotax. Sin.*, 21(1): 69 (1983). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangxi: Lingchuan, C.D. Chu & C.S. Chao 78001 (HT: NFU).

**Illustrations (Books):** G. Hegi, *Flora von Mitteleuropa* 1 (1909) (Fig. 192).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200–400 cm long, 20–30 mm diam., woody. Culm-internodes terete, thin-walled, 30–40 cm long, scaberulous, distally pubescent. Lateral branches dendroid. Branch complement three, thinner than stem. Culm-sheaths present, green, hispid, with tawny hairs, hairy on margins, auriculate, with acute auricles, setose on shoulders, shoulders with straight hairs, shoulders with 10–15 mm long hairs. Culm-sheath ligule entire or ciliolate. Culm-sheath blade linear, spreading or reflexed. Leaves 3–5 per branch. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 6.5–14 cm long, 10–23 mm wide. Leaf-blade venation with 10 secondary veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence bractiferous, scanty, lax, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 8–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 80–110 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 4–5 mm long.

**Glumes.** Glumes several, persistent, similar, shorter than spikelet.

**Florets.** Fertile lemma oblong, 10 mm long, 5 mm wide, chartaceous, without keel, 9–11 -veined, more than 3-veined. Palea keels ciliate. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 6, 5 mm long. Stigmas 3. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China Southeast.

**TDWG4.** Guangxi.

**Acidosasa nanunica** (McClure) C.S.Chao & G.Y.Yang. *Acta Phytotax. Sin.*, 39(1): 66 (2001).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Indocalamus nanunicus* McClure, *Lingnan Univ. Sci. Bull.*, No. 9, 25 (1940). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Heung Lo Keuk, cult. at Lingnan Univ.: McClure 20624.

**Recent Synonyms:** *Acidosasa xiushanensis* T.P. Yi, *J. Bamboo Res.* 11(3): 49–51, f. 1 (1992). *Pseudosasa projecta* (W.T. Lin) P.C. Keng, *J. Bamboo Res.*, 13(4): 65 (1994).

*Pseudosasa altiligulata* T.H. Wen, *J. Bamboo Res.*, 8(1): 18–20, f. 3 (1989)

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 139).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Nanun, Hunan Province, China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 300–700 cm long, 10–30 mm diam., woody. Culm-internodes terete, thick-walled, 22–28 cm long, distally glabrous. Culm-nodes flush with internodes or swollen, glabrous. Lateral branches dendroid, erect or ascending. Branch complement two or three, in a clump, with subequal branches or 1 branch dominant. Culm-sheaths present, deciduous, coriaceous, glabrous, without auricles, glabrous on shoulders. Culm-sheath ligule 3 mm high, entire. Culm-sheath blade lanceolate, erect or reflexed. Leaves 4–5 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Leaf-sheath auricles absent. Ligule an eciliate membrane, 3 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 13–26 cm long, 25–50 mm wide. Leaf-blade venation with 14–18 secondary veins, with distinct cross veins. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, comprising 6–8 fertile spikelets. Panicle open, ovate, 18–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–25 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 7–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 30–70 mm long, 3–5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 6–7 mm long, pubescent.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate, chartaceous, without keels. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 15–17 mm long, 9 mm wide, chartaceous, without keel, 13–18 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acuminate. Palea 12–15 mm long. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 2.5–3 mm long, glabrous. Anthers 6, 5–5.5 mm long. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central, China Southeast.

**TDWG4.** Guangdong, Hunan, Jiangxi, Zhejiang, Chongqing, Sichuan.

**Acidosasa notata** (Z.P. Wang & G.H. Ye) S.S. You. *J. Bamboo Res.* 12(3): 11 (1993).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Acidosasa fujianensis* C.S.Chao & H.Y.Zou, *J. Nanjing Inst. Forest.*, 1984(3): 88 (1984). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chong'an, Wang Zhengping et al. 74121 (HT: NJU) 16 June 1974.

**Recent Synonyms:** *Pleiblastus intermedius* S.Y. Chen, *Acta Phytotax. Sin.*, 21(4): 408 (1983). *Indosasa wuningensis* T.H. Wen & Y. Zou, *J. Bamboo Res.*, 10(1): 20 (1991).

*Acidosasa fujianensis* C.S. Chao & H.Y. Zou, *J. Nanjing Inst. Forest.* 1984(3): 88, f. 1 (1984).

*Acidosasa longiligula* (T.H. Wen) C.S. Chao & C.D. Chu, *Acta Phytotax. Sin.* 29(6): 524, f. 5 (1991).

*Pleiblastus maculosoides*.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 138).

**Derivation** (Clifford & Bostock 2007): *L. noto*, mark. Spikelets multi-colored.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–300 cm long, 15–20 mm diam., woody. Culm-internodes terete, thin-walled, glaucous. Lateral branches dendroid. Branch complement three. Culm-sheaths present, deciduous, hispid, hairy on margins, auriculate, with obtuse auricles, with 4 mm high auricles, setose on shoulders, shoulders with 7 mm long hairs. Culm-sheath ligule 6 mm high, ciliate. Culm-sheath blade lanceolate, glabrous on surface. Leaves 2–5 per branch. Leaf-sheaths glabrous on surface or pubescent. Leaf-sheath oral hairs ciliate, deciduous. Leaf-sheath auricles falcate. Ligule an eciliate membrane, 4 mm long, erose. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 11–21 cm long, 3–6 mm wide, dark green and mid-green, discolorous with last colour beneath. Leaf-blade venation with 10–14 secondary veins. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes or comprising only a few spikelets. Racemes 1, single, bearing few fertile spikelets, bearing 3–5 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–13 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 3–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25–70 mm long, 3–6 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 7 mm long, pubescent.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, 6–19 mm long, chartaceous, without keels. Lower glume apex acute. Upper glume ovate, 10–18 mm long, chartaceous, without keels. Upper glume surface glabrous. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma ovate, 16–19 mm long, chartaceous, without keel, 13–19 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface pubescent. Lemma apex acuminate. Palea 13–15 mm long. Palea surface pubescent. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 4–5 mm long, glabrous. Anthers 6, 8–12 mm long, yellow. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China Southeast.

**TDWG4.** Fujian, Jiangxi, Zhejiang.

**Acidosasa purpurea** (J.R. Xue & T.P. Yi) Keng f. *J. Wuhan Bot. Res.* 4(4): 335 (1986).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Indosasa purpurea* C.J. Hsueh & T.P. Yi, *Acta Phytotax. Sin.*, 21(1): 94 (1983). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Maguang Xian, Laojun, 1100–1650 m, 20 Dec. 1977, *T.P. Yi 77333* (HT: SFS).

**Recent Synonyms:** *Acidosasa dayongensis* T.P. Yi, *Bull. Bot. Res., Harbin* 6(4): 25–26, f. 1 (1986). *Acidosasa hirtiflora* Z.P. Wang & G.H. Ye ex C.S. Chao & C.D. Chu, *Acta Phytotax. Sin.* 29(6): 524, f. 4 (1991).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 138).

**Derivation** (Clifford & Bostock 2007): *L. purple* to reddish. Usually of purple spikelets.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect at the tip, 300–1000 cm long, 20–80 mm diam., woody, 20–22 -noded. Culm-internodes terete, thick-walled, 20–45 cm long, mid-green or purple, distally mealy. Culm-nodes swollen. Lateral branches dendroid. Bud complement 1. Branch complement three. Culm-sheaths present, deciduous, coriaceous, hispid, with tawny hairs, without auricles, glabrous on shoulders. Culm-sheath ligule 1–2 mm high, dentate. Culm-sheath blade lanceolate, demarcated but persistent, erect, glabrous on surface. Leaves 4–7 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty or lacking. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1.5–4 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.8 cm long. Leaf-blades lanceolate, 12–21 cm long, 12–26 mm wide. Leaf-blade venation with 6–14 secondary veins, with distinct cross veins. Leaf-blade surface glabrous or pubescent, sparsely hairy, hairy abaxially. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets. Spikelets solitary. Fertile spikelets sessile or pedicelled. Pedicels present, 0–23 mm long, pubescent, hairy above.

**Fertile Spikelets.** Spikelets comprising 3–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile.

Spikelets linear, laterally compressed, 19–92 mm long, 3–7 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–5 mm long, pubescent.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, 7–11 mm long, chartaceous, without keels. Lower glume surface puberulous. Lower glume apex acute. Upper glume lanceolate, 11–15 mm long, chartaceous, without keels. Upper glume surface puberulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 15–20 mm long, chartaceous, without keel, more than 3-veined. Lemma surface puberulous. Lemma margins ciliate. Lemma apex acute. Palea 6–11 mm long. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, veined, glabrous. Anthers 6, 4–5 mm long, yellow. Stigmas 3. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, China Southeast.

**TDWG4.** Guangxi, Hunan, Jiangxi, Yunnan.

**GenBank** (AF305727 plus 2 others).

**Acidosasa venusta** (McClure) Z.P. Wang & G.H. Ye ex C.S. Chao & C.D. Chu. *Acta Phytotax. Sin.* 29(6): 524, f. 6 (1991).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Semiarundinaria venusta* McClure, *Lingnan Univ. Sci. Bull.*, No. 9, 55 (1940). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Fung* 21002 (BG 2396), 28 Dec 1931, China: Kwangtung: Hwa-Hsien District (US3157322; IT: US-3157323, US-43512). This specimen is the living type which was cultivated and collected at the Lingnan Univ. bamboo garden on 23 Feb 1937.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 141).

**Derivation** (Clifford & Bostock 2007): L. beautiful, graceful. Mostly a reference to habit.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 140 cm long, 8.5 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous or pilose. Culm-nodes with distinct supra-nodal ridge, pubescent. Lateral branches dendroid. Branch complement three, with subequal branches. Culm-sheaths present, glabrous or pilose, with appressed hairs, glabrous on margins or hairy on margins, without auricles, glabrous on shoulders or ciliate on shoulders. Culm-sheath ligule ciliolate. Culm-sheath blade ovate, deciduous, erect or spreading, scabrid. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty or lacking. Leaf-sheath auricles absent. Ligule a ciliolate membrane, pubescent on abaxial surface. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–20 cm long, 14–26 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, 11–15 cm long, bearing few fertile spikelets, bearing 3–4 fertile spikelets on each. Spikelets ascending or pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, 10–30 mm long, puberulous.

**Fertile Spikelets.** Spikelets with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 6 mm long, scaberulous, pubescent, hairy at tip.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, 4–6 mm long, chartaceous, 1-keeled, keeled above. Lower glume surface smooth or scabrous, rough above. Lower glume apex acute. Upper glume lanceolate or ovate, 5–8 mm long, chartaceous, 1-keeled, keeled above. Upper glume surface smooth or scabrous, rough above. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 13 mm long, chartaceous, without keel, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface hispidulous. Lemma margins ciliolate, hairy above. Lemma apex acute or acuminate. Palea 1 length of lemma. Palea keels approximate, ciliolate, adorned above. Palea surface puberulous, hairy on margins. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 6. Stigmas 3. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China Southeast.

**TDWG4.** Guangdong.

**Acostia gracilis** Swallen. *Bol. Soc. Argent. Bot.* 12: 109 (1968).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Acosta-Solms 12131*, 22 Apr 1949, Ecuador: Imbabura: banks of the rmo Lita, 501 m (US-2078973).

**Illustrations (Books):** G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 112, Fig. 5 (2006)).

**Derivation** (Clifford & Bostock 2007): L. slender. Culms or inflorescences slender.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 25–40 cm long. Ligule a ciliolate membrane. Leaf-blades 7–13 cm long, 3–4 mm wide. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 3–4, borne along a central axis, unilateral, 3–4.5 cm long. Central inflorescence axis 7–12 cm long. Rhachis angular. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1–2 in the cluster. Pedicels present, linear, unequal, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, acuminate, 2–2.5 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume lanceolate, membranous, without keels, 5 -veined. Upper glume surface pubescent. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, lanceolate, 1 length of spikelet, membranous, 5 -veined, pubescent, acuminate. Fertile lemma elliptic, 1.7 mm long, coriaceous. Lemma margins involute. Lemma apex obtuse. Palea coriaceous.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Ecuador.

**Acrachne henrardiana** (Bor) S.M. Phillips. *Kew Bull.* 37(1): 158 (1982).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Dactyloctenium*).

**TYPE** from India. **Basionym or Replaced Name:** *Dactyloctenium henrardianum* Bor, *Blumea, Suppl.* 3, 44 (1946). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Daniel & S.R. Raju 20089*, India: Madras (K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Jan Theodor Henrard (1881–1974) Dutch botanist.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Culms 10–40 cm long, rooting from lower nodes. Ligule an eciliate membrane, 2 mm long. Leaf-blades 10–20 cm long, 3–7 mm wide, flaccid. Leaf-blade surface pilose, sparsely hairy, hairy abaxially.

**Inflorescence.** Inflorescence composed of racemes. Racemes 6–15, borne along a central axis, in several whorls, unilateral, 1–1.5 cm long. Central inflorescence axis 4–8 cm long. Rhachis angular, terminating in a sterile spikelet. Spikelet packing broadside to rhachis, regular, 2 -rowed. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Apical sterile spikelets rudimentary, 1 in number.

**Fertile Spikelets.** Spikelets comprising 2–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 2–3 mm long, 2 mm wide, breaking up at maturity, rhachilla persistent, retaining paleas.

**Glumes.** Glumes deciduous, similar, shorter than spikelet. Lower glume ovate, 1.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 1.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 1 mm long.

**Florets.** Fertile florets recurved at tip. Fertile lemma ovate, laterally compressed, ovate in profile, 1.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma lateral veins stopping well short of apex. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn 0.5 mm long overall. Palea ovate, bowed outwards, 0.8 length of lemma, 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.



**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.3 mm long. Stigmas 2. Caryopsis with free soft pericarp, ellipsoid, isodiametric, biconvex, estipitate, sulcate on hilar side, 0.6 mm long, rugose, apex unappendaged. Embryo 0.3–0.5 length of caryopsis. Hilum punctiform. Endosperm farinose.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Assam. Tamilnadu. Himachal Pradesh, Jammu Kashmir, Uttaranchal.

**Acrachne perrieri** (A. Camus) S.M. Phillips. *Kew Bull.* 37(1): 158 (1982).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. **Basionym or Replaced Name:** *Dactyloctenium perrieri* A.Camus, *Bull. Soc. Bot. France*, 75: 913 (1929). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IST: *Perrier de la Bathie 14665*, Madagascar: dunes pres de Majunga (K). IST: *Perrier de la Bathie 17975*, Madagascar: dunes au nord de Majunga (K, US-1445131 (fragm.)).

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (176, Fig.61 as *Camusia*).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph Marie Henri Alfred Perrier de la Bbthie (1872–1958) French botanist.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Caespitose. Culms 10–40 cm long. Ligule a ciliolate membrane. Leaf-blades involute, 3–10 cm long, 0.5–1.5 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy abaxially.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–6, digitate or borne along a central axis, unilateral, 1.5–6 cm long. Central inflorescence axis 0.5–3 cm long. Rhachis flattened, terminating in a sterile spikelet or barren extension, extension subulate. Spikelet packing broadside to rhachis, regular, 1 -rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Apical sterile spikelets rudimentary, 1 in number.

**Fertile Spikelets.** Spikelets comprising 3–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–6 mm long, breaking up at maturity, rhachilla persistent, retaining paleas. Rhachilla internodes eventually visible between lemmas.

**Glumes.** Glumes deciduous, similar, shorter than spikelet, recurved at apex. Lower glume lanceolate, 1.5 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume ovate, 2 mm long, 0.8–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile florets recurved at tip. Fertile lemma oblong, laterally compressed, oblong in profile, 2–2.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma lateral veins extending close to apex. Lemma apex entire, acuminate, awned, 1 -awned. Principal lemma awn 0.3–0.9 mm long overall. Palea bowed outwards, 0.8 length of lemma, 2 -veined. Palea keels scabrous. Palea apex acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1 mm long. Stigmas 2. Caryopsis with free soft pericarp, ellipsoid, laterally compressed, estipitate, without sulcus, 0.5–0.7 mm long, smooth or granular, apex unappendaged. Embryo 0.33 length of caryopsis. Hilum punctiform. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. Western Indian ocean.** Madagascar.

**Acrachne racemosa** (B.Heyne ex Roem. & Schult.) Ohwi. *Bull. Tokyo Sci. Mus.* 18: 1 (1947).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Eleusine racemosa* Heyne ex Roem. & Schult., *Syst.* ii. 583 (1817). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India orientali, *D.B. Heyne s.n.*.

*A. verticillata* (Roxb.) Chiov., *Ann. Ist. Bot. Roma* 8: 361 (1908).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (201, Fig. 124 as *A. verticillata*), R.M.Pollhill, F.T.E.A., *Gramineae* (2(1974):259, Fig. 71), G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999), T. 47), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (132, Fig 105 as *A. verticillata*), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (31, Fig 10), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (138, Fig. 57), L.Boulos, *Flora of*

*Egypt* 4 (2005) (266, Pl. 79), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (189, Fig. 101), K.M.Matthew, *Flora Palni Hills* (1996) (776, Pl. 776), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (209, Pl. 62 as *A. verticillata*), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1121, Fig. 323), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (78), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (314, Fig. 54), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (114), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 682).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. racemus*, stalk of a cluster of grapes; -osa, abundance. The spikelets are borne in racemes or contracted panicles.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Caespitose. Basal innovations intravaginal. Culms 15–75 cm long, 1–3 mm diam., 2–5-noded. Lateral branches sparse. Leaves cauline. Leaf-sheaths as wide as blade at the collar, keeled. Ligule a ciliate membrane, 0.5–1.25 mm long. Leaf-blades 15–75 cm long, 5–11.5 mm wide. Leaf-blade surface smooth, glabrous or pilose, sparsely hairy. Leaf-blade margins cartilaginous. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence composed of racemes. Racemes 3–25, digitate or borne along a central axis, in several whorls, unilateral, 1.5–10 cm long. Central inflorescence axis 0–15 cm long. Rhachis angular, terminating in a sterile spikelet. Spikelet packing broadside to rhachis, regular. Spikelets appressed, solitary or in pairs. Fertile spikelets sessile, 1–2 in the cluster. Pedicels absent.

**Sterile Spikelets.** Apical sterile spikelets rudimentary, 1 in number.

**Fertile Spikelets.** Spikelets comprising 6–25 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5.5–13 mm long, 2.5–3 mm wide, breaking up at maturity, rhachilla persistent, retaining paleas, tough throughout or fragile above, with the distal florets falling as a whole. Rhachilla internodes 0.1 mm long, eventually visible between lemmas.

**Glumes.** Glumes deciduous, similar, shorter than spikelet. Lower glume lanceolate, 1.2–2.9 mm long, 0.5–0.8 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume ovate, 1.5–3 mm long, 0.5–0.7 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex entire, acuminate, mucronate.

**Florets.** Fertile florets recurved at tip. Fertile lemma ovate, laterally compressed, ovate in profile, 2.1–2.8 mm long, membranous, yellow to mid-green, keeled, 3-veined, 0–3-veined. Lemma midvein scaberulous. Lemma lateral veins excurrent. Lemma apex entire, acute, awned, 1-awned. Principal lemma awn 0.3–0.9 mm long overall. Palea ovate, bowed outwards, 0.8 length of lemma, 2-veined. Palea keels scabrous. Palea apex dentate, 2-fid, acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.4 mm long. Stigmas 2, protandrous, laterally exerted. Caryopsis with free soft pericarp, ellipsoid, isodiametric, biconvex, estipitate, sulcate on hilar side, 0.8–1 mm long, rugose, apex unappendaged. Embryo 0.4 length of caryopsis. Hilum punctiform. Endosperm farinose.

*N* = 18 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia, Australasia, North America.

**Country /Province /State.** Northern Africa, Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Egypt. Cape Verde. Mali, Senegal. DRC. Chad, Eritrea, Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Kenya, Tanzania. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, Gauteng, Mpumalanga, Kwazulu-Natal, Western Cape, Eastern Cape. Western Asia, Arabian Peninsula, China. Afghanistan, Iran. Oman, Saudi Arabia, Yemen. China South Central, Hainan. Indian Subcontinent, Indo-China, Malesia. Assam, India, Pakistan, Sri Lanka, West Himalaya. Myanmar, Thailand, Vietnam. Lesser Sunda Is, Malaya. Australia. Western Australia, Northern Territory, Queensland. Southwestern USA. California.

**TDWG4.** Yunnan. Andhra Pradesh, Delhi. Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal. Himachal Pradesh, Jammu Kashmir. Kimberley, Ereman. Darwin & Gulf. North, Central.

**GenBank** (AY574637 plus 2 others).

**Acritochaete volkensii** Pilger. *Engl. Jahrb.* 2: 54 (1902).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tanzania. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Ost-Afrika am Kilimandscharo, im Gurtelwald oberhalb Marangu verbreitet, 2100 m.s.m., *Volkens 1278* (HT: B?; IT: K).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (231, Fig. 156), R.M.Pollhill, F.T.E.A., *Gramineae* (3(1982):659, Fig. 149), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (245, Fig. 99), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (46, Fig. 24).

**Derivation** (Clifford & Bostock 2007): in honor of Georg Ludwig August Volkens (1855–1917) German botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe SUBTRIBE "SISTER TO OTHER PASPALEAE".

**Habit, Vegetative Morphology.** Annual. Culms decumbent, 30–60 cm long, rooting from lower nodes. Ligule an eciliate membrane. Leaf-blades linear to lanceolate, 3–14 cm long, 4–15 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4, borne along a central axis, distant, unilateral, 3–9 cm long. Central inflorescence axis 5–15 cm long. Rhachis angular. Spikelet packing adaxial, irregular. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–6.5 mm long, falling entire.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–1.5 mm long, 0.1–0.25 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 4.5–5.5 mm long, membranous, without keels, 3 -veined. Upper glume surface setose, with tubercle-based hairs. Upper glume apex acuminate, awned, 1 -awned, awn 10–20 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, lanceolate, 1 length of spikelet, membranous, setose, with tubercle-based hairs, acuminate, awned. Awn of lower sterile floret flexuous (tangled), 10–30 mm long. Fertile lemma lanceolate, 4.5–5.5 mm long, chartaceous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat, covering most of palea. Lemma apex acuminate, muticous or awned, 1 -awned. Principal lemma awn 1–2 mm long overall. Palea chartaceous, without keels.

**Flower and Fruit.** Caryopsis with adherent pericarp, oblong.

$2n = 18$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Nigeria. Cameroon, DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda.

**Acroceras amplexens** Stapf. Prain, *Fl. Trop. Afr.* 9: 625 (1920).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mali. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: French Sudan: Middle Niger; Koulikoro, *Chevalier, 2187 ST: Lecard 246*, Mali (K). ST: *Chevalier 5574*, Central African Republic (P).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. amplexo*, encircle. Leaf-blades more or less heart-shaped.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, weak, 30–100 cm long, rooting from lower nodes. Ligule an eciliate membrane or absent. Leaf-blade base cordate or amplexicaul. Leaf-blades linear, 4–20 cm long, 3–10 mm wide. Leaf-blade venation without cross veins or with obscure cross veins.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–6, borne along a central axis, distant, unilateral, 3–12 cm long. Central inflorescence axis 10–30 cm long. Rhachis angular, glabrous on surface. Spikelet packing lax, irregular. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, angular, unequal.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 4.5–6 mm long, falling entire. Spikelet callus glabrous, base truncate.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 0.5–0.8 length of spikelet, herbaceous, without keels, keel-less except near apex, 3 -veined. Lower glume apex acuminate. Upper glume ovate, 1 length of adjacent fertile lemma, herbaceous, 5 -veined. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of fertile lemma, herbaceous, 5 -veined, laterally pinched at apex. Fertile lemma oblong, dorsally compressed, 4–5.5 mm long, indurate, pallid, more than 3-veined. Lemma margins involute. Lemma apex apiculate, with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined, without keels.

**Flower and Fruit.** Anthers 3, 2 mm long. Caryopsis with adherent pericarp, oblong, dorsally compressed, plano-convex, pallid. Embryo 0.4–0.5 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Burkina, Gambia, Ghana, Mali, Nigeria, Senegal, Sierre Leone, Togo. Central African Republic, DRC. Sudan. Tanzania, Uganda.

**Acroceras attenuatum** S.A. Renvoize. *Kew Bull.* 34 (3): 556 (1980).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tanzania: Moshi District: Kibibi, *Renvoize & Abdallah 1446* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. thin. Spikelets terete or narrow.or panicles narrow;.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms prostrate, 20–40 cm long, rooting from lower nodes. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, tapering towards sheath, 5–18 cm long, 5–20 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous or pubescent. Leaf-blade apex acuminate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic or oblong, 6–12 cm long, contracted about primary branches. Primary panicle branches appressed or ascending, 2–6 cm long, bearing spikelets almost to the base. Panicle branches angular. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, fused to each other, united below, linear, angular, unequal.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 3–3.5(–4) mm long, falling entire. Spikelet callus glabrous, base truncate. Rhachilla internodes elongated between glumes.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.75 length of spikelet, herbaceous, black, without keels, 3 -veined. Lower glume apex acute. Upper glume elliptic, 1 length of adjacent fertile lemma, herbaceous, black, 3 -veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, herbaceous, 3 -veined, obtuse. Fertile lemma elliptic, dorsally compressed, 2.5–3.5 mm long, indurate, pallid, shiny, more than 3-veined. Lemma margins involute. Lemma apex acute, with a little green crest or with a green spot. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined, without keels.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa. Kenya, Tanzania, Uganda. Mozambique.

**Acroceras boivinii** (Mez) A. Camus. *Bull. Soc. Bot. France* 97: 85 (1950).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Comores. **Basionym or Replaced Name:** *Panicum boivini* Mez, *Bot. Jahrb. Syst.* 57: 189 (1922)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Comoren ...", *Boivin s.n.*.

**Recent Synonyms:** *Acroceras lateriticum* Camus, *Bull. Soc. Bot. France* 95: 166 (1950). *Acroceras mandrarensis* A.Camus, *Bull. Soc. Bot. France* 93: 88 (1946).

*Acroceras seyrigii* A. Camus, *Bull. Soc. Bot. France* 106: 213 (1959).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Louis Hyacinthe Boivin (1808–1852) French botanist and traveller.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, 25–30 cm long, rooting from lower nodes. Culm-internodes distally glabrous. Leaf-sheaths striately veined, hirsute. Ligule an eciliate membrane. Leaf-blades lanceolate, 2.5–6 cm long, 8–10 mm wide. Leaf-blade surface pilose, sparsely hairy. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–5, borne along a central axis, unilateral. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 2.2–2.5 mm long, falling entire.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.2–1.3 mm long, 0.5 length of spikelet, herbaceous, 1-keeled, 3 -veined. Lower glume surface puberulous. Lower glume apex cuspidate. Upper glume ovate, 2.2–2.5 mm long, 1 length of spikelet, herbaceous, without keels, 7 -veined. Upper glume surface rugose, puberulous. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, herbaceous, rugose, puberulous, laterally pinched at apex. Fertile lemma ovate, dorsally compressed, 2–2.3 mm long, indurate, light brown, shiny. Lemma margins involute. Lemma apex acute, mucronate. Palea involute, 1 length of lemma, indurate.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Acroceras bosseri** A. Camus. *Bull. Soc. Bot. France* 101: 394 (1955).

Not on *GrassBase*.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Bosser 5320*, Madagascar: nord, montagne de "Ambre ST: *Bosser 5330*, Madagascar.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Pierre Edmond Boissier (1808–1852) French botanist and traveller.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Acroceras calcicola** A. Camus. *Bull. Mus. Hist. Nat. (Paris)* ser. 2 25: 343 (1953).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar Sud-Ouest: Manampetsa, en sol calcaire, dans le bush, *Perrier de la Bathie, 19112*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *calx*, lime. Growing on limestone.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, 30–35 cm long. Culm-internodes striate. Culm-nodes pubescent. Leaf-sheaths striately veined, hirsute, with tubercle-based hairs. Ligule a ciliolate membrane. Leaf-blades lanceolate, 2–3 cm long, 4–5 mm wide. Leaf-blade venation prominent, with 6 secondary veins, without cross veins. Leaf-blade surface puberulous, densely hairy. Leaf-blade margins scaberulous, tuberculate-ciliate, hairy at base. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–5, borne along a central axis, unilateral, 3–3.5 cm long. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present, 1.8–2 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 2.2 mm long, falling entire.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, clasping, 1.1 mm long, 0.5 length of spikelet, herbaceous, without keels, 3 -veined. Lower glume surface puberulous. Lower glume apex obtuse. Upper glume ovate, 2.2 mm long, 1 length of spikelet, herbaceous, without keels, 5 -veined. Upper glume surface puberulous. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, herbaceous, puberulous, obtuse. Fertile lemma ovate, dorsally compressed, 1.6–1.7

mm long, indurate, shiny. Lemma margins involute. Lemma apex acute, mucronate. Palea involute, 1 length of lemma, indurate.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Acroceras chaseae** F.O. Zuloaga & O. Morrone. *Darwiniana* 28: 198 (1988).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Rio de Janeiro: Pico de Tijuca: vicinity of Rio de Janeiro, 15 Feb 1925, *Chase 8488* (HT: US; IT: F, GH, MO, NY, P). HT: *Agnes Chase 8488*, 15 Feb 1925, Brazil: Rio de Janeiro: Pico da Tijuca: ascent of peak, moist shady rocky woods (US-1255496).

**Illustrations (Journals):** *Darwiniana* (28: 201, Fig. 2 (1987)).

**Derivation** (Clifford & Bostock 2007): in honor of Mary Agnes Merrill Chase (1869–1963) United States agrostologist.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 50–100 cm long, rooting from lower nodes. Leaf-sheaths 2–4 cm long, pilose. Ligule an eciliate membrane or a ciliolate membrane, 2–4 mm long. Leaf-blade base broadly rounded, symmetrical or asymmetrical. Leaf-blades lanceolate, 8–12 cm long, 12–20 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence a panicle or composed of racemes. Panicle open, ovate, 7–20 cm long, 3–17 cm wide, contracted about primary branches. Panicle branches angular, scabrous. Racemes 3–8, borne along a central axis, unilateral, secondarily branched. Rhachis angular. Spikelet packing distant, irregular. Spikelets ascending, solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, linear, angular, unequal, 2–7 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 4.2–4.7 mm long, 1.4–1.6 mm wide, falling entire. Spikelet callus square, glabrous, base truncate. Rhachilla internodes elongated between glumes.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2.1–2.5 mm long, 0.5 length of spikelet, herbaceous, without keels, 3–5 -veined. Lower glume surface pilose, hairy at apex. Lower glume apex obtuse. Upper glume elliptic, 3.6–4 mm long, 0.8–0.9 length of spikelet, herbaceous, 5 -veined. Upper glume surface pilose, hairy at apex. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, herbaceous, 5 -veined, pilose, hairy at apex, obtuse. Fertile lemma elliptic, dorsally compressed, 3.5–4 mm long, 1.2–1.4 mm wide, indurate, pallid. Lemma margins involute. Lemma apex acute, pubescent or with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined. Palea apex pubescent or with green spots.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Southeast.

**Acroceras debilis** Judz. ms.

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Acroceras diffusum** L.C. Chia. *Fl. Hainan.*, 4: 538 (1977).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Setiacticis*).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Hainan, Qiongzong: East Hainan Exped. 793.

**Recent Synonyms:** *Setiacticis diffusa* (Chia) S.L. Chen & Y.X. Jin, *Acta Phytotax. Sin.*, 26(3): 219 (1988).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 723 as *Setiacticis diffusa*).

**Derivation** (Clifford & Bostock 2007): L. widely spreading. Inflorescence an open panicle.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 60–100 cm long, rooting from lower nodes. Culm-nodes glabrous. Ligule a ciliolate membrane. Leaf-blades linear or lanceolate, 5–20 cm long, 5–20 mm wide. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle 15–20 cm long. Primary panicle branches ascending, sparsely divided. Spikelets ascending, solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, linear, angular, unequal.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 3.2 mm long, falling entire.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.66 length of spikelet, herbaceous, without keels, 5–7 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, herbaceous, 9–11 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, herbaceous, 11 -veined, ciliolate on margins, acute. Palea of lower sterile floret membranous, pilose, adorned on keels. Fertile lemma elliptic, dorsally compressed, 3.2 mm long, coriaceous. Lemma margins involute. Lemma apex acute, pubescent. Palea coriaceous, 2 -veined. Palea apex pubescent.

**Flower and Fruit.** Lodicules 2, veined. Anthers 3. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Hainan.

**Acroceras elegans** A. Camus. *Bull. Soc. Bot. France*, 102: 121 (1955).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Reunion. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Reunion, Saint Denis: Coll? (P holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. elegant*. Inflorescence attractive.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, 25–40 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined, hirsute, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blades lanceolate, 2.5–4 cm long, 4–6 mm wide. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 8–9, borne along a central axis, unilateral. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present, 1.5–1.7 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets obovate, laterally compressed, 1.5–1.7 mm long, falling entire.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.8–0.9 mm long, 0.5 length of spikelet, herbaceous, without keels, 3 -veined. Lower glume surface rugose. Lower glume apex acute, mucronate. Upper glume ovate, 1.5–1.7 mm long, 1 length of spikelet, herbaceous, without keels, 5 -veined. Upper glume surface rugose, puberulous. Upper glume mucronate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, lanceolate, 1 length of spikelet, herbaceous, acute, mucronate. Fertile lemma oblanceolate, dorsally compressed, 1.5 mm long, indurate, pallid, shiny. Lemma margins involute. Lemma apex acute, mucronate. Palea involute, 1 length of lemma, indurate.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Reunion.

**Acroceras excavatum** (Henrard) F.O. Zuloaga & O. Morrone. *Darwiniana* 28: 195 (1988).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Paraguay. **Basionym or Replaced Name:** *Panicum excavatum* Henrard, Fedde, *Repert.* 23: 179 (1926). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Balansa* 2947, 1881, Paraguay: Guarapm, in silvis (L; IT: G, K, P, US-1445764 (fragm. ex G,P), US-80624 (fragm. ex L)).

**Recent Synonyms:** *Panicum excavatum* Henrard, Fedde, *Repert.* 23: 179 (1926).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (130, as Fig. 45 as *Panicum excavatum*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (703, Fig 150 as *Panicum excavatum*), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (12, Fig. 1).

**Derivation** (Clifford & Bostock 2007): L. hollowed out.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 100–200 cm long. Culm-internodes 3–11 cm long. Culm-nodes brown, glabrous. Lateral branches sparse. Leaf-sheaths 4–7 cm long, glabrous on surface or pubescent, with tubercle-based hairs, outer margin hairy. Ligule an eciliate membrane, 2–4.5 mm long, brown, pubescent on abaxial surface, truncate. Leaf-blade base simple. Leaf-blades linear or lanceolate, 15–20 cm long, 12–16 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy on both sides. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 20–40 cm long, 10–30 cm wide. Primary panicle branches bearing spikelets almost to the base. Panicle axis scabrous. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, filiform, 5–15 mm long, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 3.3–3.8 mm long, 1.3–1.6 mm wide, falling entire. Spikelet callus square, 0.3 mm long, base truncate.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, clasping, 1.7–2.1 mm long, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume surface smooth or asperulous, glabrous or pubescent. Lower glume apex obtuse. Upper glume elliptic, 2.8–3.5 mm long, 0.9 length of spikelet, membranous, 5 -veined. Upper glume surface asperulous, rough on veins. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 3.1–3.6 mm long, 1 length of spikelet, membranous, 5 -veined, obtuse. Fertile lemma elliptic, dorsally compressed, 2.9–3.5 mm long, 1.2–1.6 mm wide, indurate, dark brown. Lemma surface papillose. Lemma margins involute. Lemma apex obtuse, pubescent or with a shallow excavation or with a green spot. Palea elliptic, involute, 1 length of lemma, indurate. Palea apex pubescent.

**Flower and Fruit.** Caryopsis with adherent pericarp, ellipsoid, 2.1 mm long, dark brown. Embryo 0.5 length of caryopsis. Hilum punctiform.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil, Southern South America. Venezuela. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Paraguay.

**TDWG4.** Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Misiones.

**Acroceras fluminense** (Hackel) F.O. Zuloaga & O. Morrone. *Darwiniana* 28: 197 (1988).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum fluminense* Hack., *Oesterr. Bot. Zeitschr.* 1901, 457. (1901). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: A.F.M. Glaziou 14397, 1883, Brazil: Rio de Janeiro: Rio de Janeiro (P, US-80870 (fragm. ex W), US-1445786 (fragm. ex P), US-1127279 (fragm. ex P, W)).

**Illustrations (Journals):** *Darwiniana* (28: 199, Fig. 1 (1987)).

**Derivation** (Clifford & Bostock 2007): L. fluminea, relating to a river; -ensis, denoting origin.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 20–40 cm long, rooting from lower nodes. Lateral branches ample. Ligule an eciliate membrane. Leaf-blades lanceolate, 4–10(–15) cm long, 12–17 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 8–10, borne along a central axis, unilateral, 1–5 cm long. Central inflorescence axis 5–6 cm long. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 2.6–2.8(–3.3) mm long, falling entire. Rhachilla internodes elongated between glumes.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume elliptic, 0.9 length of spikelet, membranous, 5 -veined. Upper glume surface pubescent, hairy at apex. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, membranous, 5 -veined, glabrous or pubescent, hairy at apex, acute. Fertile lemma elliptic, dorsally compressed, 2.6–2.8(–3.3) mm long, indurate. Lemma margins involute. Lemma



apex obtuse, pubescent or with a shallow excavation or with a little green crest. Palea elliptic, involute, 1 length of lemma, indurate. Palea apex pubescent.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

**TDWG4.**

**Acroceras hubbardii** (A. Camus) Clayton. *Kew Bulletin* 34 (3): 557 (1979) [1980].

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Madagascar. **Basionym or Replaced Name:** *Brachiaria hubbardii* A. Camus, *Bull. Soc. Bot. France* 94: 40 (1947). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Humboldt 1192*, Comoros ST: *Boivin*, Grand Comore ST: *Hildebrandt 1100*, Ile Zanzibar ST: *Waterlot*, Anjouan ST: *Decary*, Tsantsany ST: *Hildebrandt 2985*, Nossi-be ST: *Boivin*, Mayotte ST: *Boivin*, Madagascar: Est. Ste-Marie-de-Madagascar.

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (411, Fig 156 as *Brachiaria hubbardii*).

**Derivation** (Clifford & Bostock 2007): in honor of Charles Edward Hubbard (1900–1980) English agrostologist.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms prostrate, slender, 5–20 cm long. Ligule a ciliate membrane. Leaf-blades 1–4 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle capitate, ovate, 0.5–1.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 2–2.3 mm long, falling entire.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma oblong, dorsally compressed, 1.5–2 mm long, indurate, pallid, without keel, more than 3-veined. Lemma margins involute. Lemma apex acute, with a little green crest. Palea reflexed at apex, involute, indurate.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa, Western Indian ocean. Tanzania. Comoros, Mauritius, Madagascar, Reunion.

**Acroceras gabunense** (Hack.) W.D. Clayton. *Kew Bull.* 34 (3): 557 (1980).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Gabon. **Basionym or Replaced Name:** *Commelinidium gabunense*, *Commelinidium mayumbense*, *Commelinidium nervosum*

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O.A.R. Buettner 555*, Sep 1884, Gabon: Sibange (W; IT: US-80666 (fragm.)). Collection date cited as Oct 1884.

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (239, Fig. 165 as *Commelinidium nervosum*).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Gabon.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms rambling, 20–60 cm long, rooting from lower nodes. Ligule an eciliate membrane. Leaf-blades lanceolate or ovate, tapering towards sheath, 2–10 cm long, 10–40 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous or pubescent. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 3–10, borne along a central axis, unilateral, 2–7 cm long. Central inflorescence axis 3–20 cm long. Rhachis angular, pubescent on surface. Spikelet packing lax, irregular. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, angular, unequal.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, subterete, 4.5–5.5 mm long, falling entire. Spikelet callus glabrous, base truncate. Rhachilla internodes elongated between glumes.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, herbaceous, without keels, 5 -veined. Lower glume surface puberulous, hairy at apex. Lower glume apex acute. Upper glume elliptic, 1 length of adjacent fertile lemma, herbaceous, 5 -veined. Upper glume surface puberulous, hairy at apex. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, herbaceous, 5 -veined, laterally pinched at apex. Fertile lemma lanceolate, dorsally compressed, 4–5 mm long, indurate, pallid, shiny, more than 3-veined. Lemma margins involute. Lemma apex acute, pubescent or with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined, without keels.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa. Ghana, Ivory Coast, Liberia, Nigeria. Cameroon, Congo, Gabon, DRC. Uganda. Angola.

**Acroceras ivohibense** A. Camus. *Bull. Soc. Bot. France* 74: 634 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar: Pic d'Ivohibe (Bara), *Humbert*, 3315.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Pic d'Ivohibi, Madagascar.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 40–80 cm long. Ligule an eciliate membrane. Leaf-blades 8–10 cm long, 6–7 mm wide. Leaf-blade surface glabrous or pilose, hairy adaxially or on both sides. Leaf-blade margins ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 5–10, borne along a central axis, unilateral, 0.5–2 cm long. Central inflorescence axis 4–12 cm long. Rhachis angular, glabrous on surface or pilose on surface. Spikelet packing contiguous, irregular. Spikelets ascending, in pairs. Fertile spikelets pedicelled. Pedicels present, linear, angular, unequal.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 4–4.5 mm long, falling entire. Spikelet callus glabrous, base truncate.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2–3 mm long, 0.7–0.8 length of spikelet, herbaceous, without keels, 3 -veined. Lower glume apex acute, awned, 1 -awned, awn 1 mm long. Upper glume ovate, 3.5–3.7 mm long, 0.9 length of spikelet, herbaceous, 1-keeled, 5 -veined. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, herbaceous, 5 -veined, laterally pinched at apex. Fertile lemma elliptic, dorsally compressed, 3.5 mm long, indurate, pallid. Lemma margins involute. Lemma apex acute, laterally pinched or with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Acroceras macrum** Stapf. Prain, *Fl. Trop. Afr.* 9: 624 (1920).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Zimbabwe. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: Craster 22, Zimbabwe: Salisbury (K). LT designated by ?.

**Illustrations (Books):** R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):566, Fig.135), G.V.Pope et al., *Flora Zambesiaca* 10 (51:3(1989), T. 12), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (385, Fig. 329), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (32, Fig. 11), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (211, Fig. 87).

**Images:** G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. thin. Leaf-blades narrow.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms decumbent, 20–100 cm long. Culm-nodes glabrous. Ligule a fringe of hairs. Leaf-blades linear, parallel-sided or tapering towards tip, flat or convolute, 3–16 cm long, 1–8 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or pubescent.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1–5, borne along a central axis, appressed, unilateral, 2–8 cm long. Central inflorescence axis 5–25 cm long. Rhachis angular, glabrous on surface. Spikelet packing irregular. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, angular, unequal.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, subterete, 4–4.8 mm long, falling entire. Spikelet callus glabrous, base truncate.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–0.8 length of spikelet, herbaceous, without keels, keel-less except near apex, 3 -veined. Lower glume apex acute. Upper glume elliptic, 1 length of adjacent fertile lemma, herbaceous, without keels, keel-less except near apex, 5 -veined. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of fertile lemma, herbaceous, 5 -veined, laterally pinched at apex. Palea of lower sterile floret scabrous. Fertile lemma elliptic, dorsally compressed, 3.5–4.5 mm long, indurate, pallid, more than 3-veined. Lemma margins involute. Lemma apex apiculate, with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined, without keels.

**Flower and Fruit.**  $N = 18$  (1 ref TROPICOS).  $2n = 36$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Africa, South America (\*).

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. DRC. Ethiopia (inc. Eritrea). Kenya, Uganda. Angola, Mozambique, Zambia, Zimbabwe. Northern South America (\*). Guyana, Surinam.

**Acroceras munroanum** (Balansa) Henrard. *Blumea* 3: 445, in obs., 448 (1940).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Sri Lanka. **Basionym or Replaced Name:** *Panicum helopus* var. *glabrum* Trimen, nom nud, *Syst. Cat. Fl. Pl. Ceylon* 104 (1885). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *G.H.K. Thwaites CP 3244*, 1857, Sri Lanka (US-1445609 (fragm.)).

**Illustrations (Books):** H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (33, Fig. 19), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 724).

**Derivation** (Clifford & Bostock 2007): in honor of William Munro (1818–1880) Scots-born British soldier and amateur botanist who collected extensively in India.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms decumbent or prostrate or rambling, 25–50 cm long, rooting from lower nodes. Culm-internodes smooth, distally glabrous. Leaves cauline. Leaf-sheaths loose (tight towards apex), 1–3 cm long, mostly shorter than adjacent culm internode, striately veined, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, erose, obtuse. Leaf-blade base broadly rounded or cordate. Leaf-blades lanceolate, 3–8 cm long, 4–10 mm wide, glandular. Leaf-blade midrib evident, prominent beneath. Leaf-blade surface scaberulous. Leaf-blade margins scaberulous, tuberculate-ciliate or glabrous (rarely), hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 3–4, borne along a central axis, unilateral, 2–4 cm long. Central inflorescence axis 5–8 cm long. Rhachis narrowly winged, angular, smooth on surface, scaberulous on margins. Spikelet packing lax, irregular. Spikelets ascending, solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, linear, angular, unequal, 1–6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 3–4 mm long, falling entire. Spikelet callus glabrous, base truncate. Rhachilla internodes elongated between glumes.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, clasping, 3.1 mm long, 0.66 length of spikelet, herbaceous, without keels, 5 -veined. Lower glume apex laterally pinched. Upper glume ovate, 3–4 mm long, 1 length of spikelet, herbaceous, 7 -veined. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 3–4 mm long, 1 length of spikelet, herbaceous, 7 -veined, laterally pinched at apex. Fertile lemma ovate, dorsally compressed, 3.3 mm long, indurate, pallid, 3 -veined, 0–3 -veined. Lemma margins involute. Lemma apex apiculate, laterally pinched or with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined. Palea apex lobed.

**Flower and Fruit.** Lodicules 2, obovate, 0.25 mm long, irregularly toothed. Anthers 2, 1 mm long.

$N = 9$  (1 ref TROPICOS).  $2n = 18$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** Hainan. **Indian Subcontinent, Indo-China, Malesia.** Assam, Bangladesh, India, Sri Lanka. Cambodia, Myanmar, Thailand, Vietnam. Borneo, Java, Malaya, Singapore, Philippines, Sulawesi, Sumatra.

**TDWG4.** Assam, Meghalaya. Kerala.

**Acroceras parvulum** A. Camus. *Bull. Soc. Bot. France*, 101: 28 (1954).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar: Sud-Est: vallee du Mandrare, affluent de la Monampanily (Sud-Est); montagne au S. de Tanandava, foret..., *Humbert 20,486*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. parvus*, small; -ula, diminutive. Dwarf in habit.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms decumbent or rambling, weak, 5–10 cm long, rooting from lower nodes. Culm-nodes pubescent. Ligule an eciliate membrane. Leaf-blades 1.7–2.3 cm long, 2.5 mm wide, flaccid. Leaf-blade surface puberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, linear, angular.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, acute, 2.2–2.6 mm long, falling entire. Spikelet callus glabrous, base truncate.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 1.9–2 mm long, 0.75 length of spikelet, herbaceous, without keels, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 2.2–2.6 mm long, 1 length of spikelet, herbaceous, 5 -veined. Upper glume apex acute, mucronate.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, herbaceous, 5 -veined, acute, mucronate. Fertile lemma elliptic, dorsally compressed, 2.3–2.5 mm long, indurate, pallid. Lemma margins involute. Lemma apex acute, with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** **Western Indian ocean.** Madagascar.

**Acroceras tenuicaule** A. Camus. *Bull. Mus. Hist. Nat. (Paris)* ser. 2 25: 343 (1953).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Est: Sainte-Marie de Madagascar (*Boivin no. 1617*), type; environs d'Ambila (cote Est) (*Benoist, no. 825*),.

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, 20–30 cm long, rooting from lower nodes. Culm-nodes pubescent. Leaf-sheaths striately veined, outer margin hairy. Ligule a ciliate membrane. Leaf-blades lanceolate or oblong, 3–4 cm long, 5–7 mm wide. Leaf-blade surface pilose, sparsely hairy. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–5, borne along a central axis, unilateral, 1–2.5 cm long. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present, 1.2–1.7 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 2.2 mm long, falling entire.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, clasping, 1.4–1.7 mm long, 0.66–0.75 length of spikelet, herbaceous, without keels, 3 -veined. Lower glume apex

cuspidate, mucicous or mucronate. Upper glume lanceolate or ovate, 2.2 mm long, 1 length of spikelet, herbaceous, without keels, 5 -veined. Upper glume surface puberulous. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, lanceolate, 1 length of spikelet, herbaceous, pubescent, acute. Fertile lemma ovate, dorsally compressed, 2 mm long, indurate. Lemma margins involute. Lemma apex acute, mucronate. Palea involute, 1 length of lemma, indurate.

**Distribution (TDWG).** **Continent.** Africa.

**Country /Province /State.** **Western Indian ocean.** Madagascar.

**Acroceras tonkinense** (Balansa) C. E. Hubbard ex Bor. *Indian Forest Rec. n. s. Bot.* 1(3):78 (1938).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Vietnam. **Basionym or Replaced Name:** *Panicum tonkinense* Balansa, *Morot. Journ. de Bot.* 4: 140. (1890). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *B. Balansa 1646*, May 1887, Vietnam: Bois des Environs de Tu-Phap (L, US-1062262). ST: *Balansa 442*, 12 Sep 1885, Vietnam: Quang Ninh, Quang Yen (L).

**Recent Synonyms:** *Acroceras ridleyi* (Hack.) Stapf ex Ridley, *Fl. Mal. Penins.* 5: 229 (1925).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 724).

**Images:** H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Tonkin, Indo-China.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent or rambling, 50–100 cm long, rooting from lower nodes. Culm-nodes pubescent. Leaf-sheaths 4–6 cm long, outer margin hairy. Ligule a ciliolate membrane. Leaf-blade base cordate. Leaf-blades lanceolate, 5–20 cm long, 5–20 mm wide. Leaf-blade surface scaberulous. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 5–10, borne along a central axis, unilateral, 3–11 cm long. Central inflorescence axis 8–15 cm long. Rhachis angular. Spikelet packing distant, irregular. Spikelets ascending, in pairs. Fertile spikelets pedicelled. Pedicels present, linear, angular, unequal.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 4.5–5.5 mm long, falling entire. Spikelet callus glabrous, base truncate.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic, clasping, 2.8–3.8 mm long, 0.9 length of spikelet, herbaceous, without keels, 5(–7) -veined. Lower glume apex acute. Upper glume elliptic, 4.2 mm long, 0.8–0.9 length of spikelet, herbaceous, 5 -veined. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret similar to upper glume, elliptic, 4.5–5.5 mm long, 1 length of spikelet, herbaceous, 5 -veined, laterally pinched at apex. Fertile lemma elliptic, dorsally compressed, 4 mm long, indurate, pallid. Lemma surface striate. Lemma margins involute. Lemma apex acute, with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG).** **Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central, Hainan. **Indian Subcontinent, Indo-China, Malesia.** Assam, India. Laos, Myanmar, Thailand, Vietnam. Borneo, Java, Lesser Sunda Is, Malaya, Singapore, Moluccas, Sumatra.

**TDWG4.** Yunnan. Assam.

Anatomy Metcalf.

**Acroceras zizanioides** (H. B. & K.) Dandy. *Journ. Bot.* 69: 54 (1931).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Colombia. **Basionym or Replaced Name:** *Panicum zizanioides* Kunth, *Nov. Gen. et Sp.* 1: 100 (1815). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland 1606*, May, Colombia (B; IT: BM, P).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (237, Fig. 163), W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi*, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (69, Pl. 23), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (211, Fig. 87), H.J.Noltie, *The Grasses of Bhutan* (2000) (699, Fig. 39), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (278, Fig. 248 as *Panicum*), S.A.Renvoize, *Gramineas de Bolivia* (1998) (414, Fig. 88), S.A.Renvoize, *The Grasses of Bahia*, 1984 (182, Fig. 68), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (16, Fig. 1), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (759, Fig. 159 & 760, Fig.160), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (311, Fig. 125 as *Panicum*), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (25, Fig. 2), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (12, Fig. 1), B.Rosengurt, *Gramineas Uruguayas I* (1970) (289, Fig. 119), G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 51, Fig. 3 (2006)), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (44, Fig. 3), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:1(1980)).

**Illustrations (Journals):** *Ruizia* (13:335, Fig 41a-c (1993)).

**Derivation** (Clifford & Bostock 2007): Gk. *-oides*. Resembling *Zizania*.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent (from a prostrate base), 30–100 cm long, 1–2.5 mm diam., 10–20 -noded, rooting from lower nodes. Lateral branches sparse. Leaves cauline. Leaf-sheaths wider than blade at the collar, outer margin hairy. Ligule an eciliate membrane, 0.5 mm long, truncate. Collar pilose. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 4–15 cm long, 6–26 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface ribbed. Leaf-blade margins cartilaginous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle or composed of racemes (racemes with irregular secondary branching). Panicle open, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Panicle branches angular, scaberulous. Racemes 3–10, borne along a central axis, unilateral, 4–12 cm long, secondarily branched. Central inflorescence axis 8–20 cm long. Rhachis angular. Spikelet packing lax, irregular. Spikelets ascending, in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, angular, unequal.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, subterete, 4.5–6.5 mm long, 1.5–2.5 mm wide, falling entire. Spikelet callus glabrous, base truncate.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–0.8 length of spikelet, herbaceous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of adjacent fertile lemma, herbaceous, 5 -veined. Upper glume apex laterally pinched.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of fertile lemma, herbaceous, 5 -veined, laterally pinched at apex. Palea of lower sterile floret hyaline. Fertile lemma elliptic, dorsally compressed, lanceolate in profile, 4–6 mm long, indurate, pallid, 5 -veined, more than 3-veined. Lemma surface striate, with distinct germination flap. Lemma margins involute. Lemma apex apiculate, with a little green crest. Palea reflexed at apex, elliptic, involute, 1 length of lemma, indurate, 2 -veined, without keels. Palea apex acute.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 2 mm long. Stigmas 2.

$N = 27$  (1 ref TROPICOS).  $2n = 36$  (3 refs TROPICOS, 1 as *A. oryzoides*).

**Distribution (TDWG). Continent.** Africa, Tropical Asia, North America, South America.

**Country /Province /State.** **West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa.** Ghana, Guinea, Ivory Coast, Nigeria, Senegal, Sierre Leone. Cameroon, Congo, Gabon, Annobon, Principe & Sao Tome, Bioko, DRC. Ethiopia (inc. Eritrea), Sudan. Tanzania, Uganda. Angola, Mozambique. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, Eastern Himalaya, India. Myanmar, Thailand, Vietnam. New Guinea PNG, or West Papua (Irian Jaya). New Guinea. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama. Cuba, Dominican Republic, Haiti, Jamaica (& as *Panicum*), Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Northeast, Brazil Southeast, Brazil North. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Bhutan. Assam, Nagaland. West Bengal. Salta. Chaco, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe. Morelos, Puebla. Hidalgo, San Luis Potosi. Veracruz. Oaxaca. Campeche, Chiapas, Tabasco.

**GenBank** (AY029618). Anatomy Metcalf.

**Actinocladum verticillatum** (Nees) F.A. McClure ex T.R. Soderstrom. *Amer. J. Bot.* 68(9): 1204 (1981).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria verticillata* Nees, *Mart. Fl. Bras.* 2 :3: 523. (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, between 1814 and 1829, Brasilia (B; IT: K, LE-TRIN-3173.01, US-2808995, US-557548 (fragm. ex B), US-1021634 (fragm. ex B), US-557549 (fragm. ex B)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (28, Fig. 1), E.J.Judziewicz et al, *American Bamboos* (1999) (149, Fig. 63 & 150, Fig. 64).

**Derivation** (Clifford & Bostock 2007): *L.* whorl; -ata, possessing. Primary inflorescence branches whorled.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 300–460 cm long, 7–14 mm diam., woody. Culm-internodes terete, thick-walled, distally pruinose. Lateral branches dendroid. Branch complement many, flabellate, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, glabrous, auriculate, ciliate on shoulders. Culm-sheath blade ovate, constricted at base, spreading, glabrous on surface, acuminate. Leaves cauline, 5–7 per branch. Leaf-sheaths glabrous on surface or pubescent, outer margin glabrous or hairy. Leaf-sheath oral hairs lacking or setose. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades persistent, lanceolate, 8–13 cm long, 10–13 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle or comprising only a few spikelets, comprising 2–4(–8) fertile spikelets, axillary, bracteate at branch bases. Panicle open, 3–6 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 20–40 mm long, glabrous or puberulous.

**Fertile Spikelets.** Spikelets comprising 7–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, compressed slightly, 60–75 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 5–5.5 mm long, obscured by lemmas, pilose, hairy all along but hairs longer above.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume ovate, 5.5 mm long, 0.7–0.75 length of upper glume, coriaceous, without keels, 5 -veined. Lower glume apex acute. Upper glume ovate, 7.7 mm long, 0.6–0.7 length of adjacent fertile lemma, coriaceous, without keels, 11 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 12 mm long, chartaceous, without keel, 13 -veined, more than 3-veined. Lemma apex acute. Palea 1.1 length of lemma, chartaceous, 18 -veined. Palea keels winged, ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 3–4 mm long, veined, glabrous or ciliate. Anthers 3, 5–9.2 mm long. Stigmas 2. Ovary umbonate, pubescent on apex. Caryopsis with free brittle pericarp, ellipsoid, 11–14.5 mm long. Embryo 0.15 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

**TDWG4.** Goias.

**Aegilops bicornis** (Forssk.) Jaub. & Spach. *Illustr. Pl. Or.* 4: 11 (1851).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Egypt. **Basionym or Replaced Name:** *Triticum bicornis* Forssk., *Fl. Aegypt.-Arab.* 26 (1775)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Egypt, Alexandria: Forsskal (C holo).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 208 as var. *bicornis*), L.Boulos, *Flora of Egypt* 4 (2005) (215, Pl. 61).

**Images:** L.Boulos, *Flora of Egypt* 4 (2005);.

**Derivation** (Clifford & Bostock 2007): *L. bi-*, two; *cornus*, horn.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 15–45 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades flat or involute, 5–10 cm long, 2–2.5 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, linear, bilateral, 5–8 cm long, bearing 12–16 fertile spikelets on each. Rhachis fragile at the nodes. Spikelet packing broadside to rhachis.

Rhachis internodes oblong, 0.5 length of fertile spikelet, falling with spikelet above. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1 in number.

**Fertile Spikelets.** Spikelets comprising 1–2 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5.5–8.5 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 5–7 mm long, 1 length of upper glume, coriaceous, without keels, 4–6 -veined. Lower glume lateral veins distinct, ribbed. Lower glume apex with a unilateral tooth or dentate, 1–2 -fid. Upper glume oblong, 5–7 mm long, 1.2 length of adjacent fertile lemma, coriaceous, without keels, 4–6 -veined. Upper glume lateral veins distinct, ribbed, parallel at apex. Upper glume apex with a unilateral tooth or dentate, 1–2 -fid.

**Florets.** Fertile lemma elliptic, 4–6 mm long, coriaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma apex entire, awned, 1 -awned. Principal lemma awn 30–60 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe (\*), Africa, Temperate Asia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Northern Africa.** Egypt, Libya. **Western Asia, Arabian Peninsula.** Cyprus, Lebanon-Syria, Palestine, Israel & Jordan. Kuwait, Saudi Arabia.

**GenBank** (DQ290586 + 80 others).

### **Aegilops biuncialis** Vis. *Fl. Dalm.* 1. (1842).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: : Illustration in Vis., *Fl. Dalm.* 1: t. 1, f. 2(1842).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 217).

**Derivation** (Clifford & Bostock 2007): *L. bis*, twice; *uncus*, hook; *-alis*, pertaining to.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 5–30 cm long. Leaf-sheaths pilose. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 2–5 cm long, 2–3 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, lanceolate, bilateral, 1.5–2 cm long, bearing few fertile spikelets, bearing 2–3(–4) fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis, with upper internodes elongated. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1–2 in number.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 8–11 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong or obovate, 7–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume surface pubescent or pilose. Lower glume apex truncate, awned, 2–3 -awned, awn 20–70 mm long. Upper glume oblong or obovate, 7–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume surface pubescent or pilose. Upper glume apex truncate, awned, 2–3 -awned, awn 20–70 mm long.

**Florets.** Fertile lemma oblong, 8–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 1–2 -fid, awned, 1–2 -awned. Principal lemma awn subterete below, 8–30 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$2n = 28$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region. Northern Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.**



**Country /Province /State.** : GB Aliens (Ryves et al). Krym, Ukraine. **Northern Africa, Macaronesia.** Algeria, Libya, Morocco, Tunisia. Canary Is. **Middle Asia, Caucasus, Western Asia, China.** Turkmenistan, Tadjikistan. China North-Central, Qinghai.

**TDWG4.** Shaanxi.

**GenBank** (AY608599 plus 3 others).

### **Aegilops caudata** L. *Sp. Pl.* 1051 (1753).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Crete. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: CT: *Herb.Tournef.[ort] s.n.*, (LE). orig.label:"Herb.Fischer Spont ex herb. Tournefortii".

**Illustrations (Books):** N.L.Bor, *Gramineae in Flora of Iraq* (1968) (177, Pl. 59).

**Derivation** (Clifford & Bostock 2007): *L. cauda*, tail; -*ata*, possessing. Glumes elongated.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 25–50 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 2–5 cm long, 1–2 mm wide. Leaf-blade surface pilose, sparsely hairy.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, linear, smoothly terete, bilateral, 4–11 cm long, bearing few fertile spikelets, bearing (3–)4–7(–9) fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 2 in number.

**Fertile Spikelets.** Spikelets comprising 4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–12 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, asymmetrical, 9–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume apex dentate, 2 -fid, awned only on distal spikelets (or shortly awned below), 1 -awned, awn 40–100 mm long. Upper glume oblong, asymmetrical, 9–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume apex dentate, 2 -fid, awned only on distal spikelets (or shortly awned below), 1 -awned, awn 40–100 mm long.

**Florets.** Fertile lemma oblong, 9–10 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid or 3 -fid, mucous. Palea 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$N = 7$  (2 refs TROPICOS).  $2n = 14$  (4 refs TROPICOS).

**Distribution (TDWG).** Continent. Europe, Temperate Asia.

**Region.** Southeastern Europe.

**Country /Province /State.** : Crete. **Western Asia.** Iran.

### **Aegilops columnaris** Zhuk. *Bull. Applied Bot., Leningrad*, 18 No. 1, 448 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: asia Minor, Galatia, m. Dizgurt-Dagh in aridis, 980 metr. Galatia, Tohan-kaia, prope Angora. Phrygia prope Ouschak.

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 28), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (179, Pl. 60).

**Derivation** (Clifford & Bostock 2007): *L. column*, column; -*aris*, pertaining to. Spike obconical.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 20–50 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 2–6 cm long, 2.5–4.5 mm wide. Leaf-blade surface scabrous, rough on both sides, pilose, sparsely hairy, hairy on both sides.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, obovate, bilateral, 2–4 cm long, bearing few fertile spikelets, bearing 2–3 fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Rhachis internodes oblong, 0.75 length of fertile spikelet. Spikelets ascending, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 3 in number.

Apical sterile spikelets barren, 2 in number, 2–3 mm long.

**Fertile Spikelets.** Spikelets comprising 4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–12 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 7–11 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins thickened, ribbed. Lower glume surface pubescent. Lower glume apex awned, 2–3 -awned, awn 30–50 mm long. Upper glume oblong, 7–11 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins thickened, ribbed, parallel at apex. Upper glume surface pubescent. Upper glume awned, 2–3 -awned, awn 30–50 mm long.

**Florets.** Fertile lemma oblong, 8–12 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 2 -awned. Principal lemma awn 30–40 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.  $2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Caucasus, Western Asia. Iran, Iraq.

**TDWG4.**

**GenBank** (DQ061248 + 21 others).

**Aegilops comosa** Sibth. & Sm. *Fl. Graec.* 75. t. 94. (1806).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Greece. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: In insulis Graeciae frequens.,.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. coma*, hair of the head; *-osa*, abundance. Upper spikelets of the spike awned thereby forming an apical tuft.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or decumbent, 15–40 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades conduplicate or involute, 1–6 cm long, 1–2 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy on both sides.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, linear, smoothly terete, bilateral, 3–7 cm long. Rhachis semiterete. Spikelet packing broadside to rhachis. Rhachis internodes linear, 9–11 mm long, 1 length of fertile spikelet. Spikelets appressed, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 2(–3) in number.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 9–11 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 8–11 mm long, 1 length of upper glume, coriaceous, without keels, 7 -veined. Lower glume surface scabrous. Lower glume apex with a unilateral tooth or dentate, 2 -fid, awned only on distal spikelets, awn 3–12 mm long. Upper glume oblong, 8–11 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7 -veined. Upper glume lateral veins parallel at apex. Upper glume surface scabrous. Upper glume apex with a unilateral tooth or dentate, 2 -fid, awned only on distal spikelets, awn 3–12 mm long.

**Florets.** Fertile lemma elliptic, 9–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2–3 -fid. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, ciliate. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, ellipsoid, hairy at apex.

$N = 7$  (1ref TROPICOS).  $2n = 14$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Northern Europe (\*), Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Greece. Northern Africa. Morocco. Western Asia. East Aegean Is, Turkey.

**GenBank** (AF277242 + 108 others).

**Aegilops crassa** Boiss. *Diagn. Pl. Orient.* 17: 129 (1846).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Iran. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Th. Kotschy* 248, 16 Apr. 1842, Iran: Persia austr.: ad canales in planitie pr. ruinas u.Persepolis (G-BOIS; IT: BM, C, FI, G, K, L, LE(2 sheets), MO-2870276, OXF, P, PI, PRC, TUB, W). Diagnosis on label, Ed. R.F.Hohenacker.1845.

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 213 as ssp. *vavilovii*), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (181, Pl. 61), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (264).

**Derivation** (Clifford & Bostock 2007): L. thick. Spikes thick.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 30–50 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 4–10 mm wide. Leaf-blade surface glabrous or pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, moniliform, smoothly terete, bilateral, 4–8 cm long, bearing 6–8 fertile spikelets on each. Rhachis fragile at the nodes, semiterete. Spikelet packing broadside to rhachis. Spikelets appressed, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary, 0–2 in number.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 10–14 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, asymmetrical, 8–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume surface pubescent. Lower glume apex dentate, 2–4 -fid, truncate. Upper glume oblong, asymmetrical, 8–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed. Upper glume surface pubescent. Upper glume apex dentate, 2–4 -fid, truncate.

**Florets.** Fertile lemma oblong, 10–12 mm long, coriaceous, keeled, 5 -veined, more than 3-veined. Lemma apex entire or dentate, 2 -fid, with irregular lobes, truncate, muticous or awned, 1 -awned. Principal lemma awn flat below, 50–80 mm long overall (becoming longer above, but shorter than raceme). Palea 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, ciliate. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$2n = 42$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe (\*), Temperate Asia, North America.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Middle Asia, Caucasus, Western Asia.** Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq. **Northeast USA.** New York.

**TDWG4.**

**GenBank** (DQ075371 + 19 others). Anatomy Metcalf.

**Aegilops cylindrica** Host. *Sp. Pl.* 1051 (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Hungary. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: Fl.Jun, Jul. 1802, Ex cult. mea (LE). b="ab Host proxime edenda Kit."

ST: *Host*, (LE). b= "Aegilops caudata 1797".

LT: *Kitaibel* 226, Hungary: Buda Pesthina, in Cttu [Co.] Bikisiensi (BP; ILT: B-WILLD-18878–1). LT designated by van Slageren, *Wagen. Agric. Univ. Pap.* 94–7: 200 (1994).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (266), F.W.Gould, *The Grasses of Texas* (1975) (174, Fig. 88 as *Triticum cylindricum*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:1(1980)).

**Derivation** (Clifford & Bostock 2007): L. cylindrus, cylinder; L. -ica, belonging to. Inflorescences cylindrical.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 20–40(–80) cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 4–12 cm long, 2–5 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, linear, flexuous, smoothly terete, bilateral, 6–11 cm long, bearing 4–6 fertile spikelets on each. Rhachis fragile at the nodes, semiterete. Spikelet packing broadside to rhachis. Rhachis internodes cuneate, 1 length of fertile spikelet. Spikelets appressed, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1–2 in number.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–14 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, asymmetrical, 7–9 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn terminal (from 1 tooth), awn 9–18 mm long. Upper glume oblong, asymmetrical, 7–9 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn terminal (from 1 tooth), awn 9–18 mm long.

**Florets.** Fertile lemma oblong, 9–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, awned only on distal spikelets, 1 -awned. Principal lemma awn 30–80 mm long overall (shorter than raceme). Palea 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, ciliate. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$2n = 28$  (3 refs TROPICOS), or 42 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Tropical Asia, North America.

**Region.** Northern Europe (\*), Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Czechoslovakia, Hungary. : France. : Bulgaria, Greece, Italy, Romania, Turkey Europe, Yugoslavia. Belarus, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. Russian far east, Middle Asia, Caucasus, Western Asia, China. Primorye. Kazakhstan, Turkmenistan, Tadjikistan. Iran, Iraq. China North-Central, Qinghai. Indian Subcontinent. Pakistan. Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Mexico. Colorado. Northeast Mexico.

**TDWG4.** Hebei, Shaanxi. Chihuahua.

**GenBank** (AM087945 + 12 others).

**Aegilops dichasians** (Bowden) Humphries, nom superfl. *Bot. J. Linn. Soc.* 78: 236 (1979).

Regarded by K as a synonym (*A. caudata*).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Greece. **Basionym or Replaced Name:** *Triticum dichasians* Bowden, *Canad. Journ. Bot.* 37: 667 (1959). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Aegilops caudata* ; Greece: de Tournefort 4940 (P neo, LE).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 20–40(–80) cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 4–12 cm long, 2–5 mm wide. Leaf-blade surface pilose, densely hairy.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, linear, smoothly terete, bilateral, 3–7 cm long. Rhachis tough, semiterete. Spikelet packing broadside to rhachis. Rhachis internodes cuneate. Spikelets appressed, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1–2 in number.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–14 mm long, falling entire.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, asymmetrical, 7–9 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed.

Lower glume apex with a unilateral tooth or dentate, 1–2 -fid. Upper glume oblong, asymmetrical, 7–9 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume apex dentate, 2 -fid.

**Florets.** Fertile lemma oblong, 9–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, awned only on distal spikelets, 1 -awned. Principal lemma awn 40–80 mm long overall (longer than raceme). Palea 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, ciliate. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

**Distribution (TDWG). Continent.** Europe.

**Region.** Southeastern Europe.

**Country /Province /State.** : Bulgaria, Greece, Crete, Yugoslavia.

### **Aegilops fragilis** Parl. *Fl. Ital.* 1 : 515 (1848).

Regarded by K as a synonym (*A. ventricosa*).

**TYPE** from Italy. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Italy, Puglia: Gasparrini (FI syn, PAV) ; Italy, Sardinia: Moris (FI syn, TO).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. weak. Inflorescences readily disarticulating.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Flower and Fruit.**  $2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe.

**Region.** Southeastern Europe.

**Country /Province /State.** : Italy.

### **Aegilops geniculata** Roth. *Catalect.* 1: 121 (1787).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Germany. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Roth*, Germany (B-WILLD; IT: BM, K, LE, TUB). LE: a equals "Ex Herb. Rohde;" b equals "Bot. Abh. und Beob. 1802. M.Roth". ST?: Spain (?; IT: BM, K).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 218), L.Boulos, *Flora of Egypt* 4 (2005) (215, Pl. 61), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (267), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:2(1980)).

**Derivation** (Clifford & Bostock 2007): L. genus, knee; -ulus, diminutive. -ata, possessing. Plants with bent culms or awns.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 10–30 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 4–8 cm long, 1.5–3 mm wide. Leaf-blade surface pubescent.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, obovate, bilateral, 1–2 cm long, 4–9 mm wide, bearing few fertile spikelets, bearing 2(–3) fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1–2 in number.

Apical sterile spikelets barren, 2–3 in number, 2–3 mm long.

**Fertile Spikelets.** Spikelets comprising 3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 7–11 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 6–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume surface scabrous, rough on veins, pubescent. Lower glume apex truncate, awned, 3–4(–5) -awned, awn 15–25 mm long. Upper glume oblong, 6–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume surface scabrous, rough on veins, pubescent. Upper glume apex truncate, awned, 3–4(–8) -awned, awn 15–25 mm long.

**Florets.** Fertile lemma oblong, 7–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 3 -fid, awned, 3 -awned. Principal lemma awn 10–25 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.  $N = 14$  (1 ref TROPICOS).  $2n = 28$  (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym. **Northern Africa, Macaronesia.** Egypt, Libya. Canary Is. **Middle Asia, Caucasus, Western Asia, China.** China North-Central, Qinghai.

**TDWG4.** Hebei, Shaanxi.

**GenBank** (EF137806 + 19 others).

### **Aegilops juvenalis** (Thell.) Eig. *Repert. Spec. Nov. Regni Veg. Beih* 55: 63, 93 (1929).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from France. **Basionym or Replaced Name:** *Triticum juvenale* Thell., *Fedde, Repert. Nov. Sp.* 3: 281 (1907). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: France, Port Juvenale: Touchy (MPU holo, W).

**Illustrations (Books):** N.L.Bor, *Gramineae in Flora of Iraq* (1968) (183, Pl. 62).

**Derivation** (Clifford & Bostock 2007): L. -ale, pertaining to. From Port Juvinal, near Montpellier, France.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 20–40 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 15–30 cm long, 5–10 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, moniliform or lanceolate, bilateral, 4–8 cm long, bearing 6 fertile spikelets on each. Rhachis fragile at the nodes. Spikelet packing broadside to rhachis. Rhachis internodes oblong, falling with spikelet alongside. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1–2 in number.

**Fertile Spikelets.** Spikelets comprising 4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 10–15 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume elliptic, 7–8 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins distinct, ribbed. Lower glume surface pubescent. Lower glume apex dentate, 2 -fid, truncate, awned, 2 -awned, awn 6–12 mm long. Upper glume elliptic, 7–8 mm long, 0.8 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins distinct, ribbed, parallel at apex. Upper glume surface pubescent. Upper glume apex dentate, 2 -fid, truncate, awned, 2 -awned, awn 6–12 mm long.

**Florets.** Fertile lemma oblong, 8–9 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, truncate, awned, 1 -awned. Principal lemma awn subterete below, 6 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** **Middle Asia, Western Asia.** Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq.

**TDWG4.**

**GenBank** (EF137808 + 17 others).

### **Aegilops kotschy** Boiss. *Diagn. Pl. Orient.* 7: 129 (1846).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Iran. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT (1 CT): Th.Kotschy 366, Majo m. 1842, Persia austr.: Ad canales pr. p.Sabst-Buschorum" (LE: 2 sheets of IT).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 215 as var. *kotschy*).

**Images:** L.Boulos, *Flora of Egypt* 4 (2005);.

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Karl Georg Theodor Kotschy (1813–1866) Austrian botanist and traveller.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 12–25 cm long. Leaf-sheaths pilose. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 6–12 cm long, 1.5–4 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy. Leaf-blade margins ciliate.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, lanceolate, bilateral, 0.5–4 cm long, 2.5–5 mm wide, bearing few fertile spikelets, bearing 2–6 fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 2–3 in number.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–10 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong or ovate, 4–6 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins distinct, ribbed. Lower glume surface scabrous, rough on veins, glabrous or pilose. Lower glume apex dentate, 3 -fid, truncate, awned, 3 -awned, awn 10–30 mm long. Upper glume oblong or ovate, 4–6 mm long, 0.7–0.8 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins distinct, ribbed, parallel at apex. Upper glume surface scabrous, rough on veins, glabrous or pilose. Upper glume apex dentate, 3 -fid, truncate, awned, 3 -awned, awn 10–30 mm long.

**Florets.** Fertile lemma oblong, 5–8 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1–3 -awned. Principal lemma awn 5–15 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State. Northern Africa.** Egypt, Libya, Tunisia. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula.** Turkmenistan, Uzbekistan. Transcaucasus. Afghanistan, Cyprus, Iran, Iraq, Lebanon-Syria, Palestine, Israel & Jordan, Turkey. Gulf States, Kuwait, Saudi Arabia.

**TDWG4.**

**GenBank** (DQ257559 + 16 others).

**Aegilops longissima** Schweinf. & Muschler. Muschler, *Man. Fl. Egypt* 1: 156 (1912).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Egypt. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Egypt, Alexandria: Schweinfurth (B lecto, CAIM, NPU, US).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 210), L.Boulos, *Flora of Egypt* 4 (2005) (215, Pl. 61).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; -issima, most. Internodes very long.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 40–110 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades flat or involute, 5–10 cm long, 3 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence composed of racemes, not deciduous as a whole or deciduous as a whole. Racemes 1, single, linear, unilateral or bilateral, 10–20 cm long, bearing 10–20 fertile spikelets on each. Rhachis tough or fragile at the nodes. Spikelet packing broadside to rhachis. Rhachis internodes oblong, 1 length of fertile spikelet, when fragile falling with spikelet above. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary, 0–1 in number.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 12–14 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 7–8 mm long, 1 length of upper glume, coriaceous, without keels, 6–7 -veined. Lower glume lateral veins distinct, ribbed. Lower glume apex dentate or lobed, 2 -fid, muticous or awned or awned only on distal spikelets, 1 -awned, awn 3–10 mm long. Upper glume oblong, 7–8 mm long, 0.8–0.9 length of adjacent fertile lemma, coriaceous, without keels, 6–7 -veined. Upper glume lateral veins distinct, ribbed, parallel at apex. Upper glume apex dentate or lobed, 2 -fid, muticous or awned or awned only on distal spikelets, 1 -awned, awn 3–10 mm long.

**Florets.** Fertile lemma elliptic, 8–10 mm long, coriaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma apex dentate, 1–2 -fid, awned only on distal spikelets, 1 -awned. Principal lemma awn subterete below, 40–60 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.  $N = 7$  (1 ref TROPICOS).  $2n = 14$  (5 refs TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State.** Northern Africa. Egypt. Western Asia. Palestine, Israel & Jordan.

**GenBank** (DQ290588 + 148 others).

### ***Aegilops lorentii*** Hochst. Lorent, *Wanderungen* 326 (1845).

Regarded by K as a synonym (*A. biuncialis*).

**Accepted by:** T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turkey, Seleucia: von Lorent (TUB holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of J. August Lorent (1812–1884) American-born German botanist and traveller.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 5–30 cm long. Leaf-sheaths pilose. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 2–5 cm long, 2–3 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, lanceolate, bilateral, 1.5–2 cm long, bearing few fertile spikelets, bearing 2–3(–4) fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis, with upper internodes elongated. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1–2 in number.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 8–11 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong or obovate, 7–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume surface pubescent or pilose. Lower glume apex truncate, awned, 2–3 -awned, awn 20–70 mm long. Upper glume oblong or obovate, 7–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume surface pubescent or pilose. Upper glume apex truncate, awned, 2–3 -awned, awn 20–70 mm long.

**Florets.** Fertile lemma oblong, 8–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 1–2 -fid, awned, 1–2 -awned. Principal lemma awn subterete below, 8–30 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.  $2n = 14$  (1 ref TROPICOS), or 28 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : France, Spain. : Bulgaria, Greece, Italy, Crete, Romania, Yugoslavia. Krym. Middle Asia, Caucasus, Western Asia. Iran, Iraq.

### ***Aegilops markgrafii*** (Greuter) K. Hammer. *Feddes Repert.* 91 (4): 232 (1980).

Regarded by K as a synonym (*A. caudata*).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Greece. **Basionym or Replaced Name:** *Triticum markgrafii* Greuter, *Boissiera*, 13: 172 (1967). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Aegilops cylindrica* Sm. ; Crete: Sibthorp (OXF lecto).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Friedrich Markgraf (1897–1987) German botanist.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.



**Habit, Vegetative Morphology.** Annual, caespitose. Culms 25–50 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 2–5 cm long, 1–2 mm wide. Leaf-blade surface pilose, sparsely hairy.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, linear, smoothly terete, bilateral, 4–11 cm long, bearing few fertile spikelets, bearing (3–)4–7(–9) fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 2 in number.

**Fertile Spikelets.** Spikelets comprising 4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–12 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, asymmetrical, 9–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume apex dentate, 2 -fid, awned only on distal spikelets (or shortly awned below), 1 -awned, awn 40–100 mm long. Upper glume oblong, asymmetrical, 9–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume apex dentate, 2 -fid, awned only on distal spikelets (or shortly awned below), 1 -awned, awn 40–100 mm long.

**Florets.** Fertile lemma oblong, 9–10 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid or 3 -fid, muticous. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region. Southeastern Europe.**

**Country /Province /State.** : Bulgaria, Greece, Crete, Yugoslavia. **Western Asia.** Afghanistan, East Aegean Is, Iraq, Lebanon-Syria, Turkey.

**GenBank** (DQ269916 + 108 others).

**Aegilops mutica** Boiss. *Diagn. Pl. Orient.* 15: 73. (1844).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Amblyopyrum muticum*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Amblyopyrum muticum*).

**TYPE** from Turkey. **Basionym or Replaced Name:** *Amblyopyrum muticum* (Boiss.)Eig, *E. Inst. Agric. & Nat. Hist., Agric. Rec.* No. 2, 200 (1929). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. in Cappadocia ad Euphratem, 1837, *Aucher* 2977 (G(herb. Boiss.); IT: G, P).

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 30 as *Amblyopyrum*), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (225, Pl. 76 as *Amblyopyrum*).

**Derivation** (Clifford & Bostock 2007): L. blunt. Lacking awns or lemmas and/or glumes truncate.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 30–90 cm long. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule absent. Leaf-blades 5–10 cm long, 3–5 mm wide. Leaf-blade surface glabrous or pilose, hairy adaxially, with tubercle-based hairs. Leaf-blade margins glabrous or tuberculate-ciliate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, linear, bilateral, 15–18 cm long, bearing 10–20 fertile spikelets on each. Rhachis fragile at the nodes (tardily), semiterete, glabrous on surface or pubescent on surface, scaberulous on margins. Spikelet packing broadside to rhachis. Rhachis internodes linear, 10–17 mm long, falling with spikelet above. Spikelets appressed, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets absent.

**Fertile Spikelets.** Spikelets comprising 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 8–15 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes collateral, similar, shorter than spikelet. Lower glume oblong, 5–7 mm long, 1 length of upper glume, coriaceous, without keels, 5 -veined. Lower glume lateral veins ribbed. Lower glume surface glabrous or pilose. Lower glume apex entire, emarginate or truncate. Upper glume oblong, 5–7 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 9 -veined. Upper glume lateral veins ribbed, divergent at apex. Upper glume surface glabrous or pilose. Upper glume apex emarginate or truncate.

**Florets.** Fertile lemma oblong, 7–10 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous or pilose, hairy all along or above. Lemma apex emarginate or obtuse, mucous. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, ciliate. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, hairy at apex. Embryo 0.5–0.66 length of caryopsis. Hilum linear, 1 length of caryopsis.

$N = *$ .  $2n = 28$  (\*).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Caucasus, Western Asia. Transcaucasus. Turkey.

**TDWG4.**

### **Aegilops neglecta** Req. ex Bertol. *Fl. Ital.* 1: 787 (1834).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from France. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: OM: (LE). There are 3 sheets annotated by Requen as *A. neglecta* before publication but not cited there! van Slageren (p. 281, 1994), does not consider these as isotypes.

HT: *Requien misit*, 1833, France: Avignon (BOLO-BERT; AV, MPU).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (267).

**Derivation** (Clifford & Bostock 2007): *L. negligo*, disregard. Often a segregate from another species with which confusion is likely.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 25–35 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 2–6 cm long, 2.5–3 mm wide. Leaf-blade surface pilose. Leaf-blade margins ciliate.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, obovate, bilateral, 3–6 cm long, bearing few fertile spikelets, bearing 2(–3) fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 3 in number.

Apical sterile spikelets barren, 1–2 in number.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 10–11 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume elliptic, gibbous, 9–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume surface pubescent. Lower glume apex awned, 2–3 -awned, awn 20–50 mm long. Upper glume elliptic, gibbous, 9–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume surface pubescent. Upper glume awned, 2–3 -awned, awn 20–50 mm long.

**Florets.** Fertile lemma oblong, 10–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2–4 -fid, awned, 2–4 -awned. Principal lemma awn 10–25 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$N = 21$  (1 ref TROPICOS).  $2n = 28$  (1 ref TROPICOS), or 42 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym. Northern Africa. Libya. Middle Asia, Western Asia. Tadzhikistan.

### **Aegilops ovata (=A. geniculata)** L., nom ambig. *Sp. Pl.* 1050 (1753).

More checking of status required.

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Europe. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *van Royen s.n.*, Unknown (L).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ovum*, egg. -*ata*, possessing. Inflorescences, spikelets, or leaf-blades in outline the shape of an egg in longitudinal section.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Flower and Fruit.**  $2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, North America.

**Region.** Southwestern Europe, Eastern Europe.

**Country /Province /State.** : France. Krym, Ukraine. **Southwestern USA, Southeastern USA.** California, Virginia.

**TDWG4.**

### **Aegilops peregrina** (Hackel) Maire & Weiller. Maire, *Fl. Afr. Nord* 3:358 (1955).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Scotland. **Basionym or Replaced Name:** *Triticum peregrinum* Hack., *Ann. Scot. Nat. Hist.* 1907, 102. (1907). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: J. Fraser, Jul 1906, Scotland: Edinburgh, Leithe Docks (W; IT: US-75309 (ex W)).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 214 as ssp. *peregrina* & *cylindrostachys*).

**Derivation** (Clifford & Bostock 2007): *L. foreigner*.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 9–13 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 3–6 cm long, 2–3 mm wide. Leaf-blade surface pubescent, hairy on both sides.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, lanceolate or ovate, bilateral, 1–2 cm long, bearing few fertile spikelets, bearing 2–7 fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 2–3 in number.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or ovate, laterally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong or obovate, 3–5 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins distinct, ribbed. Lower glume surface scabrous, rough on veins. Lower glume apex dentate, truncate, awned, 2–3 -awned, awn 9–24 mm long. Upper glume oblong or obovate, 3–5 mm long, 0.66 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins distinct, ribbed, parallel at apex. Upper glume surface scabrous, rough on veins. Upper glume apex dentate, 2–3 -fid, truncate, awned, 2–3 -awned, awn 9–25 mm long.

**Florets.** Fertile lemma oblong, 4.5–7.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex entire or erose, emarginate or truncate, muticous or awned only on distal spikelets (shortly), 1 -awned. Principal lemma awn 20–120 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Southeastern Europe.

**Country /Province /State.** : Greece, Crete. **Northern Africa.** Algeria, Egypt, Libya, Morocco. **Caucasus, Western Asia, Arabian Peninsula.** Transcaucasus. Cyprus, Iran, Iraq, Lebanon-Syria, Palestine, Israel & Jordan, Turkey.

### **Aegilops searsii** M. Feldman & M. Kiselev. *Israel J. Bot.* 26(4): 191 (1978).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Israel. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Israel: Judean Hills, Yattir, *Sarcopoterietum spinosi* semitepposum, terra rossa mixed with loess, 15 Jun 1976, *Feldman, Kiselev & Kushnir s.n.* (HT: HUIJ; IT: HUIJ, K).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 211).

**Derivation** (Clifford & Bostock 2007): in honor of Ernest R. Sears ( - ) United States plant breeder and geneticist.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 10–50 cm long. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades flat or involute, 2–5 cm long, 1.5 mm wide.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole, embraced at base by subtending leaf. Racemes 1, single, linear, bilateral, 5–11 cm long, bearing 8–12 fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Rhachis internodes oblong, 1 length of fertile spikelet. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary, 0–1 in number.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 12–14 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 7–8 mm long, 1 length of upper glume, coriaceous, without keels, 6–7 -veined. Lower glume lateral veins distinct, ribbed. Lower glume apex dentate or lobed, 2 -fid, muticous or awned or awned only on distal spikelets, 1 -awned, awn 3–10 mm long. Upper glume oblong, 7–8 mm long, 0.8–0.9 length of adjacent fertile lemma, coriaceous, without keels, 6–7 -veined. Upper glume lateral veins distinct, ribbed, parallel at apex. Upper glume apex dentate or lobed, 2 -fid, muticous or awned or awned only on distal spikelets, 1 -awned, awn 3–10 mm long.

**Florets.** Fertile lemma elliptic, 8–10 mm long, coriaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma apex dentate, 1–2 -fid, awned only on distal spikelets, 2 -awned. Principal lemma awn from a sinus, subterete below, 80–100 mm long overall. Lateral lemma awns present, arising on apex of lobes, 40–50 mm long. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Anthers 3, 2–3 mm long. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG), Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Palestine, Israel & Jordan.

**Aegilops sharonensis** Eig. *Notizbl. Bot. Gart. Berlin*, 10: 489 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Israel. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. Palastina: Beer-Jakob (an der Haifa-Kantara-Bahn), Tel-Aviv und Umgebung, Schechunath Borohov (coll. Eig); Herzlia, Arsuf....

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 209 as var. *sharonensis*).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Sharon, Palestine.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual. Culms 40–100 cm long. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades flat or involute, 10–20 cm long, 4–5 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, linear, bilateral, 7–13 cm long, bearing 7–15 fertile spikelets on each. Rhachis fragile at the nodes. Spikelet packing broadside to rhachis. Rhachis internodes oblong, falling with spikelet above. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1–2 in number.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 8–13 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 6–7 mm long, 1 length of upper glume, coriaceous, without keels, 6–7 -veined. Lower glume lateral veins thickened, ribbed, parallel at apex. Lower glume surface scabrous. Lower glume apex dentate, 2 -fid. Upper glume oblong, 6–7 mm long, 0.75 length of adjacent fertile lemma, coriaceous, without keels, 6–7 -veined. Upper glume lateral veins thickened, ribbed, parallel at apex. Upper glume surface scabrous. Upper glume apex dentate, 2 -fid.

**Florets.** Fertile lemma elliptic, 8–11 mm long, coriaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned or awned only on distal spikelets, 1 -awned. Principal lemma awn from a sinus, 30–80 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.  $N = 7$  (1 ref TROPICOS).  $2n = 12$  (1 ref TROPICOS), or 14 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Palestine, Israel & Jordan.

### **Aegilops speltoides** Tausch. *Flora* 9: 109 (1837).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turkey, Yoggat to Corum: Bornmuller 1753 (B neo, BM, FI, G, K, L, LD, NY, P, W, Z)).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 212 as var. *speltoides* & var. *ligustica*), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (189, Pl. 63).

**Derivation** (Clifford & Bostock 2007): Gk. *-oides*, resembling. Similar to *Spelta*.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 20–70 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 5–15 cm long, 2–3 mm wide, glaucous. Leaf-blade surface scabrous, rough on both sides, pilose, sparsely hairy.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, linear, straight or arcuate, bilateral, 8–11 cm long, bearing 6–13 fertile spikelets on each. Rhachis tough, semiterete. Spikelet packing broadside to rhachis. Rhachis internodes linear, 1 length of fertile spikelet. Spikelets appressed, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary, 0–1 in number.

**Fertile Spikelets.** Spikelets comprising 4–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–14 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, asymmetrical, 5–9 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume apex with a unilateral tooth. Upper glume oblong, asymmetrical, 5–9 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume apex with a unilateral tooth, truncate.

**Florets.** Fertile lemma oblong, 8–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, awned only on distal spikelets, 1 -awned. Principal lemma awn 20–120 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, ciliate. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (10 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : France. : Bulgaria, Greece, Italy, Turkey Europe. Western Asia. Iran, Iraq.

### **Aegilops tauschii** Coss. *Notes Crit.* 69 (1849).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Ill.*, t. 50, f. 1. in *Buxbaum, Pl. minus cognit. Centuria 1 (1728)*, (Illustration). LT designated by van Slageren, *Wegen. Agric. Univ. Pap.* 94–7: 328 (1994).

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 27), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (191, Pl. 64), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (264), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 621).

**Derivation** (Clifford & Bostock 2007): in honor of Jgnaz Friedrich Tausch (1793–1848) Bohemian botanist.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 25–30 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 8–17 cm long, 3–5 mm wide. Leaf-blade surface scaberulous, glabrous or pilose.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, linear, smoothly terete, bilateral, 5–10 cm long, 5–8 mm wide, bearing 9–11 fertile spikelets on each. Rhachis fragile at the nodes. Spikelet packing broadside to rhachis. Rhachis internodes oblong, falling with spikelet above. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary, 0–2 in number.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–8 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 5–6 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume apex with a unilateral tooth, truncate. Upper glume oblong, 5–6 mm long, 0.8–0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume apex with a unilateral tooth, truncate.

**Florets.** Fertile lemma oblong or ovate, 6–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex entire, truncate, awned or awned only on distal spikelets, 1 -awned. Principal lemma awn subterete below, 30–40 mm long overall (lower spikelets 0–18). Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Tropical Asia.

**Region.** Northern Europe (\*), Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). Baltic States, Krym. **Middle Asia, Caucasus, Western Asia, China, Russia.** Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Afghanistan, Iran, Iraq. China North-Central, China Southeast, Xinjiang. **Indian Subcontinent.** Pakistan, West Himalaya.

**TDWG4.** Shaanxi. Henan. Jammu Kashmir.

## **Aegilops triuncialis** L. *Sp. Pl.* 1051 (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Spain. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: CT: Loeffling, Hispania (LINN-1218.8). LT designated by Bowden, *Canad. J. Bot.* 37: 575 (1959); CT proposed by Jarvis, *Taxon* 41: 555 (1992).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 216), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (193, Pl. 65), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (597, Fig 68), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (266 as var. *triuncialis*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:3(1980)).

**Derivation** (Clifford & Bostock 2007): L. *tria*, three; *uncus*, hook; -alis, pertaining to. Glumes and lemmas, each with three awns about 2.5 cm long.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 15–45 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades flat or involute, 5–10 cm long, 1–2 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence composed of racemes, not deciduous as a whole or deciduous as a whole. Racemes 1, single, lanceolate, bilateral, 3–6 cm long, bearing few fertile spikelets, bearing (3–)4–6 fertile spikelets on each. Rhachis tough or fragile at the nodes. Spikelet packing broadside to rhachis. Rhachis internodes oblong, when fragile falling with spikelet alongside. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 2–3 in number.

**Fertile Spikelets.** Spikelets comprising 4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–10 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 7–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened, ribbed. Lower glume surface smooth or scabrous. Lower glume apex dentate, 3 -fid, awned, 2–3 -awned, awn 10–60 mm long.

Upper glume oblong, 7–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins unequally thickened, ribbed, parallel at apex. Upper glume surface smooth or scabrous. Upper glume apex dentate, 3 -fid, awned, 2–3 -awned, awn 10–60 mm long.

**Florets.** Fertile lemma oblong, 7–10 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned only on distal spikelets, 3 -awned. Principal lemma awn 5–6 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.  $N = 14$  (1 ref TROPICOS).  $2n = 28$  (5 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, North America.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Sicily, Turkey Europe, Yugoslavia. Krym, Ukraine. **Northern Africa.** Algeria, Libya, Morocco, Tunisia. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China.** Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq. Kuwait. China North-Central, Qinghai, China Southeast. **Indian Subcontinent.** Pakistan. **Northeast USA, Southwestern USA.** Pennsylvania. California.

**TDWG4.** Hebei, Shaanxi. Jiangsu.

Anatomy Metcalf (as *A. triaristata*).

**Aegilops umbellulata** Zhuk. *Bull. Applied Bot., Leningrad* 18 No. 1, 447 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST (CT): *P.Zhukovsky 9730, 1925–1927, Asia Minor*: [Turcia]: Wilajet Angara (LE).

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 29), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (195, Pl. 66).

**Derivation** (Clifford & Bostock 2007): *L. umbella*, parasol; *-ula*, diminutive; *-atum*, possession.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or decumbent, 10–30 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 3–10 cm long, 1–2 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, lanceolate or ovate, bilateral, 2.5–4 cm long, bearing few fertile spikelets, bearing 2 fertile spikelets on each. Rhachis flattened, terminating in a sterile spikelet. Spikelet packing broadside to rhachis. Rhachis internodes cuneate, 2 mm long, 0.25 length of fertile spikelet. Spikelets ascending, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, (2–)3 in number.

Apical sterile spikelets barren, 1–3 in number (many-awned).

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets obovate, laterally compressed, 7–11 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume obovate, 5–8 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins unequally thickened. Lower glume surface scabrous. Lower glume apex truncate, awned, 3–5 -awned, awn 20–35 mm long. Upper glume obovate, 5–8 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins parallel at apex. Upper glume surface scabrous, rough on veins. Upper glume apex truncate, awned, 3–5 -awned, awn 20–35 mm long.

**Florets.** Fertile lemma elliptic, 6–9 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins ciliolate. Lemma apex awned, 1–3 -awned. Principal lemma awn spreading, 15–35 mm long overall, limb scabrous. Lateral lemma awns absent or present, shorter than principal. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, ciliate. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, ellipsoid, hairy at apex.

$N = 14$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Northern Europe (\*), Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). **Caucasus, Western Asia, China.** Iran, Iraq. China North-Central, Qinghai.

**TDWG4.** Shaanxi.

**Aegilops uniaristata** Vis. *Fl. Dalm.* 3: 345. (1852).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Greece. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Croatia, Zara: de Visiani (PAD holo, W).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. unus*, one; *arista*, bristle; *-ata*, possessing. Lemma one-awned.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 20–40 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 3–5 cm long, 1–2 mm wide. Leaf-blade surface pilose.

**Inflorescence.** Inflorescence composed of racemes, deciduous as a whole. Racemes 1, single, lanceolate, bilateral, 1–1.5 cm long, bearing few fertile spikelets, bearing 3 fertile spikelets on each. Rhachis tough. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, (2–)3 in number.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or ovate, laterally compressed, 13–15 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, gibbous, 9–11 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins thickened, ribbed. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 30–50 mm long. Upper glume oblong, gibbous, 9–11 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins thickened, ribbed, parallel at apex. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 30–40 mm long.

**Florets.** Fertile lemma oblong, 9–11 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn 3 mm long overall. Palea 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$2n = 14$  (3 refs TROPICOS).

**Distribution (TDWG).** Continent. Europe, Temperate Asia.

**Region.** Southeastern Europe.

**Country /Province /State.** : Albania, Greece, Italy, Crete, Turkey Europe, Yugoslavia. **Western Asia.** Turkey.

**Aegilops vavilovii** (Zhuk.) Chennav. *Acta Hort. Gotoburg.* 23: 167 (1960).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Syria. **Basionym or Replaced Name:** *Aegilops crassa* subsp. *vavilovi* Zhuk., *Bull. Appl. Bot. Gen. Pl. Breed.* 13:554 (1928). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Syria, Salamié: Vavilov 29028 (WIR lecto).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Nikolai Ivanovich Vavilov (1887–1942) Russian plant geneticist.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, robust, 30–75 cm long. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 4–10 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, moniliform, smoothly terete, bilateral, 10–15 cm long, bearing 7–10 fertile spikelets on each. Rhachis fragile at the nodes, semiterete. Spikelet packing broadside to rhachis. Rhachis internodes oblong, falling with spikelet alongside. Spikelets appressed, solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary, 0–2 in number.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 8–15 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume ovate, asymmetrical, 7–10 mm long, 1 length of upper glume, coriaceous, without keels, 7–10 -veined. Lower glume lateral veins unequally thickened, ribbed, parallel at apex. Lower glume surface pubescent. Lower glume apex dentate, 2–3 -fid, truncate, awned or awned only on distal spikelets, 1 -awned, awn terminal (on adaxial lobe), awn 10–25 mm long. Upper glume ovate, asymmetrical, 7–10 mm long, 0.9 length of adjacent fertile lemma, coriaceous, without keels, 7–10 -veined.



Upper glume lateral veins unequally thickened, ribbed. Upper glume surface pubescent. Upper glume apex dentate, 2–3 -fid, truncate, awned or awned only on distal spikelets, 1 -awned, awn terminal (on adaxial lobe), awn 10–25 mm long.

**Florets.** Fertile lemma ovate, 8–11 mm long, coriaceous, keeled, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex dentate, 3 -fid, with outer lobes shorter, truncate, awned, 1 -awned or 2 -awned. Principal lemma awn flat below, 50–80 mm long overall. Lateral lemma awns absent or present, arising on apex of lobes. Palea 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

$2n = 42$  (3 refs TROPICOS).

**Distribution (TDWG).** **Continent.** Europe (\*), Temperate Asia.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Western Asia, Arabian Peninsula.** Lebanon-Syria. Saudi Arabia.

### **Aegilops ventricosa** Tausch. *Flora* 9: 108 (1837).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *Boissier s.n.*, Spain: Grenada: Sierra Nevada (G; INT: A, BR, C, E, F, G, JE, K, LE, MPU, NY, P, PI, TUB, W). NT designated by van Slageren, *Wegen. Agric. Univ. Pap.* 94–7: 392 (1994).

**Illustrations (Books):** L.Boulos, *Flora of Egypt* 4 (2005) (215, Pl. 61), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (264).

**Derivation** (Clifford & Bostock 2007): L. venter, belly; -osa, abundance. Spikelets inflated.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 30–65 cm long. Leaf-sheaths pilose. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 8–17 cm long, 1.5–4.5 mm wide. Leaf-blade surface pilose.

**Inflorescence.** Inflorescence composed of racemes, not deciduous as a whole or deciduous as a whole. Racemes 1, single, linear or moniliform, bilateral, 5 cm long, bearing few fertile spikelets, bearing 4–6 fertile spikelets on each. Rhachis tough or fragile at the nodes. Spikelet packing broadside to rhachis. Rhachis internodes oblong, when fragile falling with spikelet alongside. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary, 1–2 in number.

**Fertile Spikelets.** Spikelets comprising 4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 5–14 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume ovate, gibbous, 4.2–11 mm long, 1 length of upper glume, coriaceous, without keels, 7–9 -veined. Lower glume lateral veins thickened, ribbed. Lower glume surface smooth or asperulous, rough on veins. Lower glume apex dentate, 3 -fid, mucronate, 3 -awned, awn 17–95 mm long. Upper glume ovate, gibbous, 4.2–11 mm long, 1 length of adjacent fertile lemma, coriaceous, without keels, 7–9 -veined. Upper glume lateral veins thickened, ribbed, parallel at apex. Upper glume surface smooth or asperulous, rough on veins. Upper glume apex dentate, 3 -fid, awned, 3 -awned, awn 17–95 mm long.

**Florets.** Fertile lemma oblong, 4–11.3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins ciliate. Lemma apex dentate, 3 -fid, awned, (2–)3 -awned. Principal lemma awn 50–95 mm long overall. Palea 6–11.5 mm long, 2 -veined. Palea keels scaberulous, ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Anthers 3, 3.2–4.7 mm long. Ovary pubescent on apex. Caryopsis with adherent pericarp, ovoid, 4.5–8 mm long, hairy at apex.

$N = 14$  (2 refs TROPICOS).  $2n = 28$  (4 refs TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Africa, Temperate Asia.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al) : Balears, Corsica, France, Spain. : Italy, Sicily, Yugoslavia. **Northern Africa.** Algeria, Egypt, Libya, Morocco, Tunisia. **Western Asia, China.** China North-Central, Qinghai.

**TDWG4.** Hebei, Shaanxi.

Anatomy Metcalf.

**Aeluropus badghyzi** Tsvelev. *Novosti Sist. Vyssh. Rast.*, 16: 6 (1979).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turcomania, Lake Erojlanduz: Makeda (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Annual, culms solitary. Culms erect or geniculately ascending, 3–12 cm long. Culm-nodes pubescent. Leaves distichous. Leaf-sheaths pilose, outer margin hairy. Ligule a ciliate membrane, 0.1–0.2 mm long. Leaf-blades 2–3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, oblong, multilateral, 0.5–1.6 cm long, 0.4–1 mm wide. Spikelet packing broadside to rachis, crowded. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 2–2.6 mm long, chartaceous, 1-keeled, 5–7 -veined. Lower glume surface pilose. Lower glume apex acute. Upper glume elliptic, 2–2.6 mm long, 0.7–0.8 length of adjacent fertile lemma, chartaceous, 1-keeled, 5–7 -veined. Upper glume surface pilose. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate or ovate, 2.6–3.2 mm long, chartaceous, keeled, 9–11 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma margins ciliate. Lemma apex acute, mucronate. Palea 1 length of lemma, hyaline, 2 -veined. Palea keels ciliate, adorned below, with 0.33 of their length adorned. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, fleshy. Anthers 3, 1.2–1.6 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Middle Asia.** Tadzhikistan.

**Aeluropus lagopoides** (L.) Thw. *Enum. Pl. Zeyl.* 374 (1864).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from India. **Basionym or Replaced Name:** *Dactylis lagopoides* L., *Mant.* 1: 33 (1767). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: (LINN-90.5). LT designated by Renvoize in Cafferty et al., *Taxon* 49(2): 250 (2000).

**Recent Synonyms:** *Aeluropus brevifolius* (Willd.) Nees ex Steud., nom superfl, *Nom. ed.* 2(1) 30 (1840).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (196, Fig. 117), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 368), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (94, Fig. 38), L.Boulos, *Flora of Egypt* 4 (2005) (246, Pl. 72), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (170, Fig. 84), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (425, Pl. 160), K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 800).

**Derivation** (Clifford & Bostock 2007): Gk. *lagos*, hare; *pous*, foot; -oides, resembling.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated, scaly, hairy. Stolons absent or present. Butt sheaths villous. Culms geniculately ascending or prostrate, 5–30 cm long. Leaves cauline, distichous. Leaf-sheaths loose, open for most of their length, 0.4–1 cm long, longer than adjacent culm internode, without keel, indistinctly veined, glabrous on surface or pilose, outer margin glabrous (hyaline). Ligule a ciliate membrane. Leaf-blade base broadly rounded, symmetrical. Leaf-blades lanceolate, 0.5–4 cm long, 2–3 mm wide, coriaceous, stiff, glaucous. Leaf-blade midrib indistinct. Leaf-blade surface ribbed, scabrous, rough on both sides, glabrous or pilose. Leaf-blade margins entire, scaberulous. Leaf-blade apex acuminate, pungent.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 0.5–3 cm long, pubescent above. Racemes 1, single, oblong or globose, unilateral or multilateral, 0.5–1 cm long. Spikelet packing broadside to rachis, crowded, regular, 2 -rowed. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 0–1 basal sterile florets, 4–18 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both

fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 1.5 mm long, 0.7–0.8 length of upper glume, chartaceous, 1-keeled, 1–3 -veined. Lower glume surface villous. Lower glume apex acute. Upper glume elliptic, 2 mm long, 0.7–0.8 length of adjacent fertile lemma, chartaceous, 1-keeled, 3–5 -veined. Upper glume surface villous. Upper glume apex erose, obtuse.

**Florets.** Basal sterile florets absent or 1, barren, without significant palea. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma elliptic, 2–3 mm long, chartaceous, keeled, 9–11 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface villous. Lemma apex apiculate. Palea 1 length of lemma, hyaline, 2 -veined. Palea surface pilose, hairy on back or on flanks. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, ciliate, truncate. Anthers 3, 1–1.5 mm long. Caryopsis with adherent pericarp, oblong, dorsally compressed. Embryo 0.6 length of caryopsis. Hilum punctiform.

*N* = 20 (2 refs TROPICOS).

**Distribution (TDWG).** Continent. Europe, Africa, Temperate Asia, Tropical Asia.

**Region. Southeastern Europe.**

**Country /Province /State.** : Crete, Sicily, Turkey Europe. **Northern Africa, West tropical Africa, Northeast tropical Africa.** Egypt, Libya. Mauritania. Eritrea, Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula.** Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq. Gulf States, Kuwait, Oman, Yemen. **Indian Subcontinent, Indo-China.** Bangladesh, India, Pakistan, Sri Lanka. Andaman Is.

**TDWG4.** Maharashtra, Punjab, Tamilnadu, West Bengal.

**Aeluropus littoralis** (Gouan) Parl. *Fl. Ital.* 1: 461 (1848).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from France. **Basionym or Replaced Name:** *Poa littoralis* Gouan, *Fl. Monsp.* 470 (1765). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Gouan s.n.*, France: Maguelone (K).

**Recent Synonyms:** *Aeluropus pungens* C.Koch, *Linnaea*, 21: 408 (1848).

**Illustrations (Books):** N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (927 (613), Pl.12), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 367), L.Boulos, *Flora of Egypt* 4 (2005) (246, Pl. 72), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (421, Pl. 159), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (27).

**Derivation** (Clifford & Bostock 2007): *L. lit(t)us*, sea shore; *-ale*, pertaining to. Sand dune, salt marsh species or river-banks.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Butt sheaths glabrous. Culms prostrate, 5–30 cm long. Leaves distichous. Leaf-sheaths longer than adjacent culm internode. Ligule a ciliolate membrane. Leaf-blades 1–5 cm long, 1–2 mm wide, coriaceous, stiff, glaucous. Leaf-blade surface ribbed. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–12, borne along a central axis, in a bilateral false spike, appressed, unilateral, 0.5–1.5 cm long. Central inflorescence axis 1–4(–7) cm long. Spikelet packing broadside to rachis, crowded, regular, 2 -rowed. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 6–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 3–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 0.9 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume elliptic, 0.75 length of adjacent fertile lemma, chartaceous, 1-keeled, 5–7 -veined. Upper glume apex erose, obtuse.

**Florets.** Fertile lemma elliptic, 1.5–2.2 mm long, chartaceous, keeled, 9–11 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface glabrous. Lemma apex apiculate. Palea 1 length of lemma, 2 -veined. Palea surface asperulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, truncate. Anthers 3, 1–1.5 mm long. Caryopsis with adherent pericarp, obovoid, dorsally compressed, plano-convex. Embryo 0.6 length of caryopsis. Hilum punctiform.

*N* = 10 (1 ref TROPICOS +1–2B). *2n* = 20 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia.

**Region.** Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Corsica, France, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym, East European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa.** Algeria, Egypt, Libya, Morocco, Tunisia. Siberia, **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia.** Altay. Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq. Gulf States, Kuwait. Inner Mongolia, Manchuria, China North-Central, China Southeast, Xinjiang. Mongolia. **Indian Subcontinent, Indo-China.** Pakistan. Vietnam.

**TDWG4.** Gansu, Hebei, Shandong, Shanxi. Henan, Jiangsu.

**Aeluropus macrostachyus** Hack. Oesterr. Bot. Zeitschr. 1902, 374. (1902).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Afghanistan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IST: *J.H. Lace 10*, Afghanistan: Beluchistan (US-75512). ST: *W. Griffith 6637*, India?: Afghanistan: Beluchistan (L; IST: K, US-75511).

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 58).

**Derivation** (Clifford & Bostock 2007): Gk. *makros*, large; *stachys*, ear of corn. Inflorescence large.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent or prostrate, 15–40 cm long, woody. Leaves distichous. Leaf-sheaths longer than adjacent culm internode. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, flat or convolute, 1–8 cm long, 3–6 mm wide, coriaceous, stiff, glaucous. Leaf-blade surface ribbed, scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence composed of racemes. Racemes 5–10, borne along a central axis, unilateral, 0.5–2.5 cm long, bearing 2–10 fertile spikelets on each. Central inflorescence axis 3–18 cm long. Spikelet packing broadside to rachis, crowded. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 8–30 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or ovate, laterally compressed, 3–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate or ovate, 1.5–2.25 mm long, 0.66 length of upper glume, membranous, much thinner on margins, 1-keeled, 1–3 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume elliptic or ovate, 2.25–3 mm long, 0.75–0.9 length of adjacent fertile lemma, membranous, without keels, 5–7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 3–3.5 mm long, chartaceous, without keel, 9–11 -veined, more than 3-veined. Lemma lateral veins prominent, ribbed. Lemma surface villous, hairy below, hairy between veins, with tubercle-based hairs. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, truncate. Anthers 3, 1 mm long. Caryopsis with adherent pericarp.

$N = 10$  (1 ref TROPICOS +1–2B).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **Western Asia.** Afghanistan, Iran. **Indian Subcontinent.** Pakistan.

**Aeluropus micrantherus** Tsvelev. *Akad. Nauk SSSR Bot. Inst. Komarova, Rast. Tsentral. Azii, Fasc. 4, 12* (1968).

Regarded by K as a synonym (*A. littoralis*).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China 22* (Poaceae) (2006).

**TYPE** from Mongolia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mongolia, Tzagan-Bogdo: Junatova (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk, *mikros*, small; *antheros*, flowering. Inflorescence few-flowered.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** **China, Mongolia.** Xinjiang. Mongolia.

**Aeluropus pilosus** (X.L. Yang) S.L. Chen & X.L. Yang. *Fl. Reipubl. Popul. Sin.*, 10(1): 8 (1990).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Aeluropus littoralis* var. *pilosus* H.L. Yang, *Acta Bot. Yunnanica*, 5(1): 74 (1983). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Xinjiang: Jinghe, 560 m, ad gobicam, 11 Jul 1974, *Xinjiang Exped.* 297 (HT: NWBI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pilus*, a hair; *-osa*, abundance. The whole plant or any of its organs invested with long spreading hairs.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Butt sheaths glabrous. Culms prostrate, 5–30 cm long. Leaves distichous. Leaf-sheaths longer than adjacent culm internode, puberulous. Ligule a ciliate membrane. Leaf-blades 1–5 cm long, 1–2 mm wide, coriaceous, stiff, glaucous. Leaf-blade venation prominent. Leaf-blade surface ribbed, pubescent, hairy on both sides. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–12, borne along a central axis, in a bilateral false spike, appressed, unilateral, 0.5–1.5 cm long. Central inflorescence axis 1–4(–7) cm long. Spikelet packing broadside to rachis, crowded, regular, 2 -rowed. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 6–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 3–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 0.9 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume elliptic, 0.75 length of adjacent fertile lemma, chartaceous, 1-keeled, 5–7 -veined. Upper glume apex erose, obtuse.

**Florets.** Fertile lemma elliptic, 1.5–2.2 mm long, chartaceous, keeled, 9–11 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface hirsute, hairy all along. Lemma margins ciliate. Lemma apex apiculate. Palea 1 length of lemma, 2 -veined. Palea surface asperulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, truncate. Anthers 3, 1–1.5 mm long. Caryopsis with adherent pericarp, obovoid, dorsally compressed, plano-convex. Embryo 0.6 length of caryopsis. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Xinjiang.

**Aeluropus pungens** C.Koch. *Linnaea*, 21: 408 (1848).

Regarded by K as a synonym (*A. littoralis*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N. Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Yemen. **Basionym or Replaced Name:** *Festuca mucronata* Forssk, *Fl. Aegypt. Arab.* 22 (1775). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *F. mucronata* Forssk. ; Yemen: Forsskal (C holotype).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 639 as *Aeluropus pungens* var. *pungens*).

**Derivation** (Clifford & Bostock 2007): *L. pungo*, prick. Leaf blades sharp-pointed.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Tropical Asia.

**Region.** Eastern Europe.

**Country /Province /State.** South European Russia. **Middle Asia, Western Asia, China, Russia.** Kazakhstan, Kirgizistan, Turkmenistan, Uzbekistan. North Caucasus. China North-Central, Xinjiang. **Indian Subcontinent.** India.

**TDWG4.** Gansu.

**Aeluropus sinensis** (Deb.) Tsvelev. *Akad. Nauk SSSR Bot. Inst. Komarova, Rast. Tsentral. Azii, Fasc.* 4, 128 (1968).

Regarded by K as a synonym (*A. littoralis*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Basionym or Replaced Name:** *Aeluropus littoralis* var. *sinensis* Deb., *Acta Soc. Linn. Bord.* 33:73 (1879).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 639).

**Derivation** (Clifford & Bostock 2007): *L. ense*, denoting origin. From Sina, now China.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** Inner Mongolia, Manchuria, China North-Central, China Southeast, Xinjiang.

**TDWG4.** Gansu, Hebei, Shandong, Shanxi. Henan, Jiangsu.

### **Afrotrichloris hyaloptera** W. D. Clayton. *Kew Bull.* 21: 105 (1967).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Somalia, Bulu Burti: *Roffrey 60041/5* (K holo).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (164, Fig. 67), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (209, Fig. 115).

**Derivation** (Clifford & Bostock 2007): Gk. *hyalos*, glass; *pteron*, wing. Lemma has two large hyaline wings.

**Classification.** Subfamily Chloridoideae. Tribe: Chloridoideae incertae sedis.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–60 cm long, 4–6 -noded. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades convolute, 15–25 cm long, 1–1.5 mm wide, glaucous. Leaf-blade surface pubescent, sparsely hairy, hairy adaxially. Leaf-blade margins spinulose.

**Inflorescence.** Inflorescence composed of racemes, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Racemes 1, single, flexuous, unilateral, 14–22 cm long. Rhachis angular, 0.7 mm wide, glabrous on surface, glabrous on margins. Spikelet packing broadside to rhachis, crowded. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 7 mm long, 0.9–1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 7 mm long, 0.6 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume lateral veins ribbed. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 12–13 mm long, chartaceous, much thinner above, pallid, keeled, 3 -veined, 0–3 -veined. Lemma surface pubescent. Lemma margins ciliate. Lemma hairs white, 1 mm long. Lemma apex lobed, 2 -fid, with lanceolate lobes, incised 0.66 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, curved, 20 mm long overall. Palea ovate, 0.3 length of lemma, 2 -veined. Palea keels ciliolate. Palea surface pubescent. Palea apex acuminate. Apical sterile florets 5–7 in number, barren, separate, elliptic (resembling fertile). Apical sterile lemmas pubescent, awned, 1 -awned.

**Flower and Fruit.** Lodicules 2, oblong, 0.5 mm long, fleshy. Anthers 3, 0.7 mm long. Caryopsis with free soft pericarp, ellipsoid, dorsally compressed, biconvex, 2 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. Northeast tropical Africa.** Ethiopia (inc. Eritrea), Somalia.

### **Afrotrichloris martinii** Chiov. *Ann. Bot., Roma*, 13: 372 (1914).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Benadir: Boscaglia di Mogadiscio lungo la strada di Afgoi fra il 4–5 km, 26 May 1913, *Paoli 89*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Claude Martin (1731–1800) French-born British soldier who collected in India.

**Classification.** Subfamily Chloridoideae. Tribe: Chloridoideae incertae sedis.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 15–70 cm long. Leaf-sheath oral hairs bearded. Ligule a ciliolate membrane. Leaf-blades filiform, convolute, 5–15 cm long, 0.5–1.5 mm wide.

**Inflorescence.** Inflorescence composed of racemes, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Racemes 1, single, unilateral, 3–15 cm long. Rhachis angular. Spikelet packing broadside to rhachis, crowded. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 16–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 10–20 mm long, 0.6–1 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume apex acuminate or setaceously acuminate. Upper glume elliptic, 16–20 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume lateral veins ribbed. Upper glume apex acuminate or setaceously acuminate.

**Florets.** Fertile lemma elliptic, 16–20 mm long, coriaceous, much thinner above, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins augmented by subsidiaries in lobes. Lemma surface pubescent, hairy on back or on veins. Lemma margins eciliate. Lemma apex lobed, 2 -fid, with linear lobes, incised 0.66–0.75 of lemma length, attenuate, awned, 3 -awned. Principal lemma awn from a sinus, curved, 25–45 mm long overall. Lateral lemma awns present, arising on apex of lobes, 1–16 mm long, shorter than principal. Palea ovate, 0.3 length of lemma, 2 -veined. Palea keels winged, narrowly winged, ciliolate. Apical sterile florets 4 in number, barren, in a clump, elliptic, 20 mm long. Apical sterile lemmas lobed, 2 -fid, awned, 3 -awned.

**Flower and Fruit.** Lodicules 2, fleshy. Anthers 3. Caryopsis with free soft pericarp.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Somalia.

**Agenium goyazense** (Hack.) Clayton. *Kew Bull.* 27 (3): 447 (1972).

Regarded by K as a synonym (*A. leptocladum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Andropogon goyazensis* Hack., *Flora*, 48 : 122. (1885). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *A.F.M. Glaziou 22571*, no date, Brazil: Goiás (K; IST: US-76469 (fragm. ex K)). Awns from first specimen cited no. 22438, also cited no. 22572. ST: *Glaziou 22438*, Brazil: Goiás (K). ST: *Glaziou 22438a*, Brazil: Goiás (K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Goyaz Province, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths villous. Culms 60–100 cm long, 6–10 -noded. Ligule an eciliate membrane. Leaf-blades 10–25 cm long, 3–5 mm wide. Leaf-blade surface glabrous or hirsute. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, erect, 5–6 cm long, bearing 5–6 fertile spikelets on each. Rhachis fragile at the nodes, flattened, ciliate on margins. Rhachis internodes linear. Rhachis internode tip oblique, flat. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, flattened, ciliate.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 10–12 in number, male, lanceolate or oblong, 10–15 mm long, larger than fertile. Basal sterile spikelet glumes herbaceous, glabrous.

Companion sterile spikelets well-developed, male, lanceolate, 10–12 mm long, longer than fertile, separately deciduous. Companion sterile spikelet callus square or oblong, 0.5 mm long, obtuse. Companion sterile spikelet glumes chartaceous, glabrous, acute. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, subterete, 8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 2 mm long, pubescent, base pungent, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear or oblong, 1 length of spikelet, coriaceous, without keels, 7 -veined. Lower glume surface with a longitudinal median groove, pilose. Lower glume apex obtuse. Upper glume oblong, coriaceous, without keels. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, hyaline, ciliate on margins. Fertile lemma linear, cartilaginous, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 50–65 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil West Central, Brazil South. Mato Grosso, Goiás.

**Agenium leptocladum** (Hack.) Clayton. *Kew Bull.*, 27 (3): 447 (1972).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Paraguay. **Basionym or Replaced Name:** *Andropogon leptocladus* Hack., *Flora*, 48: 122. (1885). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *B. Balansa* 222, 25 Mar 1875, Paraguay: in planitie Paraguaei, in pascuis (W; IST: K, US-76579 (fragm. ex W)). ST: *Balansa* 222a, 14 Feb 1876, Paraguay: in collibus incultis prope Itape (L). ST: *B. Balansa* 2982, Mar 1881, Paraguay (L).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1196, Fig. 234 as *Heteropogon*).

**Derivation** (Clifford & Bostock 2007): Gk. *leptos*, narrow; *klados*, branch. Culms slender.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Basal innovations extravaginal. Culms erect, slender, 50–60 cm long. Ligule a ciliolate membrane, 1.5 mm long. Leaf-blades 6–10 cm long, 2–3 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle scaberulous above. Racemes 1, single, erect, 3.5–4.5 cm long. Rhachis fragile at the nodes, flattened, ciliate on margins. Rhachis internodes linear, 3 mm long. Rhachis internode tip oblique, flat. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, flattened, 3 mm long, ciliate.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 8–12 in number, male, lanceolate, 7–9 mm long, equalling fertile. Basal sterile spikelet glumes herbaceous.

Companion sterile spikelets well-developed, male, lanceolate, 7–10 mm long, as long as fertile, separately deciduous. Companion sterile spikelet callus square, 0.5 mm long, obtuse. Companion sterile spikelet glumes herbaceous, acute. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, subterete, 7–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–2 mm long, pilose, base pungent, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, coriaceous, without keels, 8 -veined. Lower glume surface with a longitudinal median groove, pubescent. Lower glume apex obtuse. Upper glume lanceolate, coriaceous, without keels. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 3 mm long, hyaline. Fertile lemma linear, 4 mm long, cartilaginous, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 20–50 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil West Central, Brazil Southeast, Brazil South. Paraguay.

**TDWG4.** Mato Grosso, Goias, Sao Paulo Parana, Catarina, Rio Grande do Sul. Corrientes, Misiones.

**Agenium majus** Pilger. Fedde, *Repert.* 43: 82 (1938).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Paraguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *K. Fiebrig* 6418, 1909–1910, Paraguay: in regione fluminis Alto Parana (SI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. great. Culms tall.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Basal innovations intravaginal. Culms 100–120 cm long. Culm-nodes bearded. Ligule an eciliate membrane, 3 mm long. Leaf-blades convolute, 15–30 cm long, 3–6 mm wide, stiff. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 3–6, digitate, drooping, 5 cm long. Central inflorescence axis 1–2 cm long. Rhachis fragile at the nodes, flattened, ciliate on margins. Rhachis internodes linear, 4 mm long. Rhachis internode tip oblique, flat. Raceme-bases linear, 5–10 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, flattened, 4–5 mm long, ciliate.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 18 in number, male, lanceolate, 12 mm long, larger than fertile. Basal sterile spikelet glumes chartaceous.



Companion sterile spikelets well-developed, male, lanceolate, laterally compressed, 12 mm long, longer than fertile, separately deciduous. Companion sterile spikelet callus square, 0.5 mm long, obtuse. Companion sterile spikelet glumes chartaceous, distinctly veined, 18 -veined, acute. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 6.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 1–1.5 mm long, bearded, base pungent, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 8 -veined. Lower glume surface with a longitudinal median groove, pubescent, hairy above. Lower glume apex obtuse. Upper glume lanceolate, coriaceous, without keels. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, hyaline, truncate. Fertile lemma linear, cartilaginous, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 60 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil, Southern South America. Brazil West Central. Paraguay. Mato Grosso.

**Agonium villosum** (Nees) Pilger. Fedde, *Repert.* 43: 82 (1938).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Heteropogon villosus* Nees, *Agrost. Bras.* 362 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, s.d., Brasilia aequinoctialis (B; IT: LE-TRIN-0345.02, US-925206 (ex Manila ex B)). US-925206 was annotated as *Heteropogon villosus* var. *genuinus* Hack., and has Reliquiae d. Sello Gram. no. 1276 2 \_\_\_ 160x.

**Recent Synonyms:** *Agonium nutans* Nees, *Lindl. Introd. Nat. Syst.* ed. 2: 447 (1836).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (606, Fig. 144), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (528, Fig. 190), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1196, Fig. 234 & 1207, Fig. 237), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (506, Fig. 213), B.Rosengurt, *Gramineas Uruguayas I* (1970) (158, Fig. 61), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (183, Fig. 98).

**Derivation** (Clifford & Bostock 2007): *L. villi*, long weak hairs; *-osa*, abundance. The plant in whole or in part covered with long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 15–50 cm long. Ligule an eciliate membrane. Leaf-blades 10–25 cm long, 2–4 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–7, paired or digitate, drooping, 3–4 cm long. Rhachis fragile at the nodes, flattened, ciliate on margins. Rhachis internodes linear. Rhachis internode tip oblique, flat. Raceme-bases filiform, 2–10 mm long, glabrous. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, flattened, villous.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 4–9 in number, male, 5–6 mm long, equalling fertile. Basal sterile spikelet glumes herbaceous, villous.

Companion sterile spikelets well-developed, male, elliptic, 5–6 mm long, as long as fertile, separately deciduous. Companion sterile spikelet callus cuneate, 0.5 mm long, obtuse. Companion sterile spikelet glumes herbaceous, tuberculate, villous, acute. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, subterete, 5–7.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 1 mm long, bearded, base pungent, attached obliquely. Spikelet callus hairs red.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 8 -veined. Lower glume surface with a longitudinal median groove, pilose. Lower glume apex obtuse. Upper glume lanceolate, coriaceous, without keels. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3–4 mm long, hyaline, 2 -veined, truncate. Fertile lemma linear, cartilaginous, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 30–40 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Mato Grosso, Goias, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Cordoba, Corrientes, Entre Rios, Misiones, Santa Fe.

**Agnesia lancifolia** (Mez) F.O. Zuloaga & E.J. Judziewicz. *Novon*, 3(3): 307 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Olyra lancifolia* Mez, *Notizbl. Bot. Gart. Berlin*, 7: 45 (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.H.G. Ule 5951*, Oct 1901, Brazil: Amazonas: ad flumen Jurua prope Fortaleza [confluence of Rio Jurua and Rio Solimoes, ca. 02.35S 65.40W (B(photo, fragm. of leaf, US-3168812); IT: HBG).

**Illustrations (Books):** E.J.Judziewicz et al, *American Bamboos* (1999) (263, Fig. 161).

**Illustrations (Journals):** *Novon* (3:308, Fig.1 (1993)).

**Derivation** (Clifford & Bostock 2007): *L. lanceus*, lance; *folium*, leaf. Leaf-blade lanceolate.

**Classification.** Subfamily Bambusoideae. Tribe: Olyreae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms geniculately ascending, 15–50 cm long, swollen at the base. Culm-internodes distally pubescent (in lines). Culm-nodes glabrous. Lateral branches lacking. Leaves cauline, 3–15 per branch. Leaf-sheaths 2–3 cm long, keeled, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs lacking or ciliate. Leaf-sheath auricles erect, 0.5 mm long. Ligule a ciliolate membrane, 0.3–0.6 mm long. Leaf-blade base cuneate, asymmetrical, with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole pubescent. Leaf-blades lanceolate, 6–16 cm long, 3–30 mm wide, mid-green or mid-green and purple, discolourous with last colour beneath. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in the same inflorescence.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, subtended by an unspecialized leaf-sheath or bracts (1 bract when a short basal branch present), embraced at base by subtending leaf, with 1–4 peduncles per sheath. Axillary inflorescences similar to terminal. Peduncle 4–8 cm long, pubescent above. Racemes 1, single, 2–4 cm long, bearing few fertile spikelets, bearing 1(–4) fertile spikelets on each. Sexes segregated, on bisexual branches, with male below, with 4–12 male spikelets per branch. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled. Pedicels present, 0.5–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, dorsally compressed, 11–15 mm long, falling entire or breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–10 mm long, 1 length of upper glume, chartaceous, without keels, 5(–8) -veined. Lower glume lateral veins convergent at apex. Lower glume surface glabrous or puberulous, inner surface scabrous (above). Lower glume apex acuminate, awned, 1 -awned, awn 4.5–8 mm long. Upper glume lanceolate, 7–10 mm long, chartaceous, without keels, 3 -veined. Upper glume surface glabrous or puberulous. Upper glume apex acute, awned, 1 -awned, awn 2.5–5 mm long.

**Florets.** Fertile florets female. Fertile lemma elliptic, 7–8 mm long, 1.7–2 mm wide, indurate, pallid and purple, mottled with last colour, shiny, without keel. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs 1 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1–1.5 mm long overall. Palea indurate.

**Flower and Fruit.** Male spikelets distinct from female, 1 flowered, separately deciduous, linear, 7–8 mm long, hairy. Male spikelet glumes absent. Male spikelet lemma 7–8 mm long, 3 -veined, awned, with 1–2 mm long awn.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America and Brazil. Colombia, Peru. Brazil North.

**xAgroelymus bowdenii** B.Boiv. *Natur. Canad.* 94: 520 (1967).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Wray M. Bowden (1914-) Canadian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**xAgroelymus cayouetteorum** B.Boiv. *Natur. Canad.* 94: 520 (1967).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Richard Cayouette (1914–1997) and his son, Jacques Cayouette (1944–) Canadian botanists.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**xAgroelymus hultenii** Melderis. *Arkiv Bot., Stockh., Ser. 2, 7:* 21 (1968).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Eric Oskar Gunnar Hultin (1894–1980) Swedish botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**xAgrohordeum macounii** (Vasey) Lepage. *Natur. Canad.* 79: 242 (1952).

**Basionym or Replaced Name:** *Elymus macounii* Vasey, *Bull. Torrey Bot. Club*, 13: 119. (1886).

**Illustrations (Books):** K.F. Best, et al, *Prairie Grasses* (1971) (29).

**Derivation** (Clifford & Bostock 2007): in honor of James Melville Macoun (1862–1920) Canadian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**xAgrohordeum piloslemma** W. W. Mitch. & Hodgson. *Bull. Torr. Bot. Cl.* 92: 404 (1965).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pilus*, a hair; *-osa*, abundance; *Gk lemma*, hask. Lemma densely hairy.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Agropyron badamense** Drobov. Fedde, *Repert.* 21: 44 (1925).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, N. Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Dorofeevka: Abolin & Popov 8132 (TAK lecto).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Badan Khrebet a mountain range in Siberia.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms 20–40 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades flat or involute, 10–20 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, linear, bilateral, 1.5–3 cm long, 6–9 mm wide. Spikelet packing broadside to rhachis. Rhachis internodes oblong, 3–4 mm long. Spikelets ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, compressed strongly, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 5 mm long, 0.8 length of upper glume, coriaceous, 1-keeled, keeled all along, 1 -veined. Lower glume apex attenuate, awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 6 mm long, 0.8 length of adjacent fertile lemma, coriaceous, 1-keeled, keeled all along, 3 -veined. Upper glume lateral veins convergent at apex. Upper glume apex attenuate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma elliptic, 7 mm long, chartaceous, shiny, keeled, 5 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 0.5–1.5 mm long overall. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Anthers 3 mm long. Ovary pubescent on apex. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Middle Asia. Turkmenistan.

#### TDWG4.

**Agropyron bulbosum** Boiss. *Diagn. Pl. Orient., ser. 1, 5: 75.* (1844).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Iran. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. in Persia, *Aucher. 3065.*

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. bulbosum*, onion; -osa, abundance. Culm-bases swollen.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms erect or geniculately ascending, 10–20 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 5–10 cm long, 1–3 mm wide. Leaf-blade surface puberulous, densely hairy, hairy adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, oblong, bilateral, 2–3 cm long, 12 mm wide. Rhachis scabrous on margins. Spikelet packing broadside to rhachis. Rhachis internodes oblong, 2 mm long. Spikelets pectinate, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, compressed strongly, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 5–6 mm long, 1 length of upper glume, coriaceous, much thinner on margins, 1-keeled, keeled all along, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acute, awned, 1 -awned, awn 8–10 mm long. Upper glume lanceolate, 5–6 mm long, 0.6–0.7 length of adjacent fertile lemma, coriaceous, with hyaline margins, 1-keeled, keeled all along, 5 -veined. Upper glume primary vein scabrous. Upper glume lateral veins convergent at apex. Upper glume apex acute, awned, 1 -awned, awn 8–10 mm long.

**Florets.** Fertile lemma elliptic, 8–9 mm long, chartaceous, keeled, 5 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 6–9.5 mm long overall. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2. Ovary pubescent on apex. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Iran.

**Agropyron cimmericum** Nevski. *Trudy Sredne-Aziatsk. Gosud. Univ., Ser. 8b, Bot. 17. 56* (1934).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea 5* (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Ukraine. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: (LE).HT: *S.Dzevanovskij s.n.*, 1 Jun 1925, Ukraine: [Crimea]: Kerch Peninsula: between Chechene & Kazantip: sand coast and dunes (LE). Orig. label: "Kerchenskij p-ov, peschanyj bereg i dyuny mezhdru sel. Chechene i sel. Kazantip,...".

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -icum*, belonging to. From the region of the Cimmerii, who lived about the River Dnieper, former Soviet Union.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms 25–50 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1 mm long. Leaf-blades convolute, 15–30 cm long, 2–4 mm wide. Leaf-blade surface puberulous, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 6–11 cm long, 8–15 mm wide. Rhachis pubescent on surface. Spikelet packing broadside to rhachis, crowded. Rhachis internodes oblong, 2–5 mm long. Spikelets pectinate, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 3.5–6 mm long, 1 length of upper glume, coriaceous, 1-keeled, keeled all along, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 1–2 mm long. Upper glume

lanceolate, 3.5–6 mm long, 0.6–0.8 length of adjacent fertile lemma, coriaceous, 1-keeled, keeled all along, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma elliptic, 6–7 mm long, chartaceous, keeled, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acute, muticous or awned, 1 -awned. Principal lemma awn 0.5–2 mm long overall. Palea keels ciliate, with 1–10 enations per keel. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, hairy at apex, apex fleshy. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** Europe.

**Region.** Eastern Europe.

**Country /Province /State.** Krym, Northwest European Russia, Ukraine.

**TDWG4.**

### **Agropyron cristatum** (L.) J. Gaertn. *Nov. Comm. Petrop.* 14 : 540 (1770).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A. pectiniforme*), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. **Basionym or Replaced Name:** *Bromus cristatus* L., *Sp. Pl.* 78 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Siberia: Coll?.

**Recent Synonyms:** *Agropyron pectiniforme* Roem. & Schult., nom superfl, *Syst.* 2: 758. (1817). *Agropyrum brandzae* Pantu & Solacolu, *Bull. Sect. Sc. Acad. Roumaine* 9. 28 (1924).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (69, Fig 41 as *A. distichum*), L.Boulos, *Flora of Egypt* 4 (2005) (209, Pl. 60), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (213, Pl. 70 & 219, Pl. 73 as *Agropyron pectiniforme*), K.F.Best, et al, *Prairie Grasses* (1971) (31), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae, part 1* (2007) (280), G.Hegi, *Flora von Mitteleuropa* 1 (1909) (as *Agropyrum cristatum*), S-L Chen et al, *Flora of China, Illustrations, Poaceae* (2007) (Fig. 616 as *Agropyron cristatum* var. *cristatum*), E.Hafliger & E.Schultz, *Grass Weeds, CIBA-GEIGY* (2:5(1980)).

**Derivation** (Clifford & Bostock 2007): L. crested. Inflorescence forming a crest;.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms decumbent, 20–70 cm long. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades involute, 6–12 cm long, 1.5–3 mm wide, stiff.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, oblong, bilateral, 1–5 cm long. Rhachis pilose on surface. Spikelet packing broadside to rhachis. Spikelets pectinate, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, compressed strongly, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume ovate, 3–5 mm long, 1 length of upper glume, coriaceous, 1-keeled, keeled all along, 3 -veined. Lower glume surface glabrous or pilose. Lower glume apex acuminate, awned, 1 -awned, awn 1–2 mm long. Upper glume ovate, 3–5 mm long, 0.66 length of adjacent fertile lemma, coriaceous, 1-keeled, keeled all along, 3 -veined. Upper glume lateral veins convergent at apex. Upper glume surface glabrous or pilose. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma elliptic, 5–7 mm long, chartaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 3–4 mm long overall, limb scabrous. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, hairy at apex, apex fleshy. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

$2n = 14$  (9 refs TROPICOS), or 28 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, North America (\*), South America (\*).

**Region.** Northern Europe (\*), Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Austria, Czechoslovakia, Hungary. : Spain. : Bulgaria, Greece, Italy, Romania, Turkey Europe, Yugoslavia. Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. **Northern Africa.** Egypt, Morocco. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Tuva. Amur, Primorye. Kazakhstan, Turkmenistan, Tadzhikistan. Iran. Inner Mongolia, Manchuria, China North-Central, Qinghai, Xinjiang. Mongolia. Japan, Korea. **Indian Subcontinent.** Pakistan. **Subarctic America, Northwest USA, North-central USA, Northeast USA, Mexico.** Colorado. Northeast Mexico. **Southern South America.** Chile South.

**TDWG4.** Gansu, Hebei. Magellanes. Chihuahua.

**Agropyron dasyanthum** Ledeb. *Ind. Sem. Dorpat.* 3. (1820).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Oleschky: Coll? (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. *dasy*, hairy; *anthos*, flower. Glumes and lemmas densely hairy.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms 40–75 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades convolute, 10–20 cm long, 2–4 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface puberulous, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 6–15 cm long, 7–18 mm wide. Rhachis glabrous on surface or pubescent on surface. Spikelet packing broadside to rhachis, lax. Rhachis internodes oblong, 3–10 mm long. Spikelets spreading or pectinate, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 5–8 mm long, 1 length of upper glume, coriaceous, 1-keeled, keeled all along, 1 -veined. Lower glume primary vein eciliate or ciliate. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume lanceolate, 5–8 mm long, 0.75–1 length of adjacent fertile lemma, coriaceous, 1-keeled, keeled all along, 1 -veined. Upper glume primary vein eciliate or ciliate. Upper glume lateral veins absent. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma elliptic, 7–8 mm long, chartaceous, keeled, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma apex acute. Palea keels eciliate or ciliate, with 1–3 enations per keel. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 5 mm long. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, hairy at apex, apex fleshy. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** Europe.

**Region. Eastern Europe.**

**Country /Province /State.** Northwest European Russia, Ukraine.

**TDWG4.**

**Agropyron deweyi** Á. Löve. *Feddes Repert.* 95(7–8): 432 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turkey, Van, cult. in Utah: *Harlan PI 173622* .

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–75 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades involute, 10–25 cm long, 4–6 mm wide. Leaf-blade surface hirsute, sparsely hairy, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle hirsute above. Racemes 1, single, lanceolate or oblong, bilateral, 5–7 cm long, 15 mm wide. Rhachis pilose on surface. Spikelet packing broadside to rhachis. Spikelets pectinate, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma.

**Florets.** Fertile lemma lanceolate, 5–8 mm long, chartaceous, keeled, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 5–8 mm long overall, limb scabrous. Palea 5–7 mm long. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 3–4 mm long, yellow.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Turkey.

**Agropyron krylovianum** Schischkin. *Animadvers. Syst. Herb. Univ. Tomsk.* No. 2, 2 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: West Siberia, Altai, valley of river Chuya (TK).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. in honor of Porfirij Nikitic Krylov (1850–1931) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes elongated. Culms 40–100 cm long. Culm-internodes distally glabrous. Leaf-sheaths pilose, with reflexed hairs. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 1.2–5 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous.

**Inflorescence.** Inflorescence composed of racemes. Peduncle scaberulous above. Racemes 1, single, linear or oblong, bilateral, 8–12 cm long, 7–14 mm wide. Rhachis pubescent on surface. Spikelet packing broadside to rhachis, crowded. Rhachis internodes oblong. Spikelets ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 4–8 mm long, 1 length of upper glume, coriaceous, 1-keeled, keeled all along, 3–4 -veined. Lower glume primary vein ciliate. Lower glume apex acuminate. Upper glume lanceolate, 4–8 mm long, 0.75–1 length of adjacent fertile lemma, coriaceous, 1-keeled, keeled all along, 3–4 -veined. Upper glume primary vein ciliate. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 7–9 mm long, chartaceous, keeled, 5 -veined, more than 3-veined. Lemma surface glabrous or pubescent. Lemma apex acute, awned, 1 -awned. Principal lemma awn 0.5–1.5 mm long overall. Palea 1 length of lemma. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 4 mm long. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex, apex fleshy. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, Middle Asia. Altay, Irkutsk, Krasnoyarsk. Kazakhstan.

**TDWG4.**

**Agropyron michnoi** Roshev. *Izv. Glavn. Bot. Sada SSSR* 28: 384 (1929).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Transbaical, Peschanoe Lake: Mikhnov (LE lecto).

**Recent Synonyms:** *Agropyron nathaliae* Sipliv., *Novit. Syst. Pl. Vasc., Acad. Sci. URSS*, 1968, 13 (1968).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 616).

**Derivation** (Clifford & Bostock 2007): honor of P. Michno (fl. 1924) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes elongated. Culms 50–90 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 5 mm wide. Leaf-blade surface puberulous, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, oblong or ovate, bilateral, 2–8 cm long, 10–20 mm wide. Rhachis pubescent on surface. Spikelet packing broadside to rhachis, crowded. Rhachis internodes oblong. Spikelets pectinate, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 4–6 mm long, 1 length of upper glume, coriaceous, much thinner on margins, 1-keeled, keeled all along. Lower glume primary vein eciliate or ciliate. Lower glume apex acuminate, awned, 1 -awned, awn 1 mm long. Upper glume lanceolate, 4–6 mm long, 0.75–1 length of adjacent fertile lemma, coriaceous, with scarios margins, 1-keeled, keeled all along. Upper glume primary vein eciliate or ciliate. Upper glume apex acuminate, awned, 1 -awned, awn 1 mm long.

**Florets.** Fertile lemma lanceolate, 6–8 mm long, chartaceous, glaucous, keeled, 5 -veined, more than 3-veined. Lemma surface pilose to villous. Lemma apex acute, awned, 1 -awned. Principal lemma awn 2 mm long overall. Palea 1 length of lemma. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 5–5.5 mm long. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex, apex fleshy. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, **China, Mongolia, Russia.** Buryatiya, Chita, Irkutsk, Tuva. Inner Mongolia. Mongolia.

**TDWG4.**

**Agropyron mongolicum** Keng. *Journ. Wash. Acad. Sc.* 28: 305. (1938).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from Mongolia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: collected on exposed sandy and rocky slope, Payin Obo, about 90 li northeast of Peiling Miao, Suiyuan Province, Aug. 9, 1935, *Y.L. Keng* # 3400 (*Roerich Exp.* 748).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 615 as *Agropyron mongolicum* var. *mongolicum* & as *Agropyron mongolicum* var. *villosum*).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Mongolia.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms geniculately ascending, 20–50 cm long, 1–1.2 mm diam., 1–3 -noded, with 0.15–0.6 of their length below uppermost node. Leaf-sheaths tight, 3.5–8 cm long, mostly shorter than adjacent culm internode, glabrous on surface. Ligule a ciliolate membrane, 0.5 mm long, truncate. Leaf-blades straight or curved, involute, 2.5–8 cm long, 2–3 mm wide, stiff, glaucous. Leaf-blade surface puberulous, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous or pubescent above. Racemes 1, single, bilateral, 3.5–7 cm long, 5–7 mm wide. Rhachis with scattered hairs to puberulous on surface. Spikelet packing broadside to rhachis. Rhachis internodes linear, 2–5 mm long. Spikelets ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic to oblong, laterally compressed, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long, pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4–5 mm long, 0.8 length of upper glume, coriaceous, much thinner on margins, without keels, 3 -veined. Lower glume apex setaceously acuminate. Upper glume lanceolate, 5–6 mm long, 0.8–0.9 length of adjacent fertile lemma, coriaceous, with scarios margins, without keels, 3 -veined. Upper glume apex setaceously acuminate.



**Florets.** Fertile lemma lanceolate, 6–7 mm long, coriaceous, 5 -veined, more than 3-veined. Lemma surface glabrous or puberulous. Lemma apex acute, mucronate. Palea 1 length of lemma. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 3 mm long. Stigmas 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, ellipsoid, 4 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Inner Mongolia, China North-Central, Xinjiang.

**TDWG4.** Gansu, Shaanxi, Shanxi.

### **Agropyron sinkiangense** D.F. Cui. *Flora Xinjiangensis* 6: 602. 1996.

Regarded by K as a synonym (*A. desertorum*).

**Accepted by:** S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Xinjiang: Heshuo Xian, Haregti, in pascis frigidis altis mer. Tianshan, 2700 m, 18 Jul 1982, *sine coll.* 02–227 (HT: XJA-1AC).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Xinjiang.

### **Agropyron tanaiticum** Nevski. *Acta Univ. As. Med. Ser. 8b Bot.* Fasc. 17, 56 (1934).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Oblivskaya: Gael (LE holo, K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -icum, belonging to. From River Tanais, now Don, Russia.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms 30–80 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface or pubescent. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades flat or convolute, 8–15 cm long, 2–5 mm wide. Leaf-blade surface puberulous, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 5–16 cm long, 5–7 mm wide. Rhachis glabrous on surface or pubescent on surface. Spikelet packing broadside to rhachis, lax. Rhachis internodes oblong. Spikelets ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 3–7 mm long, 1 length of upper glume, coriaceous, 1-keeled, keeled all along, 1 -veined. Lower glume primary vein eciliate or ciliate. Lower glume lateral veins absent. Lower glume apex acuminate, muticous. Upper glume lanceolate, 5–7 mm long, 0.5 length of adjacent fertile lemma, coriaceous, 1-keeled, keeled all along, 1 -veined. Upper glume primary vein eciliate or ciliate. Upper glume lateral veins absent. Upper glume apex acuminate, muticous.

**Florets.** Fertile lemma elliptic, 6–8 mm long, chartaceous, keeled, 5 -veined, more than 3-veined. Lemma surface pubescent or pilose. Lemma apex acute. Palea keels ciliate, with 1–10 enations per keel. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 4.5–5 mm long. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, hairy at apex, apex fleshy. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe.

**Region.** Eastern Europe.

**Country /Province /State.** Central European Russia, East European Russia, South European Russia, Northwest European Russia.

**TDWG4.**

**Agropyron x interjacens** Melderis. *Grass. Burma, Ceylon, India & Pakistan* 691 (1960).

**Accepted by:** N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

**TYPE** from Pakistan. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Pakistan: deux versants de l'Ishkuman, Aghost, 4210–4540 m, 15–16 Aug 1954, *F. Schmid* 2430 (HT: G).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Pakistan.

**Agropyropsis lolium** (Balansa) A. Camus. *Bull. Soc. Bot. France* 82: 11 (1935).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Algeria. **Basionym or Replaced Name:** *Festuca lolium* Balansa ex Coss. & Durieu. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *B.Balansa* 721, 26 Jun 1853, Algeria: Batna, dans les prairies (US-91409 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): resembling *Lolium* with respect to the inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms erect, 20–60 cm long. Ligule an eciliate membrane. Leaf-blades conduplicate, 2–17 cm long, 2–5 mm wide, coriaceous. Leaf-blade margins scabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 8–26 cm long. Rhachis fragile at the nodes, semiterete. Spikelet packing broadside to rhachis, lax. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, falling entire, deciduous with accessory branch structures, readily shedding fertile florets. Rhachilla internodes 1–1.7 mm long.

**Glumes.** Glumes collateral, similar, shorter than spikelet, firmer than fertile lemma. Lower glume oblong, 4.5–7 mm long, 1 length of upper glume, coriaceous, without keels, 5 -veined. Lower glume lateral veins ribbed. Lower glume apex obtuse. Upper glume oblong, 4.5–7 mm long, 1–1.4 length of adjacent fertile lemma, coriaceous, without keels, 5 -veined. Upper glume lateral veins ribbed. Upper glume apex obtuse.

**Florets.** Fertile florets with the lowest dissimilar (1–3 veined). Fertile lemma elliptic, 4.5–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex obtuse. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 3 mm long. Ovary glabrous. Caryopsis with adherent pericarp, oblong, dorsally compressed, 2–3 mm long. Hilum elliptic.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. Northern Africa.** Algeria, Tunisia.

**Agrostis agrostiflora** (Beck) Janchen & Neumayer. *Wien. Bot. Zeitschr.* 93: 79 (1944).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Switzerland. **Basionym or Replaced Name:** *Arundo tenella* Schrad., *Fl. Germ.* 220 (1806), *Calamagrostis agrostiflora* (Schrad.) Beck, *Gram.* 4 t. 50. (1809). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Europe: alpius Tyrolensibus Helvetiae, *Darcot*.

**Recent Synonyms:** *Agrostis schraderiana* Becherer, *Wien. Bot. Zeitschr.* 93: 79 (1944).

**Illustrations (Books):** G.Hegi, *Flora von Mitteleuropa* 1 (1909) (as *Calamagrostis tenella*).

**Derivation** (Clifford & Bostock 2007): *L. flos*, flower. Spikelets *Agrostis* -like.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 30–70 cm long. Culm-internodes smooth. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 2–5 mm wide. Leaf-blade surface scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 7–15 cm long. Primary panicle branches appressed. Panicle branches terete, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.5 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 1.6–2.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, truncate, mucicous or awned, 1 -awned. Principal lemma awn subapical, straight, 0.5–1 mm long overall. Palea 0.25 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Europe.

**Region.** Middle Europe, Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Austria, Germany, Switzerland. : France. : Italy, Yugoslavia.

### **Agrostis alpina** Scop. *Fl. Carn.* ed.2 .1: 60. (1772).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Germany. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Balkans.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. alpes, high mountain; -ina, belonging to. Species growing at high altitudes.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 10–40 cm long. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths without keel, smooth, glabrous on surface. Ligule an eciliate membrane, 3–4 mm long, acute. Leaf-blades filiform, conduplicate or involute, 6–12 cm long, 0.3–0.4 mm wide, mid-green or glaucous. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade apex acute, callose.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or ovate, 2–8 cm long. Panicle axis smooth. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.6 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 4–5 mm long, 1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 3.5–4.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 4 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface scaberulous. Lemma apex dentate, 2 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 7–9 mm long overall, with twisted column. Palea 1 mm long, 0.25 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Austria, Czechoslovakia, Germany, Poland, Switzerland. : France, Spain. : Italy, Romania, Yugoslavia. Northwest European Russia, Ukraine. **Northern Africa.** Morocco.

**TDWG4.**

### **Agrostis ambatoensis** M.E. Astegiano. *Bol. Soc. Argent. Bot.*, 20: 271 (1982).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Argentina, Sierra de Ambato: Hunziker 20880.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Serra de Ambato, Catamarca Province, Argentina.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms 3–5 cm long, 1-noded. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.2–0.3 mm long, erose. Leaf-blades flat or conduplicate, 1–2 cm long, 0.5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle, comprising 7–9 fertile spikelets. Panicle open, oblong, 1–2 cm long, bearing few spikelets. Primary panicle branches 3–6 in number. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.4–1.5 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.8–2.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2–2.2 mm long, 1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.8–2.1 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.2–1.3 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma apex erose, truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 0.6–1 mm long overall, not or scarcely exerted from spikelet. Palea 0.2 mm long, hyaline, 0-veined.

**Flower and Fruit.** Lodicules 2, 0.2 mm long, membranous. Anthers 3. Caryopsis with adherent pericarp, ellipsoid, 1 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northwest.

**TDWG4.** Catamarca.

**Agrostis anadyrensis** Soczawa. *Flora URSS* 2: 176, t. 13, f. 8 a-d, 746. 1934.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Belaya R. basin, Bitcho hills: Sochava (LE holo).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (645).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From the banks of the Anadyr' River, Eastern Siberia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 35–40 cm long. Ligule an eciliate membrane, 2–3.5 mm long, obtuse. Leaf-blades 10 cm long, 3–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–15 cm long, 1–2 cm wide. Primary panicle branches appressed. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.5 mm long, 1.2 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–2 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 2–2.5 mm long overall, with twisted column. Palea hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6–0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 56$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, Russian far east. Krasnoyarsk. Kamchatka, Magadan, Sakhalin.

**TDWG4.**

**Agrostis angrenica** (Butk.) Tsvelev. *Novosti Sist. Vyssh. Rast.*, 8: 59 (1971).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. **Basionym or Replaced Name:** *Pentatherum angrenicum* Butkov, *Journ. Bot. URSS*, 28: 243 (1943). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Tianshan, Arshan: Zakirov (TAK holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From the Angren Basin, Central Asia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect or geniculately ascending, 20–30 cm long, 1–2-noded. Culm-internodes smooth. Leaf-sheaths 4–6 cm long, smooth. Ligule an eciliate membrane, 2 mm long, pubescent on abaxial surface, lacerate. Leaf-blades 2.5–4 cm long, 2–2.5 mm wide. Leaf-blade surface scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 3–7 cm long, 1–1.5 cm wide. Primary panicle branches appressed, 1–4-nate, 0.5–1.8 cm long. Panicle branches with occasional prickles. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.5 length of lemma.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2–2.2 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous, rough above. Lower glume apex acute. Upper glume lanceolate, 2–2.2 mm long, 1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface smooth or asperulous, rough above. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 2–2.2 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface puberulous. Lemma apex dentate, 4-fid, awned, 1-awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or curved, 3–3.5 mm long overall. Palea 1.5 mm long, 0.75 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.2 mm long. Caryopsis with adherent pericarp, ovoid, 1.5 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Middle Asia. Kirgizistan.

**TDWG4.**

**Agrostis arisan-montana** Ohwi. *Acta Phytotax. & Geobot.* 1933, 2:161 (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Taiwan: Tainan, Mt. Arisan, 3 July 1933, *J. Ohwi* 3463 (HT: KYO; IT: K, LE, US-1964403).

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (240), C-C Hsu, *Taiwan Grasses* (1975) (399, Pl. 1375), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 467).

**Derivation** (Clifford & Bostock 2007): L. *mons*, mountain; *-ana*, indicating connection. From Mt. Arisan, Taiwan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms geniculately ascending, 40–100 cm long, 1–1.7 mm diam., 3–6-noded, rooting from lower nodes. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–3.5 mm long, scaberulous on abaxial surface, obtuse. Leaf-blades 5–14 cm long, 2–6 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate or oblong, 10–20 cm long. Primary panicle branches ascending or spreading, 3-nate, 5–8 cm long, bearing spikelets almost to the base. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 1.9–2.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume ovate, 1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1.9–2.3 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 1.4–1.7 mm long, hyaline, without keel, 4–5-veined, more than 3-veined. Lemma apex erose, obtuse, muticous. Palea 0.35–0.75 mm long, 0.2–0.4 length of lemma, hyaline, 2-veined.

**Flower and Fruit.** Anthers 3, 0.5–0.8 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China, Eastern Asia.** China South Central, Inner Mongolia, China North-Central, China Southeast. Taiwan.

**TDWG4.** Shaanxi. Guangxi, Henan. Sichuan, Yunnan.

**Agrostis aristiglumis** Swallen. Leafl. West. Bot. 5: 56 (1947).

Regarded by K as a synonym (*A. microphylla*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.T. Howell 23149*, 14 May 1947, USA: California: Marin Co.: Drakes estero WNW of Mt Vision (US-1869693; IT: NY-327617; S-G244, US-2181110, US-32156277). S specimen has correct date, but coll. no. of 1411.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. arista, bristle; gluma, husk. With awned subtending glumes or lemmas.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 5–15 cm long. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane, 2–2.5 mm long. Leaf-blades 1.5–6 cm long, 0.5–2.3 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 3–6 cm long, 0.5–0.8 cm wide. Primary panicle branches appressed, 0.5–2 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.15 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 3.5–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate, awned, 1-awned, awn 1–2 mm long. Upper glume elliptic, 3.5–4 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume primary vein scabrous. Upper glume surface asperulous. Upper glume apex acuminate, awned, 1-awned, awn 1–2 mm long.

**Florets.** Fertile lemma oblong, 3.2–3.5 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, geniculate, 6–7 mm long overall, with twisted column. Palea 0.3 length of lemma, hyaline, 0-veined, without keels.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southwestern USA.** California.

**Agrostis arvensis** Phil. *Linnaea* 29: 87. (1858).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: *R. Moran* 29504, 4 Apr 1981, Mexico: Socorro I. (US-3170268).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. arvum*, arable field; -ensis, denoting origin. Uncultivated species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes elongated. Culms geniculately ascending, slender, 35–50 cm long, 2–3 -noded. Culm-internodes distally glabrous. Lateral branches lacking. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.4–1 mm long, erose, obtuse. Leaf-blades 4–8 cm long, 0.5–0.6 mm wide. Leaf-blade surface smooth.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–9 cm long, 0.3–0.5 cm wide. Primary panicle branches appressed. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–3 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.1–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.1–2.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.4–1.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, mucicous. Palea 0.5–0.6 mm long, 0.33 length of lemma, 0 -veined.

**Flower and Fruit.** Lodicules 2, 0.3 mm long, membranous. Anthers 3, 1.1–1.3 mm long. Caryopsis with adherent pericarp. Endosperm farinose.

**Distribution (TDWG).** South America.

**Country /Province /State.** Southern South America. Chile Central.

Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Biobio.

**Agrostis atlantica** Maire & Trabut. *Bull. Soc. Hist. Nat.Afr. Nord.* 15: 392 (1924).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Morocco. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Morocco, Raya: Litardiere & Maire ; Morocco, Ourika: Maire.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): from the Atlantic coast of North Africa.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 10–40 cm long. Culm-internodes smooth. Leaf-sheaths without keel, smooth, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, erose or lacerate, obtuse. Leaf-blades conduplicate, 3–7 cm long, 1–1.3 mm wide. Leaf-blade venation with 7–9 secondary veins, 3–5 inner ridges. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins scabrous. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 4–7 cm long. Primary panicle branches ascending or spreading, 4–6 -nate. Panicle axis smooth. Panicle branches capillary, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or scaberulous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.25 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 2–2.75 mm long, 1.2 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 1.75–2.5 mm long, 1.2 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.6–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent (0.3mm). Lemma surface pilose. Lemma apex dentate, 2 -fid, truncate or obtuse,

awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 2–3 mm long overall, with twisted column. Palea 0.25–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1.5–2 mm long, yellow. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, 1–1.2 mm long. Embryo 0.25–0.33 length of caryopsis. Hilum elliptic.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northern Africa. Morocco.

### **Agrostis australiensis** Mez. Fedde, *Repert.* 17: 302 (1921).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.H. Maiden & W. Forsyth s.n.*, 1899, Australia: New South Wales, Mt. Kosciusko (B; IT: US-75369 (fragm. ex B)).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (109).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Australia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped densely. Culms erect, slender, 8–20 cm long, 2 -noded. Leaves basal and cauline. Leaf-sheaths longer than adjacent culm internode, striately veined, scaberulous. Ligule an eciliate membrane, 2 mm long, obtuse. Leaf-blades aciculate, 1–3 cm long, 1 mm wide, stiff. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, pyramidal. Primary panicle branches 2–3 -nate. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.3–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2.3–3 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume margins ciliolate. Lower glume apex acute. Upper glume lanceolate, 2–2.7 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume margins ciliolate. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 1.7–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma surface asperulous. Lemma apex truncate, mucous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.3–0.4 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, A.C.T., Victoria, Tasmania.

**TDWG4.** Tablelands.

### **Agrostis bacillata** Hack. *Oesterr. Bot. Zeitschr.* 1902, 59. (1902).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Pittier 10477*, Jan 1897, Costa Rica: Cerro de la Muerte (W; IT: US-365913, US-820229, US-75436 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. bacillus*, rod; -ata, possessing. The rhachilla projects beyond the floret.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 10–30 cm long, 0.2–0.3 mm diam., 1–2 -noded. Culm-nodes purple. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.7–4.3 mm long, acuminate. Leaf-blades filiform, conduplicate, 2–15 cm long, 0.2–0.8 mm wide. Leaf-blade surface ribbed, scaberulous, rough abaxially.



**Inflorescence.** Inflorescence a panicle. Peduncle 2–6 cm long. Panicle open, oblong, 4–11 cm long, 3–5 cm wide. Primary panicle branches 2-nate. Panicle branches flexuous. Spikelets spreading, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 1.8–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 1.8–2 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 3-veined. Lower glume primary vein scaberulous. Lower glume apex acute. Upper glume oblong, 1.8–2 mm long, 1.1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3-veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.6–1.8 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, obtuse, mucicous or awned, 1-awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 0.3–0.6 mm long overall. Palea 1.1–1.4 mm long, 0.66–0.75 length of lemma, hyaline. Rhachilla extension 1.1–1.4 mm long.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8–1 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 28$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica. Costa Rica, Panama.

**Agrostis balansae** (Boiss.) Tsvelev. *Novit. Syst. Pl. Vasc., Acad. Sci. URSS*, 6: 20 (1970).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Turkey. **Basionym or Replaced Name:** *Calamagrostis balansae* Boiss., *Fl. Orient.* 5: 522 (1884). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turkey, Ponto Lazico: Balansa (G syn); Turkey, Khabackar: Balansa sn (G syn).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Benjamin Balansa (1825–1892) French botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 28–75 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–4.5 mm long, obtuse. Leaf-blades 4–27 cm long, 3–6 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5.5–15 cm long, 1.5–3 cm wide. Primary panicle branches appressed, 2.5–5 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.7–1 mm long, 0.4 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, 1.5 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2–2.3 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma surface glabrous or pubescent. Lemma apex erose, truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 3.2–4 mm long overall, with twisted column. Palea 0.33 length of lemma, hyaline, 2-veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.2–1.4 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, 1.3–1.6 mm long. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Caucasus, Western Asia. North Caucasus, Transcaucasus. Turkey.

**TDWG4.**

**Agrostis barbulingera** Stapf. In Dyer, *Fl. Cap.* 7: 548. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Buchman 24*, Mar 1883, South Africa: King Williamstown Division, Amatola Mountains (K (photo, SI)).

ST: *MacOwan 2189*, Mar 1874, South Africa: Central Region, Somerset Division, on the higher rocks of Bosch Berg, 4300 ft (K (photo, SI)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. barba*, beard; *-ula*, diminutive; *gero*, carry or bear. Rhachilla extended into a scaberulous bristle.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 20–80 cm long. Ligule an eciliate membrane. Leaf-blades 10–25 cm long, 2–6 mm wide. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–25 cm long. Primary panicle branches spreading. Panicle branches capillary, flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–5.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3–5.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2.7–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pubescent or pilose, hairy all along or below. Lemma apex dentate, 4 -fid, truncate, awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 3–6 mm long overall, with twisted column. Palea 0.75 length of lemma, hyaline, 2 -veined. Palea apex with excurrent keel veins. Rhachilla extension 0.2 mm long, 0.05 length of fertile floret, pilose, hairy at tip.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

$N = 14$ , or 28 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Eastern Cape.

**Agrostis barceloi** L. Saez & J.A. Rossello. *Bot. J. Linn. Soc.*, 133(3): 361 (2000).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Majorca. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Insulae Balearicae, Majorica: in praeruptis rupium umbrosis calcareis septentrionalibus loco dicot Puig Major de Son Torella*, ad 1400 m, 31SDE8206, 14 Aug 1998, L. Saez LS 5132 (HT: BC-852322).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Francese Barcellsi Combis (1820–1889) Spanish botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms erect, 10–40 cm long, 2 -noded. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, keeled, smooth, glabrous on surface. Ligule an eciliate membrane, 1.7–2 mm long, erose, truncate or acute. Leaf-blades filiform, conduplicate, 2–18 cm long, 0.2–0.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 2.5–8 cm long, 0.5–1 cm wide. Primary panicle branches appressed, 1–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.7–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.7–3.1 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower

glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3.2 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.8–2.1 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface scaberulous. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2–0.25 way up back of lemma, geniculate, 3.7–4.2 mm long overall, with twisted column. Palea orbicular, 0.5–0.8 mm long, 0.25–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.4–0.6 mm long, membranous. Anthers 3, 0.7–1.2 mm long. Caryopsis with adherent pericarp, 1.7–1.9 mm long.

**Distribution (TDWG). Continent.** Europe.

**Region.** Southwestern Europe.

**Country /Province /State.** : Baleares.

**Agrostis basalis** Lucas. *Bol. Soc. Venez. Cienc. Nat.* 15: 10 (1953).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Venezuela: ha sido coleccionado en los alrededores de la Edo. Mirida: Laguna Negra*, 25 Nov 1943, Z. Lucas 273 (HT: VEN).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. basis, base; -alis, pertaining to. Lemma awned from near the base.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms slender, 45 cm long. Culm-internodes smooth. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4 mm long, scaberulous on abaxial surface, obtuse. Leaf-blades flat or involute, 5–8 cm long, 2 mm wide. Leaf-blade surface scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 11–12 cm long. Primary panicle branches ascending. Panicle branches glabrous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or sparsely hairy.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–3.5 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 2.8–3 mm long, 1.6 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 1.8–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 3–3.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Agrostis bergiana** Trin. *Gram. Unifl.* 203. (1824).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as *A. capensis*).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T?: Ecklon 242, Cape ("Table mountain") (S-G246).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Karl Heinrich Bergius (1790–1818) German naturalist and apothecary who collected at Cape Town, South Africa.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived. Culms weak, 15–30 cm long. Ligule an eciliate membrane. Leaf-blades 2–9 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 6–15 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–10 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.5–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5–2.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–2.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex dentate, 4 -fid, truncate, mucicous or awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or curved, 0–2 mm long overall, without a column. Palea 0.9 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa, Middle Atlantic ocean. Mpumalanga, Free State, Kwazulu-Natal, Lesotho, Western Cape. St Helena.

**Agrostis bettyae** S.W.L.Jacobs. *Telopea* 9(3): 679 (2002).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: New South Wales: Southern Tablelands, Tallong [as ?Tallwong], Jan 1900, W. Forsyth NSW-506461 (HT: NSW; IT: US).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (109).

**Derivation** (Clifford & Bostock 2007): in honor of Betty Jacobs (1947-) Australian Tertiary Educator.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes absent or short. Culms erect or geniculately ascending, 50–90 cm long, 4 -noded. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 2–5 mm long, arose. Leaf-blades flat or involute, 1.5–4 mm wide. Leaf-blade surface ribbed, grooved adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or ovate, loose, 10–35 cm long, with spikelets clustered towards branch tips. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2–2.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–2.5 mm long, 1.2–2.6 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, 1.25–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex emarginate or truncate, mucicous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.8 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland, New South Wales.

**TDWG4.** Tablelands.

**Agrostis blasdalei** Hitchcock. *Proc. Biol. Soc. Wash.* 41: 160. (1928).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.B. Davy & W.C. Blasdale 6159*, May 1899-Aug 1899, USA: California: Mendocino Co., near Ft. Bragg, on cliffs (US-556266).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (657).

**Derivation** (Clifford & Bostock 2007): in honor of Walter Charles Blasdale (1871-) United States amateur botanist and chemist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending or decumbent, 10–15 cm long, 2–3 -noded. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades filiform, conduplicate or involute, 2–4 cm long, 0.5 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear, 2–3 cm long. Primary panicle branches appressed. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 2.5–3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acuminate. Upper glume lanceolate, 2.5–3 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex mucicous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 1 mm long overall. Palea 0.3 mm long, 0.1–0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA. California.

**Agrostis boliviana** Mez. *Fedde, Repert.* 18: 1 (1922).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Fiebrig 2821*, Bolivia: Pinos bei Tarija (B; IST: BAA, US-1127226 (fragm. ex B)).

ST: *Fiebrig 2905*, Bolivia: Calderillo (B; IST: BAA, US-1127227 (fragm. ex B)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From Bolivia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 25–75 cm long. Ligule an eciliate membrane, 4–5 mm long. Leaf-blades involute, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 10–15 cm long. Primary panicle branches ascending or spreading, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 2.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia, Peru.

**Agrostis boormanii** Vickery. *Contrib. N. S. Wales Nat. Herb.* 1: 105 (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New South Wales: Harvey Ranges, Peak Hills, *J.L. Boorman, K, 11.1905* (K, NSW).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (109).

**Derivation** (Clifford & Bostock 2007): in honor of John Luke Boorman (1864–1938) Australian plant collector.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, slender, 30 cm long, 1–2 -noded. Culm-internodes smooth or scaberulous. Culm-nodes glabrous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3 mm long, lacerate, obtuse. Leaf-blades filiform or linear, 5–10 cm long, 1–1.5 mm wide. Leaf-blade surface scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate. Primary panicle branches appressed, 2–5 -nate, bearing spikelets almost to the base. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume margins ciliolate. Lower glume apex acute. Upper glume lanceolate, 1.8 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume margins ciliolate. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 1.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3–4 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.3 mm long. Caryopsis with adherent pericarp, ellipsoid. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales.

**TDWG4.** Western Slopes.

**Agrostis bourgaei** E. Fourn. *Mexicanas Plantas* 2: 95. 1886.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Bourgeau* 682, 1865, Mexico: Mexico (P; IT: US-556238 (fragm. ex P)).

**Recent Synonyms:** *Agrostis thyrsigera* Mez, *Fedde, Repert.* 17: 301 (1921).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Eughne Bourgeau (1813–1877) French botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms geniculately ascending, 20–60 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 3–7 cm long, 1–3 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 5–25 cm long. Primary panicle branches appressed or ascending, whorled at most nodes. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets elliptic, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex muticous. Palea 0.25–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Southwest Mexico.

**TDWG4.** Distrito Federal, Mexico State, Tlaxcala. Guanajuato, Hidalgo. Michoacan, Oaxaca.

### **Agrostis boyacensis** Swallen & Garcma-Barr. *Caldasia* 2(8): 303, f. A. 1943.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Cuatrecasas & H. Garcia-Barriga 1459*, 12 Sep 1938, Colombia: Boyaca: Nevada del Cocuy (US-1772992; IT: COL).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis. From Department of Boyaca, Colombia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 6–22 cm long. Culm-internodes distally glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, acute. Leaf-blades erect, flat or convolute, 3–5 cm long, 1.5–2 mm wide. Leaf-blade venation prominent. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 3–5 cm long. Primary panicle branches appressed or ascending, 1.5 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2.5 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex obtuse, muticous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, 0.7 mm long, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

### **Agrostis brachiata** Munro ex Hook. f. *Fl. Brit. Ind.* 7: 256. (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Nepal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nepal; *Wallich 3769C* (HT: K; IT: K-W, E).

**Recent Synonyms:** *Agrostis megathyrsa* Keng ex P.C. Keng, *Bull. Bot. Res. North-East. Forest. Inst.* 4(3): 197 (1984).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 465).

**Derivation** (Clifford & Bostock 2007): L. brachium, forearm; -atum, possessing. Inflorescence a single axis bearing racemes often held in a manner suggesting the arms of a signalling station.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, slender, 60–100 cm long. Ligule an eciliate membrane. Leaf-blades 5–15 cm long, 2–6 mm wide, flaccid. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, effuse, 7–25 cm long. Primary panicle branches spreading, 3–5-nate, whorled at most nodes. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 4–6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume elliptic, 1.5 mm long, 1 length of upper glume, membranous, without keels, 1-veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 1-veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma apex truncate, muticous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central, China North-Central. **Indian Subcontinent.** Eastern Himalaya, India, Nepal.

**TDWG4.** Gansu, Guizhou, Hubei, Sichuan, Yunnan. Bhutan. Bihar. West Bengal.

### **Agrostis brachyathera** Steud. *Syn. Pl. Gram.* 422. (1854).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *W. Lechler 1236*, Dec 1852, Chile: Magellan, prope Sandy Point (P; IT: BAA, K, LE, P, US-75334, W). *W. Lechler pl. magellanica*. R.F. Hohenacker..

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (390, Fig. 260).

**Derivation** (Clifford & Bostock 2007): Gk. brachys, short; ather, ear or spike of wheat. Spikelet with a minute rachilla projection or lemma with a short awn.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 2 mm long, erose, obtuse. Leaf-blades flat or convolute, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 5–12 cm long, contracted about secondary branches. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.9–3.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, dark green, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 2.9–3.2 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, dark green, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.8–2.2 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma apex awned, 1-awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 1.2–2 mm long overall. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–0.8 mm long. Caryopsis with adherent pericarp, fusiform, 1.5 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina South, Chile Central, Chile South.

**TDWG4.** Tierra del Fuego. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso, Chiloe, Aisen, Magallanes. Maule, Biobio. Aisen, Magallanes.



**Agrostis breviculmis** Hitchc. *U.S. Dept. Agric. Bull. Pl. Ind.* 68: 36 (1905).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Trichodium nanum* J. Presl, *Reliq. Haenk.* 1(4–5): 243 (1830)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *T. Haenke s.n.*, Peru (LE-TRIN-1627.01 (fragm. & fig.)).

HT: *T. Haenke s.n.*, Peru (PR; IT: MO-2104691, MO-2104692 (illustration)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (178, Fig. 43).

**Derivation** (Clifford & Bostock 2007): *L. brevis*, short; culmus, stalk. Culms short.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 4–10 cm long. Culm-internodes distally glabrous. Ligule an eciliate membrane. Leaf-blades involute, 1–3 cm long, 1–1.3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 1–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous, rough above. Lower glume apex acute. Upper glume lanceolate, 1.8–2 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous, rough at apex. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, muticous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** **Western South America, Southern South America.** Bolivia, Colombia, Ecuador, Peru. Chile Central.

**TDWG4.** Catamarca, Salta. Cordoba. Coquimbo, Santiago, Biobio, La Araucania.

**Agrostis burmanica** Bor. *Kew Bull.* 1957, 416 (1958).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Myanmar. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F. Kingdon-Ward 22,816*, 1956, Burma (K; IT: US-2238415 (fragm. ex K)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ica*, belonging to. From Burma, now Myanmar.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths papery. Culms 30–60 cm long. Culm-nodes glabrous. Ligule an eciliate membrane, 1.5–7 mm long. Leaf-blades 10–22 cm long, 2 mm wide. Leaf-blade surface scaberulous, rough on both sides, glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 8–16 cm long. Primary panicle branches 3–4 -nate. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, keeled above, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–4.5 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2–2.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma margins ciliate. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 5 mm long overall, with twisted column. Palea 2 mm long, 0.8–1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.3–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Myanmar.

**Agrostis calderoniae** Acosta Cast. *Phytologia* 62(6): 449, f. 1. 1987.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico: Mexico: Mun. Tlalmanalco: La Cienaga, region de Penas Cuatas, ladera NW del Ixtacchuatl, 3600 m, 19 Aug 1984, S. Acosta 687 (HT: ENCB; IT: CHAPA, MEXU, TEX).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ella, diminutive but here a name-forming suffix; L. -ana, indicating connection. In honor of Cleofi Elsa Caldersn (1929-) Argentine-born United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 15–38 cm long. Lateral branches lacking. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 1.5–4 mm long. Leaf-blades filiform, involute, 2–10 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, loose, 5–10 cm long, 2–9 cm wide. Primary panicle branches ascending, branching divaricately, rebranched at middle, 2–5 cm long. Panicle branches flexuous, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2.5–3.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3.5 mm long, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex obtuse, muticous. Palea 0.7–1 mm long, 0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.7 mm long, membranous. Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico.

**TDWG4.** Mexico State.

**Agrostis canina** L. *Sp. Pl.* 62. (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as *A. pallida*, *A. tenuis*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983) (& as *A. tenuis*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Europe. **Basionym or Replaced Name:** *Agrostis tenuifolia*, Curt. *Brit. Gr.* 42 (1787). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: CT: Herb. Burser I: 3 (UPS). LT designated by Widin, *Fl. Fenn.* 5: 29 (1971); CT proposed by Jarvis, *Taxon* 41: 556 (1992).

**Recent Synonyms:** *Agrostis tenuis* Bast. ex Roem. & Schult., in syn, *Syst.* 2: 277 (1817).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (296 & 300 also as *A. tenuis*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (642), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102 as *A. tenua*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:7(1980)).

**Derivation** (Clifford & Bostock 2007): L. canus, greyish-white; -inus, belonging to. Foliage or inflorescences grey-green.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or elongated. Stolons present. Culms geniculately ascending or decumbent or prostrate, 15–75 cm long, 1–4 -noded, without nodal roots or rooting from lower nodes. Culm-internodes smooth. Leaf-sheaths without keel, smooth or scaberulous. Ligule an eciliate membrane, 1–5 mm long, acute. Leaf-blades flat or convolute, 2–15 cm long, 1–3 mm wide. Leaf-blade surface ribbed, scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or ovate, 2–10 cm long, 1–7 cm wide. Primary panicle branches whorled at most nodes. Panicle branches capillary, terete, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 1.7–3.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous (above). Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 1.1–2.1 mm long, hyaline, without keel, 4–5 -veined, more than 3-veined. Lemma apex truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 2–4.5 mm long overall, with twisted column. Palea oblong, 0.1–0.25 length of lemma, hyaline, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 1–1.5 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, ellipsoid, isodiametric, biconvex, estipitate, without sulcus, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum linear, 0.9 length of caryopsis. Endosperm farinose.

$N = 14$  (1 ref TROPICOS), or 21 (1 ref TROPICOS).  $2n = 14$  (5 refs TROPICOS), or 28 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Pacific, North America (\*), South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Iceland, Svalbard. : Balears, Sardinia, Azores. : Crete, Sicily, Turkey Europe. Belarus, Estonia, Latvia, Lithuania, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **Macaronesia.** Azores. **Western Asia, China, Mongolia, Eastern Asia, Russia.** Iran. China South Central, Tibet, Xinjiang. Mongolia. Japan. Japan Honshu, or Kyushu. **Indian Subcontinent.** India, Pakistan, West Himalaya. **North-central Pacific.** Hawaii (\*). **Subarctic America, Western Canada, Eastern Canada, Northwest USA, Northeast USA, Southeastern USA.** Alaska. British Columbia. New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I. Washington. Connecticut, Maine, Massachusetts, Michigan, New Jersey, Pennsylvania, Rhode Island, West Virginia. Delaware, Tennessee. **Caribbean, Southern South America.** Jamaica. Argentina South. **Subantarctic islands.** Falkland Is (Malvinas).

**TDWG4.** Yunnan. Sikkim. Meghalaya. West Bengal. Himachal Pradesh, Jammu Kashmir. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego.

**GenBank** (DQ146797, DQ146766, EE284246, EE284245, EE284244, EE284243, EB812822, EB812821, EB812820, EB812819, EE812818, EE812817, EE812816, EE812815).

**Agrostis capillaris** L. *Sp.Pl.* 62 (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A. tenuis*), T.G.Tutin et al, *Flora Europaea* 5 (1980), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Europe. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: Herb. A. van Royen, (L-912.356–69 (left-hand specimen); ILT: L). LT designated by Widen, *Fl. Fenn.* 5: ? (1971).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (183, Fig. 131), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (473, Fig 92 as var. *capillaris* and var. *aristata*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (109), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (168, Fig. 25), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (640), M.N.Correa, *Flora Patagonica* Parte III,

Gramineae (1978) (372, Fig. 248 as *A. tenuis*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 460).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, E.Edgar & H.E.Connor, *Flora of New Zealand 5, Gramineae* (2000);.

**Derivation** (Clifford & Bostock 2007): *L. capillis*, a hair; -are, pertaining to. Inflorescence with filiform branches.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Stolons absent or present. Culms erect or geniculately ascending, 10–70 cm long, 2–5 -noded. Culm-internodes smooth. Leaf-sheaths without keel, smooth. Ligule an eciliate membrane, 0.5–2 mm long (shorter than wide), truncate. Leaf-blades 1–15 cm long, 1–5 mm wide. Leaf-blade surface ribbed, smooth or scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong to ovate, 1–20 cm long, 1–12 cm wide. Primary panicle branches whorled at lower nodes. Panicle branches capillary, terete, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic to oblong, 1.2–2.7 mm long, hyaline, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma apex truncate. Palea oblong, 0.5–0.7 length of lemma, hyaline, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 1–1.5 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, ellipsoid, isodiametric, biconvex, estipitate, without sulcus, 1 mm long, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum linear, 0.9 length of caryopsis. Endosperm farinose.

$2n = 28$  (7 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America (\*), South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Great Britain, Svalbard (\*). : Baleares, Sardinia, Azores. : Crete, Sicily, Turkey Europe. Belarus, Estonia, Latvia, Lithuania, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa, Macaronesia, Middle Atlantic ocean.** Tunisia. Canary Is. Ascension, St Helena. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Kamchatka, Kuril Is, Sakhalin. Kazakhstan. Afghanistan, Turkey. Inner Mongolia, China North-Central, China Southeast, Xinjiang. **Indian Subcontinent, Indo-China.** Eastern Himalaya. **Australia, New Zealand.** Western Australia (\*), New South Wales (\*), A.C.T. (\*), South Australia (\*), Tasmania (\*), Victoria (\*). Chatham Is, New Zealand North I, New Zealand South I, Stewart Is, Campbell Is, Auckland Is. **North-central Pacific.** New Caledonia (\*). Hawaii (\*). **Subarctic America, Western Canada, Eastern Canada, Northwest USA, Northeast USA, Southwestern USA, Southeastern USA.** Greenland. New Brunswick, Newfoundland, Nova Scotia. Oregon, Washington. Maine, Massachusetts, New Hampshire, New York. California. Kentucky, Tennessee. **Mesoamerica, Brazil, Southern South America.** Costa Rica, Honduras. Brazil South. Chile Central, Chile South. **Subantarctic islands.** Falkland Is (Malvinas), Tristan de Cunha.

**TDWG4.** Shanxi. Henan. Darjeeling, Bhutan. South-West. Coast, Tablelands, Western Slopes. Mendoza. Buenos Aires. Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso, Chiloe, Aisen, Magellanes. Coquimbo, Valparaiso, Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes.

**Agrostis carmichaelii** Roem. & Schult. *Mant.* 3: 571 (1827).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Tristan da Cunha. **Basionym or Replaced Name:** *Agrostis ramulosa* Carm., non (Kunth)Roem. & Schult.(1817), *Trans. Linn. Soc.* 12: 504 (1818). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *A. ramulosa* Carm. ; Tristan da Cunha: Coll??.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Dugald Carmichael (1772–1827) Hebridean-born British soldier and plant collector.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, cushion forming, clumped densely. Culms 4–7(–12) cm long. Ligule an eciliate membrane, 1 mm long, acute. Leaf-blades filiform, convolute, 2–4 cm long, 0.5 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, shorter than basal leaves, embraced at base by subtending leaf. Panicle open, linear or oblong, 1–1.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, muticous. Palea 0.33 length of lemma, hyaline.

**Distribution (TDWG). Continent.** Antarctica.

**Country /Province /State. Subantarctic islands.** Tristan de Cunha.

**Agrostis castellana** Boiss. & Reut. *Diagn. Hisp.* 26. (1842).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: Reuter s.n., Jun 1841, Spain: Matvita: in collibus arenosis (LE). Reuter misit Jul. 1842.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (640), S.A.Rennoize, *Gramineas de Bolivia* (1998) (176, Fig. 42).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From the Spanish Provinces of New and Old Castille.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 18–50 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–3.5 mm long. Leaf-blades involute, 2.5–10 cm long, 0.5–1.8 mm wide. Leaf-blade surface smooth or scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, effuse, 5–15 cm long, 0.8–6 cm wide. Primary panicle branches spreading, 4–8 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–2.3 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.3–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.3–3.7 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.6–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex erose, truncate, muticous. Palea 0.5 length of lemma, hyaline, 2 -veined. Rhachilla extension pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Australasia, South America, Antarctica.

**Region. Northern Europe** (\*), **Southwestern Europe, Southeastern Europe.**

**Country /Province /State.** : Great Britain. : Corsica, France, Portugal, Spain, Azores. : Albania, Bulgaria, Greece, Italy, Yugoslavia. **Northern Africa, Macaronesia.** Morocco. Azores, Canary Is, Madeira. **Western Asia.** Iran. **New Zealand.** New Zealand North I, New Zealand South I, Campbell Is. **Western South America, Southern South America.** Bolivia. Chile Central, Chile South. **Subantarctic islands.** Tristan de Cunha.

**TDWG4.** Buenos Aires, Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Rest of Chile- Biobio, La Araucania, Maule, O'Higgins, Santado, Valpariso, Chiloe, Aisen, Magellanes. Santiago, Biobio, La Araucania. Los Lagos, Aisen, Magellanes.

**Agrostis clavata** Trin. Spreng. *Neue Entdeck.* 2: 55. (1821).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Kamchatka: Fischer 46 (LE holo).

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (242), C-C Hsu, *Taiwan Grasses* (1975) (as ssp. *matsumurae*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (646), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 464).

**Derivation** (Clifford & Bostock 2007): *L. clava*, club; *ata*, possessing. Possibly a reference to the obtuse lemma.

**Classification.** Subfamily Pooideae. Tribe: Poaeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Basal innovations intravaginal. Culms erect or geniculately ascending, 30–70 cm long, 2–3 -noded. Culm-internodes smooth. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.5–3 mm long, obtuse or acute. Leaf-blades 9–18 cm long, 2–7 mm wide, dark green. Leaf-blade venation with 10–30 secondary veins. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 8–25 cm long, 0.25–0.33 of culm length, bearing few spikelets. Primary panicle branches spreading, whorled at lower nodes, rebranched above middle, 4.6–7.5 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.6–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1.6–2.8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 1.6–2.8 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 1.3–1.9 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma surface smooth. Lemma apex dentate, obtuse, mucous. Palea present or absent or minute, 0.2–0.5 mm long, 0–0.25 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.3–0.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 42$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Tropical Asia, North America.

**Region. Northern Europe, Eastern Europe.**

**Country /Province /State.** : Finland, Sweden. Central European Russia, East European Russia, North European Russia, Northwest European Russia. Siberia, Russian far east, **Caucasus, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Kamchatka, Kuril Is, Sakhalin. North Caucasus. China South Central, Inner Mongolia, Manchuria, China North-Central, China Southeast, Tibet. Mongolia. Japan, Korea, Taiwan. **Malesia, Papuasia.** New Guinea PNG. New Guinea. **Subarctic America.** Alaska, Yukon, Northwest Territories.

**TDWG4.** Gansu, Hebei, Shaanxi, Shandong. Anhui, Fujian, Guangdong, Henan. Guizhou, Sichuan, Yunnan.

**Agrostis clemensorum** Bor. *Journ. Ind. Bot. Soc.* 42 A. 12 (1963).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Clemens 30438*, 7–9 Sep 1932, Indonesia: Java: G. Gede, under the structure at the summit, 10000 ft, forest, leaves and stem rigid (K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph (1862–1935) English-born United States missionary in southeast Asia and Mary Knapp Strong Clemens.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Cataphylls evident. Basal innovations extravaginal. Culms decumbent, 20–40 cm long, rooting from lower nodes. Leaf-sheaths smooth. Ligule an eciliate membrane, 1.25–2 mm long, truncate. Leaf-blades 10–17.5 cm long, 4–5 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 4–9 cm long, 0.6–1.5 cm wide. Primary panicle branches appressed, naked below or bearing spikelets almost to the base. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.65–1.85 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume elliptic, 1.65–1.85 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 1.4–1.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–1.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex entire, acute, muticous. Palea 0.5 mm long, 0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8–0.9 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia. Java.

**Agrostis congestiflora** Tutin & E. F. Warb. *Journ. Bot* 70: 43 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Azores. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Deyeuxia caespitosa* ; Azores, Pico: Hochstetter 188 (K iso).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. congesta*, crowded together; flos, flower. Panicle branches erect at anthesis.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 5–35 cm long. Culm-internodes smooth or scaberulous. Ligule an eciliate membrane, 0.5–5 mm long. Leaf-blades flat or involute, 1–10 cm long, 0.5–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 2–6 cm long. Primary panicle branches appressed. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1 length of fertile spikelet, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or sparsely hairy. Floret callus hairs 0–0.3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute, muticous or mucronate. Upper glume lanceolate, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute, muticous or mucronate.

**Florets.** Fertile lemma elliptic to oblong, 1.3–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins prominent, excurrent or extending close to apex. Lemma surface smooth or scaberulous, glabrous or pubescent. Lemma apex obtuse, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 2–4 mm long overall, with twisted column. Palea 0.6–0.8 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 0.6–1 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG).** Continent. Europe, Africa.  
**Region.** Southwestern Europe.  
**Country /Province /State.** : Azores. **Macaronesia.** Azores.

**Agrostis continuata** Stapf. *Kew Bull.* 1897, 290. (1897).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Malawi. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Malawi: Buchanan 356 (K holo).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (99, Fig. 70, as *A. natalensis*).

**Derivation** (Clifford & Bostock 2007): *L. continuus*, uninterrupted; -ata, possessing. The rhachilla projects conspicuously beyond the floret.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 30–70 cm long, 2–4 -noded. Ligule an eciliate membrane. Leaf-blades 8–25 cm long, 2–3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3–5 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–4.5 mm long, 1.2–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface glabrous or pilose. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2–0.25 way up back of lemma, geniculate, 2–4 mm long overall, with twisted column. Palea 0.25–0.33 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa, Southern Africa. Tanzania. Malawi, Zimbabwe. Limpopo, North-West, Mpumalanga, Swaziland, Kwazulu-Natal.

**Agrostis contracta** Y.C. Tong ex Y.C. Yang, non Hook f. (1860). *Bull. Bot. Res. North-East. Forest. Inst.*, 4(4): 100 (1984).

Regarded by K as a synonym (*A. sinocontracta*).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China, Yunnan, Bijiang Xian: Coll. 58618.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. contracta*. Inflorescence a narrow panicle.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms 30–50 cm long, 1–1.5 mm diam., 3–4 -noded. Culm-internodes scaberulous. Leaves cauline. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades 10–13 cm long, 3–5 mm wide. Leaf-blade surface scabrous. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 10–15 cm long, 3 cm wide. Primary panicle branches 5–10 -nate, whorled at most nodes. Panicle branches smooth, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth, glabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2 mm long.



**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.5–3 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5–1.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, geniculate, 3 mm long overall, with twisted column. Palea 0.3 mm long, 0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, oblong, 0.6 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Yunnan.

**Agrostis curtisii** Kerguelen. *Lejeunia*, 75 (Err. / Corr.): 1 (1975).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from UK. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *A. setacea* Curtis ; Britain, London: Curtis.

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (294 as *A. setacea*).

**Derivation** (Clifford & Bostock 2007): in honor of William Curtis (1746–1799) English botanist and entomologist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 10–60 cm long, 2–3 -noded. Culm-internodes scaberulous. Leaf-sheaths without keel, scaberulous. Ligule an eciliate membrane, 2–4 mm long, acute. Leaf-blades filiform, conduplicate, 5–20 cm long, 0.2–0.3 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle scaberulous above. Panicle contracted, lanceolate, 3–10 cm long, 0.5–1.5 cm wide. Panicle branches terete, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1–1.3 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 2–2.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 4–5 mm long overall, with twisted column. Palea oblong, 0.1–0.25 length of lemma, hyaline, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 1.5–2 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, ellipsoid, isodiametric, biconvex, estipitate, without sulcus, 1.5 mm long, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum linear, 0.9 length of caryopsis. Endosperm farinose.

$N = 7$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region. Northern Europe, Southwestern Europe.**

**Country /Province /State. :** Great Britain. : France, Portugal, Spain. **Northern Africa.** Morocco.

**Agrostis cypricola** H. Lindb. *Arsbok Soc. Sci. Fenn.* 20. B. No. 7, 5 (1942).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cyprus. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *H. Lindberg*, 9 June 1939, Cyprus: Kyrenia, Boghazi (S-G250).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -cola*, dweller. From Cyprus.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Stolons absent. Culms erect, 8–40 cm long, 2–5 -noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking. Leaf-sheaths striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 4–5 mm long, entire or lacerate, obtuse. Leaf-blades ascending, 15–20 cm long, 2–4 mm wide, glaucous. Leaf-blade surface ribbed, scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear or lanceolate or oblong, dense, 5 cm long, 1.5–2 cm wide. Primary panicle branches whorled at most nodes, 1–1.5 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, mucronate. Palea oblong, 1 mm long, 0.66 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 1 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Cyprus.

**Agrostis decaryana** A. Camus. *Bull. Soc. Bot. France*, 78: 35 (1931).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Befotoka: Decary 4422.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Raymond Decary (1891–1973) French botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms geniculately ascending, 80–100 cm long. Culm-internodes distally glabrous. Leaf-sheaths striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 3 mm long. Leaf-blades 12 cm long, 4 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, loose, 25 cm long, 10–12 cm wide, bearing few spikelets. Primary panicle branches distant, 10 cm long. Panicle branches glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–7 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.15 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.5–3 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma surface pilose. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 4 mm long overall, without a column. Palea 2 mm long, hyaline.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Agrostis delicatula** Pourr. ex Lapeyr. *Hist. Abr. Pyr. Suppl.* :12 (1818).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain, San Pedro de los Montes: Pourret.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. delicatus*, dainty; -ula, diminutive. Small and dainty as of habit.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 20–40 cm long. Ligule an eciliate membrane, acute. Leaf-blades involute, 3–10 cm long, 1–3.5 mm wide, glaucous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 12–20 cm long. Primary panicle branches spreading. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, 2–3 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.2 mm long, 2–3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, 0.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex lobed, 5 -fid, incised 0.15 of lemma length, truncate, mucous. Palea 0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Southwestern Europe.

**Country /Province /State.** : Portugal, Spain. **Northern Africa.** Morocco.

**Agrostis delislei** Hemsl. *Rep. Sci. Results Vey. Challeng. Bot.* 1:II 269 (1884).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Amsterdam Island. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Amsterdam Is.: Moseley.

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–30 cm long. Ligule an eciliate membrane, 2–4 mm long, obtuse. Leaf-blades 4–11 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–5 mm long, 1 length of upper glume, membranous, 1-keeled. Lower glume apex acuminate. Upper glume lanceolate, 4–5 mm long, membranous, 1-keeled. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, curved, 2–3 mm long overall. Palea 0.66 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Antarctica.

**Country /Province /State.** **Subantarctic islands.** Amsterdam-St Paul Is.

**Agrostis densiflora** Vasey. *Contrib. U. S. Nat. Herb.* 3: 72 (1892).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as *A. clivicola*).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. L. Anderson*, 1886, USA: California, Santa Cruz (US-2479639).

**Recent Synonyms:** *Agrostis californica* Trin. *Agrost.* 2: 113 (1841). *Agrostis tolucensis* Kunth, *Nov. Gen. et Sp.* 1: 135. (1816).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (652).

**Derivation** (Clifford & Bostock 2007): *L. densus*, dense; flos, flower. Inflorescences congested.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 15–60 cm long. Lateral branches lacking. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 3–4 mm long, pubescent on abaxial surface, truncate. Leaf-blades 5–10 cm long, 3–5 mm wide. Leaf-blade surface ribbed, scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, continuous or interrupted, 2–8 cm long, 0.5–1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 3 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma elliptic, 2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 4 -fid, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, straight, 0–2 mm long overall. Palea 0.25–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA. California.

**Agrostis diemenica** D.I.Morris. *Telopea* 10(3): 765 (-767; figs. 1–2) (2004).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia, Tasmania, Second Bar Lake: Moscal 6946 (HO holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ica*, belonging to. from Tasmania, formerly Van deiman's Land.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 15–35 cm long. Culm-internodes smooth. Leaf-sheaths loose, ribbed. Ligule an eciliate membrane, 1–3 mm long, entire or erose, obtuse. Leaf-blades 6–12 cm long, 1–2 mm wide. Leaf-blade surface smooth or scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Peduncle smooth or scaberulous above. Panicle open, pyramidal, 5–10 cm long, with spikelets clustered towards branch tips. Primary panicle branches spreading, 2 -nate (upper nodes), whorled at lower nodes. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2–3 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.75–2.75 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure or distinct. Lemma apex muticous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.5–1.6 mm long. Caryopsis with adherent pericarp, 1.25 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Tasmania.

**Agrostis diffusa** S.M. Phillips, non Host(1809). *Kew Bull.*, 41(1): 137 (1986).

Regarded by K as a synonym (*A. billardieri*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. widely spreading. Inflorescence an open panicle.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms geniculately ascending, slender, 40–100 cm long. Ligule an eciliate membrane. Leaf-blades 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic or ovate, effuse, 15–30 cm long, 8–17 cm wide. Primary panicle branches branching divaricately. Panicle branches capillary, flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3.3–4.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.3–4.8 mm long, 1.2 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume surface smooth or asperulous. Lower glume apex acuminate. Upper glume elliptic or oblong, 2.8–4 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface smooth or asperulous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate or oblong, 2.6–3.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent (0.3–0.6mm). Lemma surface pilose. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 4.2–6 mm long overall, with twisted column. Palea 0.5–0.75 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.2–2 mm long, pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Ethiopia (inc. Eritrea).

**Agrostis divaricatissima** Mez. *Fedde, Repert.* 18: 4 (1922).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N. Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Korea. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Korea, Upyeng-Yang R.: Faurie 1283 (LE iso).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 458).

**Derivation** (Clifford & Bostock 2007): L. divarico, spread out; -issima, most. Panicle, large and diffuse.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50 cm long. Ligule an eciliate membrane. Leaf-blades 8–10 cm long, 2–3.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle open, ovate, 20 cm long, 10 cm wide. Primary panicle branches spreading. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–2.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.2–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex truncate, muticous. Palea 0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.2 mm long, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, China, Mongolia, Eastern Asia. Altay, Buryatiya, Chita, Irkutsk, Tuva. Mongolia.

**TDWG4.** Heilongjiang, or Jilin, or Liaoning.

**Agrostis dshungarica** (Tzvelev) Tzvelev. *Pl. Central Asia* 4: 292. (2001).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from Russia. **Basionym or Replaced Name:** *Pentatherum dshungaricum* Tzvelev, *Akad. Nauk SSSR Bot. Inst. Komarova, Rast. Tsentral. Azii, Fasc.* 4, 77 (1968). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Venjtzjuan: Kuan 1661 (LE holo).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 458).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From the Jungaria-Kashgaria mountains, former Soviet Union.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 20–40 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.5–2.5 mm long, scaberulous on abaxial surface. Leaf-blades 5–10 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, (5–)10–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.33 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 3–4 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent or obscure. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, straight or geniculate, 3–4.3 mm long overall, without a column or with twisted column. Palea 0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.7–0.9 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Middle Asia, China. Kazakhstan. Xinjiang.

**Agrostis durieui** Boiss. & Reut. ex Merino. *Fl. Descr. Illustr. Galicia* 3:275, no. 1562 (1909).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Spain, Asturias: *Durieui*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Michel Charles Durieu de Maisonneuve (1796–1878) French botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 20–40 cm long. Ligule an eciliate membrane, truncate. Leaf-blades flat, 3–10 cm long, 1–3.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 12–20 cm long. Primary panicle branches spreading. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, 2–3 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.7 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.7

mm long, 2–3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, 0.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex lobed, 5 -fid, incised 0.25 of lemma length, truncate, mucous. Palea 0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Southwestern Europe.

**Country /Province /State.** : France, Portugal, Spain. **Western Indian ocean.** Madagascar.

**Agrostis dyeri** Petrie. *Trans, N. Z. Inst.* 22. 1889, 441 (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand, Ruahine Mts.: *Petrie* (WELT lecto).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of William Turner Thiselton-Dyer (1843–1928) English botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms erect or geniculately ascending, 15–55 cm long. Leaf-sheaths smooth or antrorsely scabrous. Ligule an eciliate membrane, 0.8–2.2 mm long, glabrous on abaxial surface or scaberulous on abaxial surface, erose or lacerate, truncate. Leaf-blades 3.5–10 cm long, 1–2.5 mm wide. Leaf-blade surface scaberulous, rough adaxially or on both sides. Leaf-blade margins scaberulous. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle open, lanceolate, 5–12 cm long. Panicle axis smooth. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, hairy in 2 tufts.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2.3–3.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, mucous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.66 way up back of lemma, straight, 0–2 mm long overall. Palea 0.5–0.8 mm long, 0.25 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6–1.2 mm long. Caryopsis with adherent pericarp, 1–1.8 mm long. Hilum linear.

$N = 21$  (1 ref TROPICOS).  $2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **New Zealand.** New Zealand North I, New Zealand South I.

**Agrostis elliotiana** Schult. *Mant.* 2: 372 (1824).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *A. arachnoides* Ell. ; USA, Orangeburgh: Bennett (CHARL holo).

**Recent Synonyms:** *Agrostis exigua* Thurb., *S. Wats. Bot. Calif.* 2: 275. (1880).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (660), F.W.Gould, *The Grasses of Texas* (1975) (144, Fig. 72).

**Derivation** (Clifford & Bostock 2007): in honor of George Francis Scott Elliott (1861–1934) Indian-born Scottish botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms weak, 2.5–30 cm long. Lateral branches lacking. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.5–5 mm long, obtuse. Leaf-blades flat or conduplicate, 2–7 cm long, 1–1.6 mm wide. Leaf-blade surface ribbed.

**Inflorescence.** Inflorescence a panicle, deciduous as a whole. Panicle open, ovate, effuse, 5–20 cm long. Primary panicle branches 2–5-nate, whorled at most nodes. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.2–2.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.2–2 mm long, 1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.2–2 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.1–1.8 mm long, hyaline, without keel, 3-veined, 0–3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, obtuse, mucicous or awned, 1-awned. Principal lemma awn subapical, flexuous, 4–8 mm long overall, without a column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.  $2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico. Illinois, Kansas, Missouri, Oklahoma. Indiana, Maine, Massachusetts, Ohio. California. Texas. Alabama, Arkansas, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia. Southeast Mexico. Yucatan.

**Agrostis elliotii** Hook. ex S. Elliot. *Journ. Linn. Soc.* 29: 65 (1891).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Ankaratra Mts.: Scott-Elliot 2090; Madagascar, Ankaratra Mts.: Scott-Elliot 2921 (K syn).

**Illustrations (Books):** J. Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (113, Fig. 34).

**Derivation** (Clifford & Bostock 2007): in honor of George Francis Scott Elliott (1861–1934) Indian-born Scottish botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms geniculately ascending, 50–70 cm long. Ligule an eciliate membrane, 2 mm long, truncate. Leaf-blades 10–25 cm long, 3–5 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, interrupted, 5–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.5–4 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.5 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 4-fid, truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 3 mm long overall, with twisted column. Palea 0.5 mm long, 0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Africa.



**Country /Province /State.** Western Indian ocean. Madagascar.

**Agrostis emirnensis** (Baker) Bosser. *Adansonia*, n. s., 8: 516 (1968).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. **Basionym or Replaced Name:** *Deyeuxia emirnensis* Baker, *Journ. Linn. Soc.* 22: 533 (1887). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar: Baron 4497 (K iso).

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (115, Fig. 35).

**Derivation** (Clifford & Bostock 2007): *L. pensis*, denoting origin. From Emern, Madagascar.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 60–80 cm long. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades 10–20 cm long, 2–6 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 12–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 2.5 mm long, 0.8 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3.5–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3.5–4 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn subapical, straight, 2.5 mm long overall, without a column. Palea 2.5–3 mm long, 0.75–1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Agrostis eriantha** Hack. *Vierteljahrsschr. Naturf. Ges. Zurich.* 49: 172 (1904).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa, Middleburg: Schlechter 4052 (K isosyn) ; South Africa, Pretoria: Schlechter 4144 (K iso).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (100, Fig 71), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (33, Fig 12 var. *eriantha*).

**Images:** G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): Gk. erion, wool; anthos, flower. With wooly glumes, lemmas or awns.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms 30–70 cm long. Ligule an eciliate membrane. Leaf-blades filiform, conduplicate, 9–18 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 15–30 cm long. Primary panicle branches spreading. Panicle branches stiff, straight. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3.5–5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3.5–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 3.5–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pubescent. Lemma apex dentate, 4 -fid, truncate, awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 5–8 mm long overall, with a straight or slightly twisted column. Palea 0.75 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Southern Africa.** Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Eastern Cape.

**Agrostis eriolepis** Keng ex Y.C. Yang. *Bull. Bot. Res. North-East. Forest. Inst.*, 4(4): 97 (1984).

Regarded by K as a synonym (*A. pilosula*).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Kangding Xian: Liu 1335.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. erion, wool; lepis, scale. With densely hairy glumes, sterile lemmas or palea.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 30–45 cm long, 3–4 -noded. Culm-internodes smooth. Leaves cauline. Leaf-sheaths mostly shorter than adjacent culm internode. Ligule an eciliate membrane, 2.5–3 mm long, lacerate. Leaf-blades 5–10 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 7–15 cm long. Primary panicle branches ascending, 2–7 -nate, whorled at most nodes, 2–5 cm long. Panicle branches puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.4–0.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–3.5 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein ciliolate. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3–4 mm long overall, with twisted column. Palea 0.7 mm long, 0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.7 mm long. Caryopsis with adherent pericarp, ellipsoid or oblong, 1.2 mm long, dark brown. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Sichuan.

**Agrostis exarata** Trin. *Gram. Unifl.* 205 (1824).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Aleutian Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Aleutian Is., Unalaska: *Eschscholtz* (LE holo).

**Recent Synonyms:** *Agrostis alaskana* Hulten, *Fl. Aleut. Isl.* 71 (1937). *Agrostis longiligula* Hitchc, *U.S. Dept. Agric. Bull. Pl. Ind.* 68: 54. (1905).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (652).

**Derivation** (Clifford & Bostock 2007): L. exaro, plough up. With furrows between the nerves of the lemmas;.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–90 cm long. Leaf-sheaths smooth or antrorsely scabrous. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades 4–15 cm long, 2–6 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle contracted, linear, interrupted, 10–18 cm long, 1–3 cm wide. Primary panicle branches appressed or ascending, 1–4 cm long, bearing spikelets almost to the base. Panicle branches stiff, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or pilose.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.5–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 2.5–3.5 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or geniculate, 5 mm long overall, without a column or with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Pacific, North America.

**Region. Northern Europe (\*).**

**Country /Province /State.** : GB Aliens (Ryves et al). Russian far east, **Eastern Asia.** Kamchatka, Kuril Is. Nansei-Shoto. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **North-central Pacific.** Hawaii (\*). **Subarctic America, Western Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Alaska, Yukon, Northwest Territories. Alberta, British Columbia, Saskatchewan. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. North Dakota, Nebraska, Oklahoma, South Dakota. Vermont. Arizona, California, Nevada, Utah. New Mexico, Texas. Arkansas, Kentucky. Central Mexico, Northeast Mexico, Northwest Mexico.

**TDWG4.** Distrito Federal. Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo. Baja California, Baja California Sur.

**Agrostis exserta** Swallen. *Contrib. U. S. Nat. Herb.* 29: 404 (1950).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guatemala. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Guatemala, Tojquia: Steyermark 50119 (US holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. exserted. Rhachilla longer than in related species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, slender, 10–20 cm long, 0 -noded. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long. Leaf-blades straight, involute, 1–4 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 1–5 cm long, bearing few spikelets. Primary panicle branches ascending, rebranched above middle. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–1.6 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1.5–1.6 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5–1.6 mm long, 1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5–1.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, obtuse, mucous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 0–2 mm long overall. Palea 0.75 length of lemma, hyaline. Rhachilla extension 0.33 length of fertile floret.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Mesoamerica. Guatemala.

**Agrostis filipes** Hook. f. *Fl. Brit. Ind.* 7: 256. (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Khasia Hills: *Clarke*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. filum, thread; pes, foot. Pedicels of spikelets slender.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 13–35 cm long. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades 2.5–7.5 cm long, 1–2.5 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, interrupted, 5–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.2–2.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.2–2.7 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.4–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.66 way up back of lemma, geniculate, 1–2 mm long overall, with twisted column. Palea 0.5 mm long, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5–0.8 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

*N* = 21 (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Tropical Asia.

**Country /Province /State.** Indian Subcontinent, Indo-China. Assam, India, Pakistan, West Himalaya.

**TDWG4.** Sikkim. Meghalaya. West Bengal. Himachal Pradesh.

**Agrostis flaccida** Hack. *Bull. Herb. Boiss.* 7: 649. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan, Hakodate Mt.: *Faurie 1125*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. unable to support its own weight. Inflorescence branches long and thin and so droop.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 15–30 cm long, 1 mm diam., 3 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.5–2 mm long, scaberulous on abaxial surface. Leaf-blades flat or involute, 3–10 cm long, 0.5–2 mm wide. Leaf-blade surface smooth.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle open, ovate, 4–8 cm long, 3–4 cm wide. Primary panicle branches 2–5 -nate, 2–7 cm long. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–2 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.5–3 mm long, 1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–2.5 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.5–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.05–0.1 way up back of lemma, geniculate, 3–5 mm long overall, with twisted column. Palea present or absent or minute, 0–0.2 mm long, 0–0.1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 14$ , or 28 (4 refs TROPICOS).

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** Russian far east, **China, Eastern Asia, Russia.** Kamchatka, Kuril Is, Sakhalin. Manchuria. Japan, Korea. Japan Kyushu.

**TDWG4.** Heilongjiang.

### **Agrostis foliata** Hook. f. *Fl. Antarct.* 95. (1844).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ecuador, Pichincha: Jameson 229 (K holo).

**Recent Synonyms:** *Agrostis nigritella* Pilger, *Engl. Jahrb.* 25: 713. (1898).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. folium, leaf; -ata, possessing. Panicle with many leafy bracts.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 15–30 cm long. Lateral branches lacking. Leaves mostly basal. Ligule an eciliate membrane, 5–8 mm long. Leaf-blades 3–7 cm long, 2–5 mm wide, coriaceous. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, continuous or interrupted, 5–10 cm long, 1–1.7 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.2–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.2–3.5 mm long, membranous, purple or black, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acuminate. Upper glume oblong, 3.2–3.5 mm long, membranous, purple or black, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 2 mm long, membranous, without keel. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 2–2.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** **Western South America.** Colombia, Ecuador, Peru.

### **Agrostis fukuyamae** Ohwi. *Fedde, Repert.* 36: 39 (1934).

Regarded by K as a synonym (*A. infirma*).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from Taiwan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Taiwan, Mt. Nankotaisan: Ohwi 4147 (K iso).

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (244), C-C Hsu, *Taiwan Grasses* (1975) (401, Pl. 1376).

**Derivation** (Clifford & Bostock 2007): in honor of K. Fukuyama, Japanese botanists.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG).** **Continent.** Temperate Asia.

**Country /Province /State.** **Eastern Asia.** Taiwan.

**Agrostis gelida** Trin. *Mem. Acad. Petersb. Ser. 6*, 4(3–4): 343. (1841).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Peru, Andes de Pasco: Poeppig (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. frost. Growing at high altitudes.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 35–60 cm long. Ligule an eciliate membrane, 4–5 mm long. Leaf-blades 2–4 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 13–17 cm long. Primary panicle branches ascending, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5–1.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy at base. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, geniculate, 2 mm long overall, with twisted column. Palea 0.4–0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** **Continent.** South America.

**Country /Province /State.** **Western South America.** Colombia.

**Agrostis ghiesbreghtii** Fourn. *Gram. Mexi*: 97. (1886).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Oaxaca: Ghiesbreght.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of August Ghiesbreghtii (1810–93) Belgian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 50–90 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades erect, filiform, involute, 1 mm wide. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 15–30 cm long. Primary panicle branches whorled at most nodes, branching divaricately, 5–10 cm long. Panicle branches capillary, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica.** Guatemala.

**TDWG4.** Mexico State, Morelos, Puebla. Hidalgo. Veracruz. Guerrero, Oaxaca. Chiapas.

### **Agrostis gigantea** Roth. *Tent. Fl. Germ.* 1: 31 (1788).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (& as *A. moldavica*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (*A. nigra*, *A. alba*).

**TYPE** from Germany. **Basionym or Replaced Name:** *Agrostis nigra* With. *Arr. Brit. Pl.* ed. 3(2) 131 (1796). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Germany, Bremen: Roth.

**Recent Synonyms:** *Agrostis diffusa* Banks & Sol. ex Hook.f., in syn, non Host (1809), *Fl. Nov.-Zel.* 1:298 (1853).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (302), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (283, Pl. 100), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (482, Fig. 53), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (184, Fig. 132), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (109), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (642), F.W.Gould, *The Grasses of Texas* (1975) (139, Fig. 68), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (74, Fig. 41 as *A. alba*), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (365, Fig. 245), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 462), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:8(1980)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. very large. Culms tall compared with those of related species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms geniculately ascending or decumbent, 40–120 cm long, 3–6 -noded, rooting from lower nodes. Culm-internodes smooth. Leaf-sheaths without keel, smooth or scaberulous. Ligule an eciliate membrane, 1.5–6 mm long, truncate. Leaf-blades 5–20 cm long, 2–8 mm wide. Leaf-blade surface ribbed, scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong to ovate, effuse, 8–25 cm long, 3–15 cm wide. Primary panicle branches whorled at most nodes. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 0.5–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.3–2.3 mm long, hyaline, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma apex truncate. Palea oblong, 0.5–0.7 length of lemma, hyaline, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 1–1.5 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, ellipsoid, isodiametric, biconvex, estipitate, without sulcus, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum linear, 0.9 length of caryopsis. Endosperm farinose.

$N = 21$  (3 refs TROPICOS).  $2n = 28$ , or 42 (6 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), North America, South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Great Britain, Ireland, Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Poland, Switzerland. : France, Spain. : Albania, Bulgaria, Italy, Crete, Romania, Turkey Europe, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **Southern Africa** (\*). Mpumalanga, Kwazulu-Natal, Lesotho, Western Cape, Eastern Cape. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Kamchatka, Kuril Is, Magadan, Primorye, Sakhalin. Kazakhstan, Turkmenistan, Tadzhikistan, Uzbekistan. North Caucasus, Transcaucasus. Afghanistan, Iran, Iraq. China South Central, Inner Mongolia, Manchuria, China North-Central, China Southeast, Tibet, Xinjiang. Mongolia. Japan, Korea. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China.** Assam, India, Nepal, Pakistan, West Himalaya. Thailand. **Australia, New Zealand.** New South Wales (\*), A.C.T. (\*), Queensland (\*), South Australia (\*), Tasmania (\*), Victoria (\*), Western Australia (\*), Lord Howe-Norfolk Is (\*). New Zealand North I, New Zealand South I. **Subarctic America, Eastern Canada, Northwest USA, Mexico.** Greenland. Colorado. Central Mexico, Northeast Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Costa Rica. Bolivia, Ecuador, Peru. Brazil South. Argentina South, Chile Central, Chile South, Uruguay. **Subantarctic islands.** Tristan de Cunha.

**TDWG4.** Gansu, Hebei, Shaanxi, Shandong, Shanxi. Anhui, Henan, Jiangsu, Jiangxi, Zhejiang. Hubei, Sichuan, Yunnan. Assam. Himachal Pradesh, Jammu Kashmir. South-West. South East. Coast, Tablelands, Western Slopes. Catamarca, Mendoza, Tucuman. Buenos Aires, Entre Rios, La Pampa, Santa Fe. Chubut, Neuquén, Río Negro, Santa Cruz. Coquimbo, Valparaiso, Santiago, O'Higgins, Biobio, La Araucania. Magellanes. Mexico State. San Luis Potosi.

**Agrostis glabra** (HBK) Spreng. *Syst.* 1: 262 (1825).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. **Basionym or Replaced Name:** *Trichodium glabrum* Presl, *Rel. Haenk.* 1: 244 (1830). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Chile: Haenke.

**Recent Synonyms:** *Agrostis pyrogea* Speg., *Anal. Mus. Buenos Aires*, 5: 83 (1896).

**Illustrations (Books):** E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (174, Fig. 45 as *A. pyrogea*), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (382, Fig. 254 as *Agrostis glabra* var. *melanthes* & *A. pyrogea*).

**Derivation** (Clifford & Bostock 2007): L. smooth. Leaf-blades lacking hairs.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes short or elongated. Culms erect, 25–70 cm long, 2–4 -noded. Culm-nodes brown. Leaves cauline. Leaf-sheaths 2.5–20 cm long, smooth or scaberulous. Ligule an eciliate membrane, 3–10 mm long, scaberulous on abaxial surface, erose. Leaf-blades 2.5–15 cm long, 1.5–5 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, nodding, 8–28 cm long. Primary panicle branches 2–5 -nate. Panicle axis 5–7 noded. Panicle branches flexuous, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous, puberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.6–3.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.33–0.5 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.6–3.1 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.6–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, muticous or mucronate. Principal lemma awn dorsal. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, 0.4–0.5 mm long, membranous. Anthers 3, 1.2–1.8 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina South, Chile Central, Chile South.

**TDWG4.** Mendoza, San Juan. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Rest of Chile-Biobio, La Araucania, Maule, O'Higgins, Santado, Valparaiso, Chiloe, Aisen, Magellanes. Coquimbo, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes.



**Agrostis goughensis** C.E.Hubb. *Bull. Brit. Mus. (Nat. Hist.), Bot.*, 8(4): 379 (1981).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Gough Island. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Gough Is.: Wade 49 (BM holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Gough Island in the South Atlantic.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, mat forming. Stolons present. Culms decumbent, 40–80 cm long, 3–7 -noded, rooting from lower nodes. Culm-internodes terete, smooth, distally glabrous. Leaf-sheaths mostly shorter than adjacent culm internode, smooth, glabrous on surface. Ligule an eciliate membrane, 5–10 mm long, obtuse. Leaf-blades 1–10 cm long, 3–6 mm wide. Leaf-blade surface ribbed, grooved adaxially, scaberulous, rough adaxially. Leaf-blade margins scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 10–23 cm long, 1–3 cm wide, contracted about primary branches. Primary panicle branches spreading, 2–5 cm long, bearing spikelets almost to the base. Panicle axis scabrous. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–4 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2–0.5 mm long.

**Glumes.** Glumes persistent, similar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4–4.5 mm long, 1–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4–4.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 2–2.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 1–2.5 mm long overall. Palea oblong, 1 mm long, 0.25 length of lemma, hyaline, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8–1 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Antarctica.

**Country /Province /State. Subantarctic islands.** Tristan de Cunha.

**Agrostis gracilifolia** C. E. Hubbard. *Kew Bull.* 1936, 307. (1936).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uganda. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uganda, Mt. Elgon: *Liebenberg 1689* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. gracilis*, slender; *folium*, leaf. Leaf blades less than 0.5 mm broad.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 5–60 cm long. Ligule an eciliate membrane. Leaf-blades filiform or aciculate, involute, 2–2.5 cm long, 1 mm wide, stiff. Leaf-blade venation without layer of subepidermal sclerenchyma masking vein striation or with continuous uniform subepidermal sclerenchyma layer on the underside. Leaf-blade surface smooth.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 2–20 cm long. Primary panicle branches spreading. Panicle branches stiff, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2–4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume surface smooth. Lower glume apex acute. Upper glume lanceolate, 2–4 mm long, 1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume surface smooth. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface glabrous or pubescent. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 3–5 mm long overall, with twisted column. Palea 1 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.1–0.2 length of fertile floret, pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa. DRC. Ethiopia (inc. Eritrea). Kenya, Uganda.

**Agrostis gracililaxa** J.A. Franco. *Bot. J. Linn. Soc.*, 76(4): 336 (1978).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Azores. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Azores, Flores, Racha do bordoes: Goncalves 1373 (LISI holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. gracilis*, slender; *laxa*, loose. Culms subcapillary, flexuose.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 10–20 cm long. Ligule an eciliate membrane, 0.5–1.5 mm long. Leaf-blades flat or involute, 1–10 cm long, 0.5–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 1.5–4.5 cm long. Primary panicle branches spreading (at anthesis). Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1 length of fertile spikelet, smooth.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or sparsely hairy. Floret callus hairs 0–0.3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute, muticous or mucronate. Upper glume lanceolate, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute, muticous or mucronate.

**Florets.** Fertile lemma elliptic to oblong, 1.3–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins prominent, excurrent or extending close to apex. Lemma surface smooth or scaberulous, glabrous or pubescent. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 2–4 mm long overall, with twisted column. Palea 0.6–0.8 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 1–1.2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Southwestern Europe.

**Country /Province /State. :** Azores. **Macaronesia.** Azores.

**Agrostis griffithiana** (Hook. f.) Bor. *Grasses Burma, Ceyl., Ind. & Pakist.* 387 (1960).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Calamagrostis griffithiana* Hook. f., *Fl. Brit. Ind.* 7: 263 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Khasia Hills: Griffith 6598 (K syn) ; India, Kumaon: Strachey & Winterbottom (K syn).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of William Griffith (1810–1845), English-born surgeon-botanist in India and southeast Asia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long. Ligule an eciliate membrane, 2–3 mm long, scaberulous on abaxial surface, truncate. Leaf-blades 15–25 cm long, 3–4 mm wide, coriaceous. Leaf-blade surface smooth.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 6–20 cm long. Primary panicle branches appressed, 2–5 -nate, 5–10 cm long. Panicle branches capillary, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–4 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pubescent. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.5 way up back of lemma, geniculate, 5–6 mm long overall, clearly exerted from spikelet, with twisted column. Palea 1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.25 mm long. Caryopsis with adherent pericarp.  $N = 14$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Assam, India, West Himalaya.

**TDWG4.** Meghalaya, Nagaland. Uttah Pradesh. Himachal Pradesh.

**Agrostis hallii** Vasey. *Contrib. U. S. Nat. Herb* 3: 74 (1892).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Oregon: Hall (US holo).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (653).

**Derivation** (Clifford & Bostock 2007): in honor of Elihu Hall (1822–82) United States farmer and amateur botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 40–100 cm long. Lateral branches lacking. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–6 mm long, lacerate, acute. Leaf-blades 3–4 mm wide. Leaf-blade surface scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or ovate, 7–18 cm long. Primary panicle branches ascending or spreading, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.2–4.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 3.2–4.2 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–4 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins prominent, extending close to apex. Lemma apex entire or dentate, 4 -fid, truncate, mucous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, 0.5 mm long, membranous. Anthers 3, 1.6–1.8 mm long, purple. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Northwest USA, Southwestern USA.** Oregon. California.

**Agrostis hendersonii** Hitchcock. *Journ. Wash. Acad. Sc.* 20: 381. (1930).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Oregon, Gold Hill: *Henderson 12387*.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (659).

**Derivation** (Clifford & Bostock 2007): in honor of Louis Fourniquet Henderson (1853–1942) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 11 cm long, 2 -noded. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, acute. Leaf-blades flat or convolute, 1–3 cm long, 1 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 2.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 5–6 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 5–6 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma elliptic, 3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 6–10 mm long overall. Lateral lemma awns present, arising on apex of lobes, 0.5 mm long. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG), Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA. Oregon. California.

**Agrostis hesperica** A.T. Romero Garcia G. Blanca Lopez & C. Moral. *An. Jard. Bot. Madrid*, 43(1): 52 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain, Orense: *Romero Garcia & Blanca GDA20926* (GDA holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Hesperis, that is of the west. In this instance, from Spain and Portugal.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely or moderately. Rhizomes short. Stolons present. Basal innovations intravaginal. Culms erect or geniculately ascending, 30–60 cm long, 3–4 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 2.5–3 mm long, 1–2.2 mm long on basal shoots, acute. Leaf-blades conduplicate, 3.3–7 cm long, 1–3 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate or pyramidal, 6–15 cm long, 2–5 cm wide. Primary panicle branches 5–6 -nate, whorled at lower nodes. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1 length of fertile spikelet, scabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 1.9–2.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2–0.3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.9–2.3 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.4–1.9 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface scaberulous. Lemma apex truncate or acute, mucous or awned

(rarely), 1 -awned. Principal lemma awn dorsal, geniculate, 2 mm long overall, with twisted column. Palea oblong, 0.05–0.35 mm long, 0.04–0.2 length of lemma, hyaline, 2 -veined. Palea apex dentate, 2 -fid.

**Flower and Fruit.** Lodicules 2, lanceolate, 0.35–0.5 mm long, membranous. Anthers 3, 1–1.6 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, 1.2 mm long, apex unappendaged. Hilum linear. Endosperm farinose.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe.

**Region.** Southwestern Europe.

**Country /Province /State.** : Spain.

**Agrostis hideoi** Ohwi. *Bot. Mag., Tokyo*, 44: 568. (1930).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan, Sasagamine: *Ohwi*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Hideo Koidzumi (1886–1945) Japanese botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 20–40 cm long, 0.5–0.8 mm diam., 4–5 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.8–1 mm long, truncate or obtuse. Leaf-blades 3–10 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 5–8 cm long, 2–3 cm wide, with spikelets clustered towards branch tips. Primary panicle branches 4–7 -nate, 1–3 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 3–8 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3–3.5 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 2.7–3 mm long, 1.7–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–1.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface scaberulous, rough above. Lemma apex dentate, 4 -fid, awned, 5 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 3–3.5 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 0.8–1 mm long, shorter than principal. Palea 0.2 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8–1 mm long. Caryopsis with adherent pericarp, oblong, 1.25 mm long. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Japan. Japan Honshu.

**Agrostis himalayana** Bor. *Kew Bull.* 1953, 269 (1953).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Assam, Nyukmadung: *Kingdon-Ward 11538* (BM holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From the Himalayas.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms 15–30 cm long, with 0.33–0.5 of their length below uppermost node. Culm-nodes glabrous. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 3–4 mm long, white or brown, scaberulous on abaxial surface, obtuse or acute. Leaf-blades 5–15 cm long, 2–5 mm wide, flaccid. Leaf-blade surface scaberulous, rough abaxially. Leaf-blade margins scaberulous. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 4–8.5 cm long, 2–3 cm wide. Primary panicle branches ascending, 1–2 -nate. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or elliptic, laterally compressed, 1–1.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume elliptic, 1–1.2 mm long, 1 length of upper glume, membranous, mid-green or purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 1–1.2 mm long, 1 length of adjacent fertile lemma, membranous, mid-green or purple, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, mucous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.4 mm long, purple. Caryopsis with adherent pericarp. Hilum linear.

*N* = 14 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Assam, Eastern Himalaya. Sikkim. Assam.

**Agrostis hirta** J.F. Veldkamp. *Blumea* 28(1): 212 (1982).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from New Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Guinea, Sugarloaf: *Hoogland & Schodde 7046* (L holo, LAE, NSW, CANB).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. hairy. Hairy in part or extensively.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Basal innovations intravaginal. Culms erect, 60–120 cm long. Leaf-sheaths smooth. Ligule an eciliate membrane, 7.5 mm long, erose, obtuse. Leaf-blades flat or involute, 15–30 cm long, 2–3 mm wide, flaccid. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle open, elliptic, effuse, 30 cm long, 8 cm wide. Primary panicle branches 6–12.5 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4.3–4.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.35–0.5 mm long, 0.1–0.2 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 4.3–4.8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4.3–4.8 mm long, 1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2.65–2.85 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma surface pubescent. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, geniculate, 5.5–6.5 mm long overall, with twisted column. Column of lemma awn 1.6–3.25 mm long. Palea 1.25 mm long, 0.4–0.5 length of lemma, hyaline, 2 -veined. Rhachilla extension 0–0.25 mm long, glabrous.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–0.9 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Papuasias.** New Guinea PNG. New Guinea.

**Agrostis holgateana** C.E.Hubb. *Bull. Brit. Mus. (Nat. Hist.), Bot.*, 8(4): 381 (1981).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tristan da Cunha. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Tristan da Cunha: Wace T.235 (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Martin Wyatt Holdgate (1931-) British biologist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect, 9–24 cm long. Culm-internodes terete, smooth, distally glabrous. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface. Ligule an eciliate membrane, 1–2.5 mm long, truncate or obtuse. Leaf-blades erect, straight or curved, filiform, involute, 3–6 cm long, 0.4–0.6 mm wide, stiff. Leaf-blade surface ribbed, grooved adaxially, scaberulous, rough adaxially. Leaf-blade margins scaberulous. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 1.5–3.5 cm long, 0.2–0.4 cm wide. Primary panicle branches appressed, 2–3 -nate, 0.7–1.5 cm long. Panicle axis smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 0.5–2.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4–5 mm long, 1.3–1.4 length of upper glume, cartilaginous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 3.5 mm long, chartaceous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic or ovate, 1.6–1.7 mm long, hyaline, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma apex entire or dentate, 2 -fid, truncate, mucronate. Principal lemma awn 0.4–0.8 mm long overall. Palea oblong, 0.66 length of lemma, hyaline, 2 -veined. Palea apex emarginate or truncate.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp, lanceolate or oblong, 1–1.2 mm long.

**Distribution (TDWG). Continent.** Antarctica.

**Country /Province /State. Subantarctic islands.** Tristan de Cunha.

**Agrostis hookeriana** C. B. Clarke ex Hook. f. *Fl. Brit. Ind.* 7: 256. (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India, Sikkim: *Hooker* .

**Recent Synonyms:** *Agrostis perlaxa* Pilger, Fedde, *Repert. Beih.* 12: 306 (1922).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (605, Fig. 26), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 470).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. As for *hookeri*, usually in honor of Joseph Dalton Hooker (1817–1911), English botanist, traveller and Garden's Director).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms 25–50 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3.5–4 mm long, acute. Leaf-blades 7–15 cm long, 1–2.25 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 9–18 cm long. Primary panicle branches spreading, 2 -nate, 3–6 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.5–2.5 mm long, 0.5–0.75 length of upper glume, membranous, 1-keeled, 1 -veined.

Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 1.5–2 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5–0.75 mm long. Caryopsis with adherent pericarp. Hilum linear.

*N* = 21 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central, Qinghai, Tibet. **Indian Subcontinent.** Eastern Himalaya, Nepal.

**TDWG4.** Sichuan, Yunnan. Bhutan, Sikkim. Tamilnadu. Himachal Pradesh, Jammu Kashmir.

**Agrostis hooveri** Swallen. *Leaflet. West. Bot.* 5: 19 (1949).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: USA, California, Arroyo Grande to Huasna distr.: Hoover 7549 (NY holo, US).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (655).

**Derivation** (Clifford & Bostock 2007): in honor of Robert Francis Hoover (1913–1970) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, slender, 55–75 cm long. Lateral branches lacking. Ligule an eciliate membrane, 3–3.5 mm long, lacerate. Leaf-blades filiform, 10–15 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or ovate, 7–17 cm long. Primary panicle branches ascending. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 2–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma surface scaberulous. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 3–3.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southwestern USA.** California.

**Agrostis howellii** Scribn. ex Vasey. *Contrib. U. S. Nat. Herb.* 3: 76. (1892).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: USA, Oregon, Hood R.: Howell 198 (US holo, LE).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (653).

**Derivation** (Clifford & Bostock 2007): in honor of Thomas Jefferson Howell (1842–1912) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.



**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–60 cm long. Lateral branches lacking. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–3.5 mm long, erose or lacerate, obtuse or acute. Leaf-blades 15–25 cm long, 3–5 mm wide, flaccid.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–20 cm long, with spikelets clustered towards branch tips. Primary panicle branches spreading. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 6–7 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, 0.4 mm long, membranous. Anthers 3, 1–2 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA. Oregon, Washington.

**Agrostis hugoniana** Rendle. *Journ. Linn. Soc.* 6: 389. (1904).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Mt. Kiaowansan: Hugh (BM holo).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 463).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Hugh (fl. 1898) cleric and botanical collector in China.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms 7–12 cm long, 2 -noded. Culm-internodes elliptical in section. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, truncate or obtuse. Leaf-blades 5–12 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or oblong, dense, 3–7 cm long, 1.2 cm wide. Primary panicle branches appressed, 3 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.5 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 3 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex mucous. Palea 0.5 mm long, 0.25–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, China North-Central, Qinghai.

**TDWG4.** Gansu, Shaanxi. Sichuan, Yunnan.

**Agrostis humbertii** A. Camus. *Bull. Soc. Bot. France*, 106 : 339 (1960).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Andohahela: Humbert 13546.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Jean Henri Humbert (1887–1967) French botanist who collected in Madagascar.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, slender, 50–60 cm long. Culm-internodes smooth, distally glabrous. Culm-nodes black. Ligule an eciliate membrane. Leaf-blades 6–12 cm long, 3–4 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 14–22 cm long, 2–3 cm wide. Primary panicle branches 6–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.4–0.6 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4.5 mm long, 1.2 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acuminate. Upper glume lanceolate, 3.5–4 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2.5–3 mm long, hyaline, without keel. Lemma surface puberulous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 5–6 mm long overall, with twisted column. Palea 2 mm long, hyaline.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Agrostis hyemalis** (Walt.) Britton Stern et Poggenb. *Prelim. Catal.* 68. (1888).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), N. Tsvelev, *Grasses of the Soviet Union* (1983) (as *A. geminata*).

**TYPE** from USA. **Basionym or Replaced Name:** *Cornucopiae hyemale* Walt., *Fl. Carol.* 73 (1788). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, South Carolina: Coll?.

**Illustrations (Books):** M.E. Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (649).

**Derivation** (Clifford & Bostock 2007): L. hiems, winter; -alis, pertaining to. Winter flowering.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 15–70 cm long. Ligule an eciliate membrane, 1.5–4 mm long. Leaf-blades 0.5–3 mm wide.

**Inflorescence.** Inflorescence a panicle, deciduous as a whole. Panicle open, ovate, effuse, 7–30 cm long, with spikelets clustered towards branch tips. Primary panicle branches spreading, rebranched above middle, 5–15 cm long. Panicle branches capillary, flexuous, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–2.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.5–2.1 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 1.5–2.1 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex muticous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, North America, South America.

**Region.** Northern Europe, Southwestern Europe.

**Country /Province /State.** : Great Britain. : Spain. Russian far east, **Eastern Asia.** Kamchatka. Hawaii (\*). **North-central USA, Northeast USA, South-central USA, Southeastern USA, Mexico.** Illinois, Iowa,

Kansas, Minnesota, Missouri, North Dakota, Nebraska, Oklahoma, South Dakota, Wisconsin. Connecticut, Indiana, Michigan, Ohio, New Hampshire, New Jersey, New York, West Virginia. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Northeast Mexico, Southwest Mexico. **Caribbean, Western South America.** Dominican Republic, Haiti. Ecuador, Peru.

**TDWG4.** Queretaro, Zacatecas. Michoacan.

### **Agrostis hygrometrica** Nees. *Mart. Fl. Bras.* 2: 404 (1829).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Bromidium hygrometricum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Rio Jacuhy: Sellow (B holo, BAA, LE).

**Recent Synonyms:** *Agrostis ramboi* L. Parodi, *Bol. Soc. Argent. Bot.* 1:119 (1946).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102, 483, Fig. 104 & 493, Fig. 105 as var. *tandilensis*), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (160, Fig. 40 as *Bromidium*), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (125, Fig. 40), B.Rosengurt, *Gramineas Uruguayas I* (1970) (22, Fig. 3).

**Derivation** (Clifford & Bostock 2007): Gk. *hygros*, water; *metron*, measure; *-ike*, belonging to. Aquatic or swamp species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 10–60 cm long. Ligule an eciliate membrane, 1–6 mm long. Leaf-blades 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle or a panicle with branches tipped by a raceme. Panicle open, lanceolate, interrupted, 5–20 cm long, 1–3 cm wide, contracted about primary branches. Primary panicle branches appressed or ascending, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 0.8–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–4 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–2.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, truncate, awned, 3 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 4–6 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes (outer lobes), 0.8 mm long. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp, oblong, 1.5 mm long, dark brown. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil South. Argentina Northeast.

**TDWG4.** Sao Paulo Parana, Catarina, Rio Grande do Sul. Buenos Aires, Corrientes, Entre Rios, Santa Fe.

### **Agrostis idahoensis** Nash. *Bull. Torr. Bot. Club.* 1897, 42. (1897).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Idaho, Forest: Heller & Heller 3431 (NY holo, BAA, K, MO, US).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (650).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Idaho, USA.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–30 cm long. Lateral branches lacking. Leaves mostly basal. Ligule an eciliate membrane, 1–2 mm long, erose or lacerate, obtuse or acute. Leaf-blades flat or conduplicate, 0.5–1.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 5–10 cm long. Primary panicle branches ascending. Panicle branches capillary, flexuous, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.6–2.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 1.6–2.4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.6–2.4 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex muticous. Palea present or absent or minute, 0–0.2 mm long, 0.1–0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.2–0.3 mm long, membranous. Anthers 3, 0.3 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Northwest USA, Southwestern USA, South-central USA. Colorado, Oregon, Washington. Arizona, California, Nevada, Utah. New Mexico. Southern South America. Chile Central, Chile South.

**TDWG4.** Chubut. Maule, Biobio. Los Lagos, Magellanes.

**Agrostis imbecilla** Zotov. Trans. & Proc. Roy. Soc. N. Z. 73: 233 (1943).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand, Macraes: *Petrie* (WELT holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. feeble. Habit creeping or inflorescence slender.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Basal innovations extravaginal. Culms erect or geniculately ascending, 15–35 cm long. Ligule an eciliate membrane, 0.8–1.6 mm long, glabrous on abaxial surface, entire or erose, obtuse. Leaf-blades filiform, involute, 2–13 cm long, 0.2–0.4 mm wide, flaccid. Leaf-blade surface ribbed, scabrous, rough adaxially. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle spiciform, linear, 5–9 cm long, 0.2–0.3 cm wide. Primary panicle branches appressed. Panicle axis scaberulous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.5–2.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1.5–2.4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5–2.4 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.5–1.9 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex erose, truncate, muticous or awned, 1 -awned. Principal lemma awn subapical, straight, 0–1 mm long overall, not or scarcely exerted from spikelet. Palea 0.1–0.2 mm long, 0.05–0.1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.2–0.4 mm long, membranous. Anthers 3, 0.6–1 mm long. Caryopsis with adherent pericarp, 1–1.4 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand North I, New Zealand South I.

**Agrostis imberbis** R. Phil. *Anal. Univ. Chil.* 94: 11. (1896).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Chile, Chillan: Philippi (SGO holo, BAA).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (382, Fig. 255).

**Derivation** (Clifford & Bostock 2007): L. beardless. Glumes and/or lemmas glabrous.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes elongated. Butt sheaths yellow. Culms geniculately ascending, 30–65 cm long. Leaf-sheaths 3–11 cm long, antrorsely scabrous. Ligule an eciliate membrane, 5–8 mm long, scaberulous on abaxial surface, entire or lacerate, acute. Leaf-blades filiform, conduplicate or convolute, 3–11 cm long, 0.5–1 mm wide, stiff, mid-green. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 8–15 cm long, contracted about primary branches. Primary panicle branches whorled at most nodes. Panicle axis smooth. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous, puberulous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.8–3.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or sparsely hairy.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.8–3.1 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2.1–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above or on veins. Lemma apex truncate, mucous or mucronate. Principal lemma awn dorsal. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, 0.4 mm long, membranous. Anthers 3, 1.2–1.8 mm long. Caryopsis with adherent pericarp, ovoid, 1.5–1.6 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia, Peru. Argentina South, Chile Central, Chile South.

**TDWG4.** Mendoza, San Luis. Cordoba, Corrientes. Chubut, Neuquén, Río Negro, Santa Cruz. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Coquimbo, Santiago, O'Higgins, Maule, Biobio. Los Lagos, Magellanes.

**Agrostis inaequiglumis** Griseb. *Goett. Nachr.* 80. (1868).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India, Sikkim: Hooker 10.

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (601, Fig. 25).

**Derivation** (Clifford & Bostock 2007): L. inaequalis, unequal; gluma, husk. Glumes differing in length and/or shape.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped densely. Culms erect, 4–5 cm long. Ligule an eciliate membrane, 1 mm long, erose. Leaf-blades convolute, 2–3 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 2.5–4 cm long. Primary panicle branches not whorled or whorled at most nodes. Panicle branches capillary, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1–1.5 mm long, smooth.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume

lanceolate, 2.5 mm long, 1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1(–3) -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent or obscure. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex mucicous. Palea absent or minute. Rhachilla extension glabrous.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.4 mm long. Caryopsis with adherent pericarp, 1 mm long.

*N* = 14 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central. **Indian Subcontinent.** Assam, Eastern Himalaya, India.

**TDWG4.** Yunnan. Bhutan, Sikkim. West Bengal.

### **Agrostis inconspicua** Kunze. *Mem. Acad. Peterb. ser.6, Sci. Math.* pt 2 41:331 (1845).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Antuco: Poeppig 22 (P lecto).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (377, Fig. 253).

**Derivation** (Clifford & Bostock 2007): *L. inconspicuous*.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms slender, 16–30 cm long. Ligule an eciliate membrane, 1.5–3 mm long, truncate. Leaf-blades 1–1.5 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 3–15 cm long. Primary panicle branches spreading, 2–3 -nate, branching divaricately. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 4–15 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus sparsely hairy.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–3 mm long, 1.1–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.8–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, mucicous or mucronate or awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, straight, 0–1 mm long overall. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.7 mm long. Caryopsis with adherent pericarp, 1.6 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina South, Argentina Northwest, Chile Central, Chile South.

**TDWG4.** Catamarca, Jujuy, La Rioja, Tucuman. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Rest of Chile- Biobio, La Araucania, Maule, O'Higgins, Santado, Valpariso, Chiloe, Aisen, Magellanes. Valparaiso, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes.

### **Agrostis infirma** Buse. *Miq. Pl. Jungh.*, preprint 2: 342. [Feb.] (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Java, Dieng: Junghuhn.

**Recent Synonyms:** *Agrostis arisan-montana* Ohwi, *Acta Phytotax. & Geobot.* 1933, 2:161. (1933). *Agrostis transmorrisonensis* Hayata,  *Ic. Pl. Formos.* 7: 84 (1918).

*Agrostis reinwardtii* Miq., *Fl. Ind. Bat.* 3: 750. (1855).

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (246 as *A. morrisonensis*), C-C Hsu, *Taiwan Grasses* (1975) (as *A. morrisonensis*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 466).

**Derivation** (Clifford & Bostock 2007): *L. lax*, weak. Culms decumbent.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes absent or short. Basal innovations extravaginal or intravaginal. Culms erect or geniculately ascending, 40–85 cm long, rooting from lower nodes. Leaf-sheaths smooth. Ligule an eciliate membrane, 4–7 mm long, erose, truncate or obtuse or acute. Leaf-blades flat or involute, 10–25 cm long, 3–6.5 mm wide. Leaf-blade surface smooth or scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or elliptic, 15–30 cm long. Primary panicle branches 2–11 cm long. Panicle branches smooth or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.5–4.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.1–0.3 mm long, 0.1 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.5–4.1 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.4–4 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 1.2–3.25 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate or obtuse or acute, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.8 way up back of lemma, geniculate, 2–4 mm long overall, with twisted column. Palea 0.1–2 mm long, 0.1–0.75 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.55–1.4 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China, Eastern Asia.** China South Central, Manchuria, China North-Central, China Southeast. Taiwan. **Malesia, Papuasias.** Borneo, Java, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea.

**TDWG4.** Shandong. Hunan. Yunnan.

**Agrostis insularis** Rugolo & Molina. *Gayana Bot.* 54:111 (1997).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Isla Alao: Villagran & Mesa 5890 (CONC holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. insula*, island; -are, pertaining to. Island species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations extravaginal. Culms erect or geniculately ascending, 28–50 cm long, 2–4 -noded. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 5.5–8.5 mm long, scaberulous on abaxial surface, erose or lacerate, acute. Leaf-blades conduplicate, 2–25 cm long, 2–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, oblong, 11–13 cm long, 3–4 cm wide. Primary panicle branches ascending. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–2.5 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.6–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, hairy on the margins. Floret callus hairs 2–2.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.6–3 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5–1.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, muticous. Palea 0.3 mm long, 0.2–0.25 length of lemma, 0 -veined.

**Flower and Fruit.** Lodicules 2, 0.5–0.6 mm long, membranous. Anthers 3, 0.6–0.9 mm long. Caryopsis with adherent pericarp. Endosperm farinose.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Chile South.  
Los Lagos.

**Agrostis isopholis** C. E. Hubbard. *Kew Bull.* 1936:303 (1936).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Zaire. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Zaire, Mt. Karisimbi: *Burt 3090* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. isos, equal; pholis, scale of a snake. Glumes equal or subequal.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms geniculately ascending, 30–45 cm long, 3–4 -noded, with 0.3–0.4 of their length below uppermost node. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–3 mm long, obtuse. Leaf-blades flat or involute, 5–10 cm long, 1–1.5 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially. Leaf-blade margins scaberulous. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 7–17 cm long. Primary panicle branches 3–5 cm long. Panicle branches capillary, flexuous, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or oblong, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.5–3 mm long, 1 length of upper glume, membranous, glandular (minutely on veins), 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, 1 length of adjacent fertile lemma, membranous, glandular (minutely on veins), 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 2.5–3 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface asperulous, pilose, hairy below. Lemma apex truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, straight, 1–2.5 mm long overall. Palea 1.5 mm long, 0.5–0.6 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.3–0.5 mm long, pubescent.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. West-central tropical Africa.** Rwanda.

**Agrostis jahnii** Luces. *Bol. Soc. Venez. Cienc. Nat.* 15: 12 . (1953).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Merida: Jahn 1044 (VEN holo, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Alfredo Jahn (1867–1940) who collected in Venezuela.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 20–30 cm long. Culm-internodes smooth or scaberulous. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, obtuse. Leaf-blades flat or conduplicate, 5–7 cm long, 1.5–2 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 7–11 cm long. Primary panicle branches ascending, whorled at most nodes. Panicle branches stiff. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile



or the upper sterile. Spikelets elliptic, laterally compressed, 1.7–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 1.7–2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 1.7–2 mm long, 1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 4 -fid, truncate, mucicous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Colombia.

### **Agrostis joyceae** S.W.L.Jacobs. *Telopea* 9(3): 680 (2002).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: New South Wales: Southern Tablelands: Prussian Creek, alt. 5600 ft (1707 m), Kosiuszko [as Kosiusko] National Park, in leaf litter on rock ledge, 1 Feb 1974, *J. Thompson 2031* (HT: NSW-506464).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (110).

**Derivation** (Clifford & Bostock 2007): in honor of Joyce Winifred Vickery (1908–1979) Australian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms erect or geniculately ascending, slender, 20–40 cm long, 2 -noded. Culm-internodes striate. Leaves mostly basal. Leaf-sheaths loose. Ligule an eciliate membrane, 3.5 mm long, obtuse. Leaf-blades 1–1.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, nodding, 6–12 cm long. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flexuous, 2.5–5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.8–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1 mm long or 8–25 mm long, 1 length of upper glume, membranous, light green or purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.8–2.5 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, light green or purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, 1.5–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, mucicous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.4–0.5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales.

**TDWG4.** Tablelands.

### **Agrostis juergensii** Hack. *Fedde, Repert* 7: 318 (1909).

Regarded by K as a synonym (*A.hygrometrica*).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Brazil, Porto dos Dorados: Juergens 190 (W holo, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Carlo Juergens (fl. 1905) who collected in Brazil.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast.

**TDWG4.** Buenos Aires.

**Agrostis juressii** Link. *Schrad. Journ.* 2: 312. (1799).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. **Basionym or Replaced Name:** *Linkagrostis juressii* (Link) A.T.Romero Garcia, G.Blanca & C.MoralesTorre, *Candollea*, 42(1) : 383 (1987). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain, Gerez: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. from Serra de Gerez, Portugal.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms geniculately ascending, 40–60 cm long. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths without keel, smooth, glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Leaf-blades 6–12 cm long, 4–9 mm wide. Leaf-blade surface smooth. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, continuous or interrupted, 5–10 cm long, 0.5–1.5 cm wide. Primary panicle branches 2–3 -nate. Panicle axis scaberulous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, tip rectangular.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 3 mm long, 1 length of upper glume, chartaceous, purple, 1-keeled, 3 -veined. Lower glume lateral veins obscure. Lower glume surface scabrous. Lower glume apex acute. Upper glume oblong, 3 mm long, 1.2 length of adjacent fertile lemma, chartaceous, purple, 1-keeled, 3 -veined. Upper glume lateral veins obscure. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 2.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface smooth or asperulous, rough above. Lemma apex dentate, 4 -fid, obtuse, mucicous. Palea 0.1–0.5 mm long, 0.05–0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.3 mm long, membranous. Anthers 3, 1 mm long, yellow. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. Europe, Africa.

**Region.** Southwestern Europe.

**Country /Province /State.** : Portugal, Spain. **Northern Africa.** Morocco.

**Agrostis keniensis** Pilger. *Notizbl. Bot. Gart. Berlin* 9: 513 (1926).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Kenya. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kenya, Mt. Kenya: *Fries 1465* (UPS holo).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (48, Fig. 22).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Kenya.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 70–120 cm long, 3–4 -noded. Ligule an eciliate membrane, 4–5 mm long, lacerate, truncate. Leaf-blades flat, 10–20 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade apex obtuse, hardened.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or oblong, loose or effuse, 15–25 cm long, 5–7 cm wide. Primary panicle branches ascending. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 3–4 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.7–3.7 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.5–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pilose. Lemma hairs 1 mm long. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 3.5–5 mm long overall, with a straight or slightly twisted column. Palea 0.9 length of lemma, hyaline, 2 -veined. Rhachilla extension 0–0.2 length of fertile floret, pubescent.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea). Kenya, Tanzania.

### **Agrostis kilimandscharica** Mez. Fedde, *Repert.* 18: 2 (1922).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tanzania, Kilimanjaro: *Volgens 1831* (B holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Mt. Kilimandjaro, East Africa.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary or caespitose. Culms erect or geniculately ascending or decumbent, 30–90 cm long, 1–2 mm diam. Ligule an eciliate membrane. Leaf-blades 5–20 cm long, 1–4 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or oblong or ovate, 5–22 cm long. Primary panicle branches ascending or spreading. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 2.5–3(–4.5) mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, similar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2.5–4.5 mm long, 0.75–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface smooth. Lower glume apex acuminate. Upper glume lanceolate, 2–4 mm long, 1.7–1.8 length of adjacent fertile lemma, membranous, eglandular or glandular (beside keel), 1-keeled, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume surface smooth. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 1.5–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pilose. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.25 way up back of lemma, geniculate, 3–6 mm long overall, with twisted column. Palea 1 length of lemma, hyaline, 2 -veined. Rhachilla extension 0–0.25 length of fertile floret (0–1mm), pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Rwanda, DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda.

### **Agrostis koelerioides** E. Desv. C. Gay, *Fl. Chil.* t. 6: 317. (1853).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Bromidium anomalum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Morocco. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Morocco, Imilchil: *Fernandez Casas 9763*.

**Illustrations (Journals):** *Ruizia* (13:174, Fig 19j-k (1993) as *Bromidium anomalum*).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Koeleria* especially with respect to the inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 5–12 cm long. Ligule an eciliate membrane. Leaf-blades 1–3 cm long, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or lanceolate, 2–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.4–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.4–3 mm long, 1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.4–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, awned, 5 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 7 mm long overall, with twisted column. Lateral lemma awns present, 1 mm long. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Chile Central, Chile South.

**TDWG4.** Chubut, Neuquén. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Coquimbo, Valparaiso, O'Higgins, Maule, Biobio, La Araucania. Los Lagos.

**Agrostis kolymensis** V.B. Kuvaev & A.P. Khokhryakov. *Novosti Sist. Vyssh. Rast.*, 19: 4 (1982).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Magadanica, Omsikizan: Kuvajev 40–4 (LE holo, MW).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From the Kolyma Basin, north-eastern Siberia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 40–45 cm long. Culm-internodes smooth. Ligule an eciliate membrane, 3 mm long, lacerate. Leaf-blades flat or convolute, 0.6–2.2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 6–16 cm long, 5 cm wide. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, muticous or awned, 1 -awned. Principal lemma awn subapical, straight, 0.6–0.8 mm long overall. Palea present or absent or minute, 0–1.6 mm long, hyaline.

**Flower and Fruit.** Anthers 3, 0.7 mm long, yellow.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Russian far east. Magadan.

**Agrostis korczaginii** Senjan.-Korcz. *Not.Syst. Herb. Inst. Bot. Acad. Sci. URSS*, 15: 28 (1953).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Chetlas R.: *Korchagin* (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Aleksandr Alexandrovich Korchagin (1900-) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 25–50 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.3–1.6 mm long, entire or lacerate, obtuse. Leaf-blades 6.5–9.5 cm long, 2.5 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 4–12 cm long, 0.8–1 cm wide. Primary panicle branches 4–9 -nate, whorled at most nodes, 2.5–3 cm long. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2.2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.3–0.4 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2.2–3 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 2.1–2.7 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 2–2.1 mm long, 0.8–1.1 mm wide, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface asperulous, puberulous. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight or geniculate, 3.5–3.7 mm long overall, without a column or with twisted column. Palea 0.8–0.9 mm long, 0.33–0.5 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, lanceolate, 0.3–0.4 mm long, membranous. Anthers 3, 1.2–1.7 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, apex unappendaged. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe.

**Region.** Eastern Europe.

**Country /Province /State.** East European Russia, North European Russia.

**TDWG4.**

**Agrostis kunmingensis** B.S.Sun & Y.C.Wang. *Acta Phytotax. Sin.*, 30(4): 364 (1992).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China, Yunnan, Kunming: Qiu 50508 (KUN holo).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 470).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Kunming, Yunnan Province, China.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms geniculately ascending, 35–70(–100) cm long, 1–2.6 mm diam., 3–7 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 2.5–4 mm long, scaberulous on abaxial surface, obtuse. Leaf-blades flat or convolute, 10–16 cm long, 2.5–4 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or ovate, 10–20(–25) cm long. Primary panicle branches ascending, 2–6 -nate, whorled at most nodes, 7–12 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2.5–3.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3.2 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 1.6–2.1 mm long, hyaline, without keel, 4–5 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scaberulous, rough above. Lemma apex truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.66 way up back of lemma, straight, 1 mm long overall. Palea 0.2–0.5 mm long, 0.15–0.3 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Anthers 3, 1–1.5 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.  
**TDWG4.** Sichuan, Yunnan.

**Agrostis kuntzei** Mez. *Repert. Spec. Nov. Regni Veg.* 17(19–30): 300. 1921.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Polypogon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O. Kuntze* s.n., 22–29 Jan 1892, Chile: Paso Cruz, 34 degrees, 2100 m (?; IT: BAA, LP, NY, NY, US-75951 (fragm. & photo ex NY hb. Kuntze), US-75952 (fragm. & photo ex NY hb. Kuntze)).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (390, Fig. 258).

**Derivation** (Clifford & Bostock 2007): in honor of Carl Ernst Otto Kuntze (1843–1907) German botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Southern South America. Argentina Northwest, Chile Central.

**TDWG4.** Catamarca, Jujuy, Mendoza, San Juan. Chaco. Neuquén, Santa Cruz. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Coquimbo, Santiago, Biobio.

**Agrostis lachnantha** Nees. *Ind. Sem. Hort. Bot. Vratisl.* (1834). (1834).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa, Zwartskops R.: Drege (K iso).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (100, Fig. 72, as *A. huttoniae*; 101, Fig. 73), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (48, Fig. 22 as *A. huttoniae*).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): Gk. lachnos, wool; anthos, flower. Spikelets wooly.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived. Culms erect or geniculately ascending, 30–90 cm long, without nodal roots or rooting from lower nodes. Ligule an eciliate membrane. Leaf-blades flat, 7–20 cm long, 2–4 mm wide, flaccid, light green.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 5–30 cm long, 1–3 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 2–2.5 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–2 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma surface glabrous (rarely) or pubescent or pilose. Lemma hairs 0.5–1 mm long. Lemma apex erose, obtuse, mucicous or mucronate (0–0.5mm). Principal lemma awn subapical. Palea 0.9 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5–0.8 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

*N* = 21 (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Europe, Africa, Temperate Asia, Antarctica.

**Region.** Northern Europe (\*).

**Country /Province /State.** : Great Britain (\*). **West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa.** Rwanda. Eritrea, Ethiopia (inc. Eritrea), Sudan. Tanzania, Uganda. Angola, Malawi, Zambia, Zimbabwe. Namibia, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. **Arabian Peninsula.** Yemen. **Subantarctic islands.** Tristan de Cunha.

**Agrostis lacuna-vernalis** P.M.Peterson & Soreng. *J.Bot.Res.Inst. Texas* 5(2): 421–426 (2011).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: California, Monterey Co., Fort Ord Army Military Base, Butterfly Valley, 2.8 km SSW of East Garrison and 9 km SW of Salinas, R.Morgan, D.Styer & D. Neubauer s.n. (holo: US-3621794).

**Illustrations (Journals):** *J. Bot. Res. Inst. Texas* (5(2): 423, Fig.1 (2011)).

**Agrostis lacunis** D.I.Morris. *Muelleria*, 7(2): 149 (1990).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia, Tasmania, Twisted Tarn: Buchanan 1187 (HO holo, AD, CANB, CHR, MEL, NSW).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. lacuna*, pond. Grwing around the margins of ponds.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Butt sheaths papery, glabrous. Culms erect or geniculately ascending, 20–40 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths loose, longer than adjacent culm internode, ribbed. Ligule an eciliate membrane, 3–6 mm long, acute. Leaf-blades 10–20 cm long, 1.5–2.5 mm wide. Leaf-blade surface ribbed, grooved adaxially and abaxially, scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle scaberulous above. Panicle open, pyramidal, 6–12 cm long, 4–7 cm wide. Primary panicle branches 2–4 -nate. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.75–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate or elliptic, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate or elliptic, 2.75–4 mm long, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex dentate, 4 -fid, truncate, awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or geniculate, 1.5–3.25 mm long overall, with a straight or slightly twisted column. Column of lemma awn 1.5 mm long. Palea 0.9 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.5 mm long, pubescent, with 0.5 mm long hairs.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6–0.8 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Tasmania.

**Agrostis laxissima** Swallen. *Contrib. U. S. Nat. Herb.* 29: 402 (1950).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guatemala. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Guatemala, San Marcos: Standley 85379 (US holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. laxus*, lax; -issima, most. Panicle very open.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, weak, 50–60 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades 8–15 cm long, 1–3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 7–8 cm long, bearing few spikelets. Primary panicle branches ascending or spreading. Panicle branches flexuous, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets elliptic, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, curved, 3 mm long overall. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Southeast Mexico. **Mesoamerica.** Guatemala, Honduras. Chiapas.

**Agrostis lazica** Balansa. *Bull. Soc. Bot. Fr.* 21: 12. (1874).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Turkey. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Turkey, Lazistan: *Balansa 1542* (G holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Lazica, now Lazistan, Turkey.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect or geniculately ascending, 5–30 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, truncate. Leaf-blades conduplicate, 2–7.5 cm long, 0.8–2 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or oblong, dense, 2–8 cm long, 0.4–2 cm wide. Primary panicle branches appressed, 0.5–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, terete, 0.5–1.5 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.1–0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–2.5 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic to oblong, 1.8–2 mm long, hyaline, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, straight, 2–2.5 mm long overall, clearly exerted from spikelet. Palea oblong, 0.8–1 mm long, 0.5 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 0.6–0.8 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Caucasus, Western Asia.** Iran.

**TDWG4.**

**Agrostis lehmannii** Swallen. *Contrib. U. S. Nat. Herb.* 29: 263 (1948).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Colombia, Paramo de Purace: Kilip & Lehmann 38598 (US holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of F.C. Lehmann (fl. 1944) United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.



**Habit, Vegetative Morphology.** Perennial. Culms geniculately ascending, 20–40 cm long. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 7–8 mm long, pubescent on abaxial surface, lacerate. Leaf-blades 6–8 cm long, 2.5–3 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 13 cm long, 3 cm wide. Primary panicle branches ascending or spreading, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3–3.5 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface glabrous. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 6 mm long overall, with a straight or slightly twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, 0.7 mm long, membranous. Anthers 3, 0.6 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Agrostis lenis** Roseng. Arrill. de Moffei & Izag. de Artucio, *Gramin. Urug.* 23 (1970).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uruguay, Curticeiras to Farrapos: Rosengurt B-7107 (MVFA holo).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102), B.Rosengurt, *Gramineas Uruguayas I* (1970) (18, Fig. 1).

**Derivation** (Clifford & Bostock 2007): L. soft. Leaf-blades softly hairy.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Basal innovations extravaginal. Culms decumbent, weak, 40–80 cm long, 6–10 -noded, rooting from lower nodes. Lateral branches lacking or sparse. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–4 mm long, erose, truncate. Leaf-blades involute, 5–12 cm long, 1–3 mm wide. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–24 cm long, 5–8 cm wide. Primary panicle branches 2–5 -nate, whorled at most nodes, rebranched at middle. Panicle axis with lower internodes 3–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–5 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, hairy in 2 tufts.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1.5–2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5–2 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1–1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, muticous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.3–0.6 mm long. Caryopsis with adherent pericarp, ellipsoid or ovoid, sulcate on hilar side, 0.8–1 mm long, dark brown. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Brazil Southeast, Brazil South. Uruguay.

**TDWG4.** Sao Paulo Parana, Catarina, Rio Grande do Sul. Tucuman.

**Agrostis leptotricha** E.Desv. C. Gay, *Fl. Chil.* 6: 316. (1853).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Chile, Valdivia: Gay (P lecto, BAA, K).

**Recent Synonyms:** *Agrostis fuegiana* Hack. ex P. Dusen, in *Ergebn. Schwed. Exp. Magell.* 3(5) 220. (1900).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (377, Fig. 251).

**Derivation** (Clifford & Bostock 2007): Gk. leptos, narrow; thrix, hair. Inflorescence branches very thin.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or short. Culms 20–50 cm long. Ligule an eciliate membrane, 3–4 mm long, lacerate. Leaf-blades 1–2.5 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, nodding, 9–20 cm long. Primary panicle branches appressed or ascending. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus sparsely hairy.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–3.5 mm long, 1.3–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.5–2.2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, mucronate or awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, straight, 0.2–1 mm long overall. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8–1.5 mm long. Caryopsis with adherent pericarp, ovoid. Hilum linear.

**Distribution (TDWG), Continent.** South America.

**Country /Province /State.** Southern South America. Argentina South, Chile Central, Chile South.

**TDWG4.** Chubut, Neuquén, Río Negro, Santa Cruz. Tarapaca, Antofagasta, Atacama, Coquimbo, Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valparaiso, Chiloe, Aisen, Magellanes. Valparaiso, Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes.

**Agrostis liebmannii** (Fourn.) Hitchc. *N. Amer. Fl.* 17(7):519 (1937).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Apera liebmannii* P. Fourn., *Gram. Mexic.* 97 (1886). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Mexico, Orizaba: Botter 93 (P syn) ; Mexico, Chinantla: Liebmann 710 (C syn, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Frederik Michael Leibmann (1813–56), Danish botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 30–40 cm long. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2 mm long, erose, truncate. Leaf-blades 2–8 cm long, 2–3 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 10–16 cm long. Primary panicle branches ascending. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex acute, mucicous. Palea 0.9 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.7 mm long, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico. **Western South America.** Colombia.

**TDWG4.** Distrito Federal, Mexico State, Puebla. Durango, Queretaro. Veracruz. Oaxaca.

### **Agrostis longiberbis** Hack. ex L.B. Smith. *Phytologia* 22 (2): 88, (1971).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Calamagrostis capillaris*; Brazil: Sellow 521 (B holo, K).

**Recent Synonyms:** *Calamagrostis capillaris* Nees ex Steud., *Syn. Pl. Gram.* 188. (1854).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; *barba*, beard.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped densely. Culms 60–90 cm long, 0.5 mm diam. Ligule an eciliate membrane. Leaf-blades flat or conduplicate, 2 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 8–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.9–1 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2–3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–3 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, mucicous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast, Brazil South.

**TDWG4.** Sao Paulo Parana, Catarina, Rio Grande do Sul.

### **Agrostis mackliniae** Bor. *Kew Bull.* 1957, 417 (1958).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Myanmar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma, Mount Victoria: *Kingdon-Ward 21979* (K holo).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 461).

**Derivation** (Clifford & Bostock 2007): in honor of Jean Macklin (fl. 1955–56), otherwise Mrs. Kingdon-Ward.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Culms 15–30 cm long. Culm-nodes glabrous. Ligule an eciliate membrane, 5 mm long. Leaf-blades conduplicate or convolute, 3–10 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough on both sides, glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 3–7 cm long, 0.5 cm wide. Primary panicle branches 1.8 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate or elliptic, 2.5–3 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate or elliptic, 2.2–2.7 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 1.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma apex acute, mucous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central, Tibet. **Indo-China.** Myanmar.

**TDWG4.** Yunnan.

### **Agrostis magellanica** Lam. *Illustr.* 1: 160 (1791).

Regarded by K as a synonym (*Polypogn magellanica*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Chile. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Chile, Magellan: Coimerson (P holo).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (390, Fig. 261).

**Derivation** (Clifford & Bostock 2007): L. *-ica*, belonging to. From the Straits of Magellan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths light brown, persistent and investing base of culm, with fibrous dead sheaths. Basal innovations extravaginal. Culms erect or geniculately ascending or decumbent, 5–45 cm long. Ligule an eciliate membrane, 1.5 mm long, scaberulous on abaxial surface, erose, truncate. Leaf-blades flat or conduplicate, 2–16 cm long, 0.5–2 mm wide. Leaf-blade surface ribbed, scaberulous, rough adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle, aerial or shorter than basal leaves. Peduncle smooth or scaberulous above. Panicle contracted, lanceolate or elliptic, 2–10 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1.5–5 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3.5–5 mm long, falling entire, deciduous with the pedicel. Floret callus pubescent, hairy in 2 tufts.

**Glumes.** Glumes similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.5–5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 3.5–5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 1.8–2.2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma surface smooth or scaberulous, rough above or on veins. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3–4 mm long overall, with twisted column. Palea 0.4–0.7 mm long, 0.25 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.5–0.6 mm long, membranous. Anthers 3, 0.5–0.9 mm long. Caryopsis with adherent pericarp, 1.2–1.6 mm long. Hilum linear.

$N = 42$  (1 ref TROPICOS).  $2n = 84$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia, South America, Antarctica.

**Country /Province /State.** **New Zealand.** Antipodes Is, New Zealand South I, Campbell Is, Auckland Is, Macquarie Is. **Western South America, Southern South America.** Colombia. Argentina South, Chile Central, Chile South. **Subantarctic islands.** Crozet Is, Falkland Is (Malvinas), Kerguelen, Macquarie Is, Marion-Prince Edward Is, South Georgia.

**TDWG4.** Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. La Araucania. Los Lagos, Aisen, Magellanes.

**Agrostis mannii** (Hook.f.) Stapf, in obs. Dyer, *Fl. Cap.* 7: 549 (1889).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cameroon. **Basionym or Replaced Name:** *Deyeuxia mannii* Hook. f., *Journ. Linn. Soc.* 7: 228. (1864). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bioko / Cameroon Mt.

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (191, Fig. 113), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (50, Fig. 23 as subsp. *aethiopica*).

**Derivation** (Clifford & Bostock 2007): in honor of Gustav Mann (1836–1916) German botanist and plant collector employed as gardener at Royal Botanic Gardens, Kew, England.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending or decumbent, 25–90 cm long. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades flat or involute, 5–25 cm long, 1.5–3.5 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or ovate, dense or loose, 2–10 cm long. Panicle branches flexuous, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.6–2 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, similar, subequal in width, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.5–5 mm long, 1 length of upper glume, membranous, 1-keeled, 1–2 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent or obscure. Lower glume surface smooth. Lower glume apex acute. Upper glume lanceolate, 3.5–5 mm long, 1.4–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume surface smooth. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.5–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pilose. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.25 way up back of lemma, geniculate, 3–7 mm long overall, with twisted column. Palea 1 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.2–0.3 length of fertile floret, pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa. Cameroon, Annobon, Principe & Sao Tome, Bioko. Ethiopia (inc. Eritrea).

**Agrostis marojejensis** A. Camus. *Bull. Soc. Bot. France*, 97: 80 (1950).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Marojejy: Humbert 22736 ; Madagascar, Marojejy: Humbert 23710.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Marojejy Mts, Madagascar.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 40–60 cm long, 4–5 -noded. Culm-internodes striate, smooth. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 2.8–3 mm long, lacerate, truncate. Leaf-blades 8–15 cm long, 1.5–2.5 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 8–12 cm long. Primary panicle branches appressed, 4–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–10 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4.3–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4.3–4.5 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous. Lower glume apex acuminate. Upper glume lanceolate,

4.1–4.2 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent or obscure. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2.5–3 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins prominent, excurrent. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 6 mm long overall, with twisted column. Column of lemma awn 3 mm long. Palea 1–1.5 mm long, hyaline.

**Flower and Fruit.** Anthers 3, 1.5–2 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

### **Agrostis masafuerana** Pilg. *Repert. Spec. Nov. Regni Veg.* 16: 388. 1920.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Skottsberg & I. Skottsberg 424*, 14 Feb 1917, Chile: Juan Fernandez Islands: Masafuera, highland of Las Torres, alpine heath, ca. 1300 m (B; IT: BAA-4273 (fragm. ex B), K, P, SGO (fragm. ex B), US-1093816).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -anus, indicating location. From Mas Afuera an island close to Juan Fernandez.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 30–40 cm long, 3–4 -noded. Culm-internodes brown, distally glabrous. Lateral branches lacking. Leaf-sheaths 2–8 cm long, striately veined, glabrous on surface. Ligule an eciliate membrane, 3–3.5 mm long, erose, acute. Leaf-blades 3–10 cm long, 2–3 mm wide. Leaf-blade surface smooth. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle contracted, linear or oblong, 7–12 cm long, 1–2 cm wide. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–4.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus sparsely hairy, hairy on the margins.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acuminate. Upper glume lanceolate, 3.5–4.5 mm long, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins distinct. Upper glume surface smooth or asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 1.5–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough on veins. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 0.5–1.2 mm long overall, not or scarcely exserted from spikelet. Palea 0.2–0.3 mm long, 0.1–0.15 length of lemma, 0 -veined. Palea apex dentate, 3 -fid.

**Flower and Fruit.** Lodicules 2, 0.4–0.5 mm long, membranous. Anthers 3, 0.8–1 mm long. Caryopsis with adherent pericarp, ellipsoid, 1–1.5 mm long. Hilum elliptic. Endosperm farinose.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Juan Fernandez Is.

### **Agrostis media** Carmich. *Trans. Linn. Soc. London* 12: 504. 1819.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Tristan da Cunha. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Atlantic, Tristan da Cunha: Carmichael.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. middle. Characters midway between two or more other species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 10–25 cm long. Ligule an eciliate membrane, 1.5–2 mm long, erose, obtuse. Leaf-blades filiform, convolute, 2–5 cm long, 0.5–1 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, aerial, exserted. Panicle contracted, linear, 1–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 3.5–4 mm long, 5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 0.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, awned, 1 -awned. Principal lemma awn subapical, straight, 0.5–1 mm long overall. Palea 0.75 length of lemma, hyaline.

**Distribution (TDWG). Continent.** Antarctica.

**Country /Province /State. Subantarctic islands.** Tristan de Cunha.

**Agrostis meridensis** Lucas. *Bol. Soc. Venez. Cienc. Nat.* 15: 11 (1953).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Paramo de Muchuchies: Lucas 267 (VEN holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Mirida, Venezuela.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, slender, 45 cm long. Culm-internodes smooth. Culm-nodes glabrous. Lateral branches sparse. Leaf-sheaths longer than adjacent culm internode, pubescent. Ligule an eciliate membrane, 1–2 mm long, lacerate, obtuse. Leaf-blades 7–15 cm long, 3–7 mm wide. Leaf-blade surface scabrous. Leaf-blade margins ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, ovate, 10–15 cm long. Primary panicle branches whorled at most nodes. Panicle branches capillary, flexuous, scaberulous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–3.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus sparsely hairy or pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3.5–3.8 mm long, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface hispidulous. Lower glume apex acute. Upper glume lanceolate, 3.5–3.8 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 3 -veined. Upper glume surface hispidulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2.2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface hispidulous. Lemma apex entire, obtuse, mucicous. Palea 0.25 length of lemma. Rhachilla extension 0.25 length of fertile floret, pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America.** Venezuela.

**Agrostis mertensii** Trin. *Linnaea* 10: 302 (1835).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983) (& as *A. borealis*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *A. borealis*).

**TYPE** from Aleutian Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Aleutian Is., Unalaska: Mertens (LE lecto).

**Recent Synonyms:** *Agrostis trichantha* (Schischk.) Tsvelev, *Novosti Sist. Vyssh. Rast.*, 8: 59 (1971).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (645).

**Derivation** (Clifford & Bostock 2007): in honor of Carl Heinrich Mertens (1796–1830) German-born physician and traveller.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 20–60 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades flat or involute, 5–10 cm long, 0.5–3 mm wide. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 5–15 cm long. Primary panicle branches spreading, whorled at lower nodes, 1–4 cm long. Panicle axis smooth or scabrous. Panicle branches smooth or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 2.5–3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or geniculate, 2–4 mm long overall, without a column or with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 41$  (1 ref TROPICOS), or 56 (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, North America, South America.

**Region. Northern Europe, Eastern Europe.**

**Country /Province /State.** : Finland, Norway, Sweden. Central European Russia, East European Russia, North European Russia. Russian far east, **Eastern Asia.** Kamchatka, Kuril Is, Magadan. Japan. Japan Hokkaido, or Honshu. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, Northeast USA, Southwestern USA, Southeastern USA, Mexico.** Greenland. Central Mexico. **Western South America, Southern South America.** Colombia, Ecuador, Peru. Argentina South, Chile Central, Chile South.

**TDWG4.** Salta, Chubut, Neuquén, Santa Cruz. O'Higgins, Maule, Biobio. Los Lagos, Aisen, Magallanes. Mexico State.

**Agrostis merxmuelleri** W. Greuter & H. Scholz. *Mitt. Bot. Staatssamml. Munchen*, 16(Beih.): 23 (1980).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Greece. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Greece, Mt. Grammos: Greuter 14360 (ATH iso, B, C, G, M).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Hermann Merxmüller (1920–1968) German botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Stolons absent or present. Basal innovations intravaginal. Culms geniculately ascending, 30–50 cm long, rooting from lower nodes. Culm-internodes smooth, distally glabrous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades flat or involute, 7–14 cm long, 1–2.3 mm wide, glaucous. Leaf-blade surface ribbed. Leaf-blade margins scaberulous or scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 7–10 cm long, 1–2 cm wide. Primary panicle branches appressed, whorled at most nodes. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 3–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3–3.7 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 2.9–3.6 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute.



**Florets.** Fertile lemma elliptic to oblong, 2.4–2.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, mucronate. Palea oblong, 1.4 mm long, 0.5 length of lemma, hyaline, 0–2 -veined.

**Flower and Fruit.** Anthers 3, 1.5–1.8 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe.

**Region. Southeastern Europe.**

**Country /Province /State. :** Greece.

**Agrostis meyenii** Trin. *Mem. Acad. Petersb. Ser. 6:* 6: 2: 312. (1841).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Santa Fernando: Coll? (LE holo).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (178, Fig. 43), M.N.Corra, *Flora Patagonica* Parte III, Gramineae (1978) (377, Fig. 252).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Franz Julius Ferdinand Meyen (1804–1840) German physician, traveller and plant collector.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes absent or short. Culms 2–18 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2.5 mm long, erose, truncate or obtuse. Leaf-blades curved, filiform, conduplicate, 0.5–1.5 mm wide. Leaf-blade surface scabrous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 1–6.5 cm long, 0.3–0.7 cm wide. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.4–4.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous, rough above. Lower glume apex acute. Upper glume lanceolate, 2.4–4.1 mm long, 1.4–1.6 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.7–2.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, obtuse, mucicous or mucronate or awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, straight, 1–2 mm long overall, not or scarcely exerted from spikelet. Palea 0.35–0.7 mm long, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, 0.25–0.55 mm long, membranous. Anthers 3, 0.5–0.8 mm long. Caryopsis with adherent pericarp, 1.1–1.6 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America, Southern South America.** Bolivia. Argentina South, Chile Central, Chile South. Falkland Is (Malvinas).

**TDWG4.** Catamarca, La Rioja, Mendoza, Tucuman. Chubut, Neuquén, Santa Cruz, Tierra del Fuego. Coquimbo, Valparaiso, O'Higgins, Maule, La Araucania. Los Lagos, Magellanes.

**Agrostis micrantha** Steud. *Syn. Pl. Gram.* 170. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Nepal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nepal: Wallich 3776 .

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills* (1996) (777, Pl. 777), H.J.Noltie, *The Grasses of Bhutan* (2000) (601, Fig. 25), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 461).

**Derivation** (Clifford & Bostock 2007): Gk. mikros, small; anthos, flower. Spikelets small.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long. Culm-internodes scaberulous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 8–15 cm long, 3–4 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, elliptic, 10–25 cm long. Primary panicle branches whorled at lower nodes. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.75 mm long, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2 mm long, 1–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.75–2 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, muticous. Palea 0.2–0.5 mm long, 0.1–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central, Qinghai, China Southeast, Tibet. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya, India, Nepal, West Himalaya. Myanmar.

**TDWG4.** Shaanxi, Anhui, Fujian, Guangxi, Henan, Hunan, Jiangxi, Guizhou, Hubei, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Assam, Meghalaya. Uttah Pradesh. Himachal Pradesh, Jammu Kashmir.

**Agrostis microphylla** Steud. *Syn. Pl. Gram.* 164 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as *A. inflata*).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: North America: Douglas.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (659).

**Derivation** (Clifford & Bostock 2007): Gk. mikros, small; phyllon, leaf. Leaf-blades short. *Agrostis microphylla*.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 5–15 cm long. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane, 2–2.5 mm long. Leaf-blades 1.5–6 cm long, 0.5–2.3 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 3–6 cm long, 0.5–0.8 cm wide. Primary panicle branches appressed, 0.5–2 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.15 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 3.5–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate, awned, 1 -awned, awn 1–2 mm long. Upper glume elliptic, 3.5–4 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface asperulous. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma oblong, 3.2–3.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, geniculate, 6–7 mm long overall, with twisted column. Palea 0.3 length of lemma, hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Western Canada, Northwest USA, Southwestern USA, Mexico.** British Columbia. Oregon, Washington. California. Northwest Mexico.

Baja California Sur.

**Agrostis montevidensis** Spreng. ex Nees. *Agrost. Bras.* 403 (1829).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uruguay, Montevideo: *Sellow*.

**Illustrations (Books):** S.A.Rennoize, *Gramineas de Bolivia* (1998) (Fig. 42), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102 & 477, Fig. 103), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (123, Fig. 39), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (228, Fig. 60), B.Rosengurt, *Gramineas Uruguayas I* (1970).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Montevideo, Uruguay.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–80 cm long. Ligule an eciliate membrane, 1.5–3 mm long, erose. Leaf-blades 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, obovate, effuse, 10–30 cm long, 5–9 cm wide. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 10–45 mm long, smooth or scaberulous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.8–2.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.8–2.4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.8–2.4 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, straight, 2–2.5 mm long overall, without a column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Africa (\*), South America.

**Country /Province /State. Southern Africa** (\*). Mpumalanga, Swaziland, Kwazulu-Natal, Western Cape. **Western South America, Brazil, Southern South America.** Bolivia, Colombia. Brazil Southeast, Brazil South. Argentina Northeast, Argentina Northwest, Chile Central, Paraguay, Uruguay.

**TDWG4.** Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Catamarca, Jujuy, La Rioja, Salta, San Juan, Tucuman. Buenos Aires, Cordoba, Corrientes, Entre Rios, La Pampa, Misiones, Santa Fe. La Araucania.

**Agrostis muelleriana** Vickery. *Contrib. N. S. Wales Nat. Herb.* 1: 103 (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Mueller s.n.*, Australia: Victoria: Cobboras [Cobberas] Mountains, 6000 ft (K).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (473, Fig. 92), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (110), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (168, Fig. 25), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Ferdinand Jacob Heinrich Mueller (1825–96) German-born Australian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 20–30 cm long. Culm-nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 2–3 mm long, acute. Leaf-blades filiform or linear, conduplicate, 3–10 cm long, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 2–6 cm long. Primary panicle branches appressed. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–3.5 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.7–3.2 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.7–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, mucicous or mucronate or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 1–1.5 mm long overall. Palea present or absent or minute, 0–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6–0.8 mm long. Caryopsis with adherent pericarp, ellipsoid, 1.3 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. New South Wales, Victoria, Tasmania. New Zealand North I, New Zealand South I.

**TDWG4.** Tablelands.

**GenBank** (AY705880).

**Agrostis munroana** Aitch. & Hemsl. *Journ. Linn. Soc.* 19: 192 (1882).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Pakistan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Pakistan, Shend Toi: *Aitchison 1252* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of William Munro (1818–1880) Scots-born British soldier and amateur botanist who collected extensively in India.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 10–45(–70) cm long. Ligule an eciliate membrane, 2.5–4 mm long, obtuse. Leaf-blades 3–15 cm long, 1.5–5 mm wide. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or oblong, dense or loose or effuse, 3–15(–20) cm long. Primary panicle branches 2–3 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.33 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5–2.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.2–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma apex erose, truncate, mucicous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, straight, 1–3 mm long overall. Palea 1 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.4–0.8 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

*N* = 21 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. Western Asia, China.** Afghanistan, Iran. China South Central, Tibet. **Indian Subcontinent.** India, Nepal, Pakistan, West Himalaya.

**TDWG4.** Yunnan. Uttah Pradesh. Himachal Pradesh, Jammu Kashmir.

**Agrostis muscosa** T. Kirk. *Trans. N. Z. Inst.* 13: 385. (1881).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand, Lake Wanaka: *Kirk* (WELT lecto).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. muscus*, moss; -osa, abundance. In habit resembling a moss.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, cushion forming. Basal innovations extravaginal. Culms 1–6 cm long. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.5–1.5 mm long, scaberulous on abaxial surface, lacerate, truncate or acute. Leaf-blades spreading, curved, involute, 0.4–1.2 cm long, 0.2–0.4 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle, shorter than basal leaves. Peduncle smooth. Panicle capitate, ovate, 0.3–0.7 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.5–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1.5–2 mm long, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5–2 mm long, membranous, with hyaline margins, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.2–1.4 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex truncate, muticous. Palea 0.2–0.4 mm long, 0.2–0.25 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.2–0.3 mm long, membranous. Anthers 3, 0.4–0.6 mm long. Caryopsis with adherent pericarp, 0.7–1 mm long. Hilum linear.

$N = 21$  (1 ref TROPICOS).  $2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. New Zealand.** New Zealand North I, New Zealand South I, Stewart Is.

**Agrostis musjidii** S. Rajeswari R.R. Rao & Arti Garg. *J. Ind. Bot. Soc.*, 74: 333 (1995).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Kashmir, Musjid valley: Duthie 13267 (DD holo).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, slender, 18 cm long. Culm-internodes distally glabrous. Lateral branches lacking. Ligule an eciliate membrane, 1–1.5 mm long, obtuse. Leaf-blades 5–7 cm long, 2 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 5–7 cm long. Primary panicle branches ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume elliptic, 2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acute. Upper glume elliptic, 2 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.8–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface puberulous. Lemma apex erose, muticous.

**Flower and Fruit.** Anthers 3, 0.5–0.8 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

Jammu Kashmir.

### **Agrostis myriantha** Hook. f. *Fl. Brit. Ind.* 7: 257. (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Khasia Hills: *Hooker* 7.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. myrios, countless; anthos, flower. Inflorescence many spikelets.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 80–160 cm long. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades 10–30 cm long, 3–10 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 15–30 cm long. Primary panicle branches not whorled or whorled at most nodes, naked below or bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, smooth.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2 mm long, 1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth or scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.25 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, muticous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China. Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya, India, West Himalaya.

**TDWG4.** Sikkim. Assam. Himachal Pradesh.

### **Agrostis nebulosa** Boiss. & Reut. *Diagn.* 26. (1842).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain, Madrid: *Reuter*.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (660).

**Derivation** (Clifford & Bostock 2007): L. nebula, mist; -osa, abundance. Growing on high mountains.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 25–50 cm long, 2–3 -noded. Culm-internodes smooth. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 1.5–3.5 mm long, erose. Leaf-blades flat, 3–10 cm long, 1–3.5 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 12–20 cm long, 6–10 cm wide. Primary panicle branches 10–15 -nate, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, 5–12 mm long, 4–7 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.3–1.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.3–1.7 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.3–1.7 mm long, 2–3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, 0.4–0.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, mucous. Palea 0.4–0.6 mm long, 0.75–1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Africa, South America.

**Region.** Northern Europe (\*), Southwestern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Portugal, Spain. **Northern Africa.** Morocco. **Eastern Canada, Southwestern USA.** Quebec. California. **Southern South America.** Argentina Northeast.

**TDWG4.** Buenos Aires.

**Agrostis nervosa** Nees ex Trin. *Mem. Acad. Petersb. Ser.* 6,4(3–4) 328. (1845).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: *Royle 67* (LE ssn); India: *Royle 70* (LE ssn).

**Recent Synonyms:** *Agrostis sikkimensis* Bor, *Kew Bull.* 1954, 502 (1954). *Agrostis limprichtii* Pilger, *Fedde, Repert. Beih.* 12: 307 (1922).

*Agrostis taliensis* Pilger, *Fedde, Repert.* 17: 130 (1921).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (601, Fig. 25), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 461).

**Derivation** (Clifford & Bostock 2007): *L. nervus*, nerve; -osa, abundance. With conspicuous nerves in the glumes or lemmas.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 20–45 cm long, 2–3 -noded. Culm-nodes brown. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 6–8 cm long, 1–2 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or pyramidal, 3–12 cm long, 0.5–6 cm wide. Primary panicle branches whorled at lower nodes. Panicle branches capillary, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 mm long, smooth or scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.7–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume elliptic or oblong, 2.7–3.5 mm long, 1 length of upper glume, membranous, mid-green or purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate or elliptic, 2.6–3.15 mm long, 1.3–1.7 length of adjacent fertile lemma, membranous, mid-green or purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 1.5–2.4 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma surface scaberulous. Lemma apex erose, truncate, mucous. Palea 0.5–0.8 mm long, 0.33 length of lemma, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

$N = 14$  (2 refs TROPICOS).

**Distribution (TDWG).** **Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **Western Asia, China.** Iran. China South Central, Tibet. **Indian Subcontinent, Indo-China.** Eastern Himalaya, India, Nepal. Myanmar.

**TDWG4.** Guizhou, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Uttah Pradesh, West Bengal. Jammu Kashmir.

**Agrostis nevadensis** Boiss. *Elench.* 87. (1838).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Spain, Sierra Nevada: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Sierra Nevada, Spain.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 6–60 cm long. Culm-internodes antrorsely scabrous. Leaf-sheaths without keel, smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 4–6 mm long, entire or lacerate. Leaf-blades filiform, 5–15 cm long, 0.5–0.8 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 5–10 cm long. Primary panicle branches ascending or spreading, whorled at most nodes. Panicle axis scabrous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, tip rectangular.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.4 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2–2.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–2.5 mm long, 1.2 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 3–3.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.2 mm long, yellow. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, 1.4–1.5 mm long, light brown. Embryo 0.25–0.33 length of caryopsis. Hilum elliptic.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Southwestern Europe.

**Country /Province /State.** : Spain. Northern Africa. Morocco.

**Agrostis nevskii** Tsvelev. *Novit. Syst. Pl. Vasc., Acad. Sci. URSS*, 6: 20 (1970).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Gissar range, Ak-Tash Pass: *Grigoriev et al.* (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Sergei Arseniyevich Nevsky (1908–1938) Russian agrostologist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 15–40 cm long. Culm-internodes smooth. Culm-nodes black. Lateral branches lacking. Ligule an eciliate membrane, 0.7–1.5 mm long, obtuse. Leaf-blades 1–1.5 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 4–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.3–0.4 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 2 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2 mm long, 1.1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.



**Florets.** Fertile lemma ovate, 1.8–1.9 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 2–2.5 mm long overall, with twisted column. Palea 0.5–0.66 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Middle Asia. Turkmenistan.

**TDWG4.**

**Agrostis nipponensis** Honda. *Bot. Mag., Tokyo* 41: 380. (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan, Mito: Ando ; Japan, Otsu: *Hashimoto* ; Japan, Myuga: *Mayebara* 187 ; Japan, Myuga: *Mayebara* 194 .

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (198, Fig. 69).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Nippon, that is, Japan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent. Culms 40–70 cm long, 1.5–2.2 mm diam., 3–4 -noded. Leaves basal and cauline. Ligule an eciliate membrane, 1–3 mm long, truncate. Leaf-blades 7–17 cm long, 3–5 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 10–25 cm long, 5–7 cm wide. Primary panicle branches 3–7 -nate. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.3–3.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 3.3–3.6 mm long, hyaline, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma apex obtuse, mucicous. Palea 0.15 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.7–1 mm long. Caryopsis with adherent pericarp, obovoid, 1.5 mm long. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Japan. Japan Honshu, or Shikoku, or Kyushu.

**Agrostis novogaliciana** R. McVaugh. *Fl. Novo-Galiciana* 14: 41 (1983).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Sierra de Manantlan: McVaugh 23123 (MICH holo, NY, US).

**Illustrations (Books):** R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From Novo Galicia, that is New Mexico.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Butt sheaths persistent and investing base of culm. Culms erect, 60–75 cm long. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades involute, 12–25 cm long, 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, obovate, 15 cm long. Primary panicle branches ascending, 2–3 -nate, 5–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, with lower narrower than upper, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume elliptic, 3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 3 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 3 mm long, cartilaginous, without keel. Lemma apex obtuse, muticous. Palea 1 length of lemma, hyaline. Rhachilla extension 0.5 mm long.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.7–2 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Southwest Mexico.

**TDWG4.** Jalisco.

**Agrostis obtusissima** Hack. *Oesterr. Bot. Zeitschr.* 1902, 107. (1902).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madeira. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Madeira, Pico dos Arrieros: Mandon 273 (K iso).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. obtusus*, blunt; -issima, most. Glume apices rounded.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 15–25 cm long. Culm-internodes smooth, distally glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface. Ligule an eciliate membrane, erose. Leaf-blades 6–12 cm long, 1–2.5 mm wide, flaccid. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 6–13 cm long, with spikelets clustered towards branch tips. Primary panicle branches 2–3 -nate. Panicle branches capillary, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus sparsely hairy.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2–2.5 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex erose, truncate. Upper glume lanceolate, 2–2.5 mm long, 2 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex erose, truncate.

**Florets.** Fertile lemma ovate, 1–1.2 mm long, hyaline, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma lateral veins excurrent. Lemma apex erose, truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 0.5 mm long overall. Palea 0.5 length of lemma, hyaline, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.2 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Macaronesia. Madeira.

**Agrostis olympica** (Boiss.) Bor. *Arbok Univ. Berg., Mat. Nat.* No. 2, 4 (1961).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Turkey. **Basionym or Replaced Name:** *Calamagrostis olympica* Boiss., *Diagn. Ser.* (1) 5: 70 (1844). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Turkey, Olympi Bythyni: Boissier (G hol., K).

**Recent Synonyms:** *Agrostis agrostidiformis* (Roshev.) Bor, *Arbok Univ. Berg., Mat.-Nat.*, No. 18, 34 (1964).

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 45), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (288, Pl. 101).

**Derivation** (Clifford & Bostock 2007): *L. ica*, belonging to. From Mt Olympus, north-west Turkey.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 4–20 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.7–2 mm long. Leaf-blades filiform, 1–8 cm long, 0.6–2.4 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, dense, 1–4 cm long, 0.2–0.8 cm wide. Primary panicle branches ascending, 0.8–1.5 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 0.3–2 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–2.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1 length of lemma.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume ovate, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1.5–2.3 mm long, 1–1.1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 2–4 mm long overall, with twisted column. Palea 1 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.3–0.5 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Middle Asia, Caucasus, Western Asia.** Kazakhstan, Turkmenistan. Iran, Iraq. TDWG4.

**Agrostis oregonensis** Vasey. *Bull. Torrey Bot. Club* 13: 56. (1886).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: USA, Oregon, Mt. Hood: Howell (US holo, K, LE).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (650).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Oregon State, USA.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–80 cm long. Lateral branches lacking. Ligule an eciliate membrane, 2–4 mm long, erose or lacerate, obtuse or acute. Leaf-blades 2–4 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 10–30 cm long. Primary panicle branches ascending or spreading, whorled at most nodes, 5–10 cm long. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 2.2–3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.2–3 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex muticous. Palea 0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.3 mm long, membranous. Anthers 3, 0.4–0.6 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Northwest USA, Southwestern USA.** Idaho, Montana, Oregon, Washington, Wyoming. California, Nevada.

**Agrostis oresbia** E. Edgar. *New Zealand J. Bot.* 29(2): 143 (1991).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand, Tararua Ra: *Druce* (CHR holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *oresbios*, mountain dweller. Alpine or subalpine species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Stolons absent or present. Basal innovations intravaginal. Culms 5–25 cm long. Leaf-sheaths smooth. Ligule an eciliate membrane, 1–4.5 mm long, glabrous on abaxial surface, entire or erose, truncate or obtuse. Leaf-blades flat or conduplicate, 2–7 cm long, 1.5–2 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially. Leaf-blade margins smooth or scaberulous. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle open, oblong or pyramidal, 2–6 cm long. Primary panicle branches spreading. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2–2.5 mm long, 1–1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 1.7–2.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma ovate, 1.5–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or geniculate, 2–3 mm long overall, without a column or with twisted column. Palea 0.5 mm long, 0.25–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.3 mm long, membranous. Anthers 3, 0.6–0.9 mm long. Caryopsis with adherent pericarp, 1.5 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand North I, New Zealand South I.

**Agrostis pallens** Trin. *Mem. Acad. Petersb. Ser.* 6, 4(3–4) 328. (1845).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Canada. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Canada: Hooker (LE holo).

**Recent Synonyms:** *Agrostis diegoensis* Vasey, *Bull. Torrey Bot. Club* 13: 55. (1886). *Agrostis lepida* Hitchcock, Jepson, *Fl. Calif.* i. 121 (1912).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (652).

**Derivation** (Clifford & Bostock 2007): L. pale. Inflorescences pale.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated, wiry. Culms erect, 15–30 cm long. Ligule an eciliate membrane, 1–3 mm long, entire or erose, obtuse. Leaf-blades involute, 10–20 cm long, 1.5–3 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, lanceolate, 3–10 cm long, 1–1.5 cm wide. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2–0.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2.4–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex truncate, mucicous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, 0.3–0.4 mm long, membranous. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Western Canada, Northwest USA, Southwestern USA, Mexico. British Columbia. Idaho, Montana, Oregon, Washington. California, Nevada. Northwest Mexico. Baja California.

**Agrostis pallescens** Cheeseman. *Trans. N. Z. Inst.* 1921, 53: 423. (1921).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *A. muelleri* var. *paludosa* ; New Zealand, Mt. Cook: Cheeseman (W lecto).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pallesco*, become pale. Losing color at maturity, especially spikelets.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Basal innovations extravaginal. Culms erect, 3–5 cm long. Ligule an eciliate membrane, 0.1–0.6 mm long, glabrous on abaxial surface, erose, truncate. Leaf-blades filiform, involute, 0.5–2.5 cm long, 0.2–0.4 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle open, ovate or pyramidal, 0.6–2 cm long, bearing few spikelets. Primary panicle branches bearing 1 fertile spikelets on each lower branch. Panicle branches puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.5–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1.2–1.8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.2–1.8 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma ovate, 1.2–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex truncate or obtuse, mucicous. Palea 0.4–0.6 mm long, 0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.2–0.4 mm long, membranous. Anthers 3, 0.4–0.7 mm long. Caryopsis with adherent pericarp, 1 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand North I, New Zealand South I, Stewart Is.

**Agrostis parviflora** Roth. *Tent. Fl. Germ.* 1: 31 (1788).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Nelson s.n.*, Feb 1792, Australia: Tasmania: Adventure Bay (BM).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (473, Fig. 92), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (110), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (168, Fig. 25).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. parvus*, small; flos, flower. Spikelets small or with few florets.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms erect or geniculately ascending, weak, 15–35 cm long, 2 -noded. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths loose. Ligule an eciliate membrane, 1–2 mm long, obtuse. Leaf-blades involute, 1–10 cm long, 0.25–1 mm wide. Leaf-blade surface smooth. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 3–9 cm long, 2–7 cm wide, bearing few spikelets. Primary panicle branches 1–3 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.5–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, keeled above, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 1.3–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex truncate, mucicous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.3–0.4 mm long. Caryopsis with adherent pericarp, ellipsoid. Hilum linear.

*N* = 21 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia.** New South Wales, A.C.T., Tasmania, Victoria.

**TDWG4.** Tablelands.

**Agrostis paulsenii** Hack. ex Paulsen. *Kjoeb. Vidensk. Meddel.* 1903, 165. (1903).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Pamir, Djangalik: *Paulsen 1266* (LE iso).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Ove Vilhelm Paulsen (1874–1947) Danish botanist and traveller.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 25–50 cm long. Culm-internodes smooth. Lateral branches lacking. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades 7–15 cm long, 3–5 mm wide, flaccid. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 9–18 cm long, 2–4 cm wide. Primary panicle branches 3–5 -nate, bearing spikelets almost to the base. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.8–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.8–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.8–2.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.7–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, curved, 1.5–3 mm long overall. Palea 0.75 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.7–1.2 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** **Middle Asia, Western Asia.** Turkmenistan. Iran.

**TDWG4.**

**Agrostis peninsularis** Hook. f. *Fl. Brit. Ind.* 7: 255. (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: *Wight 1746*.

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills* (1996) (778, Pl. 778).

**Derivation** (Clifford & Bostock 2007): L. -aris, pertaining to. From peninsula India.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 20–80 cm long. Culm-nodes glabrous. Ligule an eciliate membrane, 1–3 mm long, truncate. Leaf-blades linear or lanceolate, 3–15 cm long, 1–5 mm wide, mid-green or glaucous. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 5–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–4 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 4–6 mm long overall, with twisted column. Palea 2–2.5 mm long, 0.9–1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5–1.25 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Kerala. Tamilnadu.

**Agrostis perennans** (Walter) Tuckerm. *Am. Journ. Sc. Arts* 45:44. (1843).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Cornucopiae altissimum* Walt., *Fl. Carol.* 74 (1788). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, South Carolina: Walter.

**Recent Synonyms:** *Agrostis flavidula* Steud., *Syn. Pl. Gram.* 421. (1854). *Agrostis altissima* (Walter) Tuckerm., *Am. Journ. Sc.* 45: 44 (1843).

*Agrostis elata* (Pursh.) Trin., *Mem. Acad. Petersb. Ser.* 6, 4(3–4): 317 (1841).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (650), F.W.Gould, *The Grasses of Texas* (1975) (143, Fig. 71), S.A.Renvoize, *Gramineas de Bolivia* (1998) (178, Fig. 42), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (33, Fig. 5), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (382, Fig. 257 as *A. flavidula*).

**Derivation** (Clifford & Bostock 2007): L. perennes, persist for several years. Perennials.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms decumbent, weak, 50–100 cm long, 0.7–1 mm diam. Lateral branches lacking. Leaves cauline. Leaf-sheaths ribbed, smooth, glabrous on surface. Ligule an eciliate membrane, 2–5 mm long, lacerate. Leaf-blades 6–13 cm long, 1.5–3 mm wide. Leaf-blade surface ribbed, scaberulous.

**Inflorescence.** Inflorescence a panicle. Peduncle 8–15 cm long. Panicle open, ovate, effuse, 11–15 cm long, 6–11 cm wide. Primary panicle branches 3–7 -nate, whorled at most nodes. Panicle branches flexuous. Spikelets spreading, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 2.2–2.9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 2.2–2.9 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex caudate. Upper

glume oblong, 1.9–2.3 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex caudate.

**Florets.** Fertile lemma ovate, 1.7–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex erose, truncate, muticous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8–1 mm long, purple. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Africa, North America, South America.

**Country /Province /State.** **Western Indian ocean.** Madagascar (\*). **Eastern Canada, North-central USA, Northeast USA, South-central USA, Southeastern USA, Mexico.** Newfoundland, Nova Scotia, Ontario, Quebec. Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, Oklahoma, Wisconsin. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Costa Rica, Guatemala, Honduras. Dominican Republic, Haiti. Venezuela. Bolivia, Colombia, Ecuador, Peru. Argentina South, Argentina Northwest, Chile Central, Chile South.

**TDWG4.** Catamarca, Jujuy, Mendoza, Salta, Tucuman. Corrientes. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Chiloe, Aisen, Magellanes. Biobio, La Araucania. Los Lagos, Magellanes. Distrito Federal, Morelos, Puebla. Durango, Guanajuato, Hidalgo, Queretaro, San Luis Potosi. Veracruz. Michoacan, Oaxaca. Chiapas.

**Agrostis personata** E. Edgar. *New Zealand J. Bot.* 29(2): 149 (1991).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *A. dyeri* var. *delicator* ; New Zealand, Lake Te Anau: Petrie (W lecto).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. masked, that is, resembling something else. Readily confused with another species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Basal innovations extravaginal. Culms geniculately ascending, 6.5–30 cm long. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.8–2 mm long, scaberulous on abaxial surface, erose, truncate or obtuse. Leaf-blades flat or conduplicate or involute, 2–8 cm long, 0.5–1.5 mm wide, flaccid. Leaf-blade surface scabrous, rough adaxially or on both sides. Leaf-blade margins smooth or scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle open, lanceolate or pyramidal, 4.5–8.5 cm long. Primary panicle branches spreading. Panicle axis scaberulous. Panicle branches capillary, with occasional prickles. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2–3.5 mm long, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–3.5 mm long, membranous, with hyaline margins, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.4–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex entire or erose, truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.66 way up back of lemma, straight, 1–3 mm long overall. Palea 0.3–0.6 mm long, 0.25 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.3–0.6 mm long, membranous. Anthers 3, 0.4–0.7 mm long. Caryopsis with adherent pericarp, 1–1.5 mm long. Hilum linear.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **New Zealand.** New Zealand North I, New Zealand South I, Stewart Is.



**Agrostis petriei** Hack. *Trans. Proc. N.Z. Inst.* 5: 379. (1903).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand, Hector Mts.: Petrie (W holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Donald Petrie (1846–1925) Scots-born New Zealand educationalist and amateur botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 30–55 cm long. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 1–4.5 mm long, scaberulous on abaxial surface, erose, truncate or obtuse. Leaf-blades filiform, involute, 4–10.5 cm long, 0.3–1 mm wide, stiff. Leaf-blade surface scabrous, rough abaxially. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle open, oblong, 4–16 cm long. Primary panicle branches spreading. Panicle axis smooth. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.5–3.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2.5–3.4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3.4 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2–2.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate or obtuse, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 2–3 mm long overall. Palea 0.2–0.4 mm long, 0.1–0.15 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.2–0.4 mm long, membranous. Anthers 3, 1.3–1.7 mm long. Caryopsis with adherent pericarp, 1.5 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand South I.

**Agrostis philippiana** Z.E.R. Agrasar & M.E. De Paula. *Fl. Patagonica* 3: 379 (1978).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *A. clausa* Phil. ; Chile, Patagonia, Rio Aysen: Simpson (SGO holo).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (*Fl. Pat.* 3: 377, Fig. 250 (1978)).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Rudolf Amandus Philippi (1808–1904) German-born Chilean biologist and museum director.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or short. Culms 35–45 cm long. Leaf-sheaths tight, 2–9 cm long, smooth. Ligule an eciliate membrane, 1.5–2 mm long, truncate. Leaf-blades 2–6 cm long, 1–2 mm wide, stiff. Leaf-blade surface smooth or scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 3–11 cm long, 2–8 cm wide. Primary panicle branches 2–3 -nate, whorled at lower nodes. Panicle axis smooth. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.1–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or sparsely hairy.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.1–2.5 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.6–1.7 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex truncate, mucronate. Principal lemma awn subapical. Palea 1–1.2 mm long, hyaline.

**Flower and Fruit.** Lodicules 2, 0.6 mm long, membranous. Anthers 3, 1.2 mm long. Caryopsis with adherent pericarp, 1.3 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina South, Chile Central, Chile South.

**TDWG4.** Chubut, Neuquén, Río Negro, Santa Cruz. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Maule. Los Lagos, Aisen, Magellanes.

**Agrostis pilgeriana** C. E. Hubbard. *Kew Bull.* 1936, 302. (1936).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Kenya. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kenya, Mt. Kenya: *Fries 1342* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Robert Knuds Friedrich Pilger (1876–1953) German agrostologist, born on Helgoland before its transfer from British to German administration.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms decumbent, 7–100 cm long. Ligule an eciliate membrane, 4 mm long. Leaf-blades flat, 5–14 cm long, 1–3 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or oblong, loose or effuse, 10–20 cm long. Primary panicle branches ascending or spreading, 2–3 -nate. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–2 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2.5–3 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 2.2–2.8 mm long, 1.5–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy below. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.6–0.7 way up back of lemma, straight, 2–4 mm long overall, with a straight or slightly twisted column. Palea 0.9 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. West-central tropical Africa, East tropical Africa.** Rwanda. Kenya.

**Agrostis pilosa** Schleich. ex Gaud., non Retz.(1791). *Agrost. Helv.* 1: 75 (1811).

Regarded by K as a synonym (*A. agrostiflora*).

**Accepted by:** N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Switzerland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Switzerland, Panerossaz: Schleicher.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. pilus, a hair; -osa, abundance. The whole plant or any of its organs invested with long spreading hairs.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Basal innovations intravaginal. Culms 30–90 cm long. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 1.3–6 mm long, scaberulous on abaxial surface, erose, obtuse. Leaf-blades 6–28 cm long, 2–6.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough on both sides. Leaf-blade margins scaberulous, glabrous.

**Inflorescence.** Inflorescence a panicle, deciduous as a whole. Panicle open, elliptic or ovate, 12–28 cm long, 6–20 cm wide. Panicle axis scabrous. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.5 mm long, 0.5 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate or elliptic, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous, rough above. Lower glume apex acute or acuminate. Upper glume linear or lanceolate, 3.5–5.5 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface smooth or asperulous, rough above. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma elliptic or oblong, 2–2.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pilose, hairy below. Lemma apex truncate, awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or geniculate, 1–8.5 mm long overall, with a straight or slightly twisted column. Palea elliptic or oblong, 0.5–1 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.2–0.5 mm long, pilose, with 1 mm long hairs.

**Flower and Fruit.** Lodicules 2, lanceolate, 0.5 mm long, membranous, acute. Anthers 3, 0.6–1.2 mm long. Caryopsis with adherent pericarp, 1.3–1.8 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand South I.

**Agrostis pilosula** Trin. *Mem. Acad. Petersb. Ser. 6*, 4(3–4) 372. (1845).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from India. **Basionym or Replaced Name:** *Agrostis royleana* Trin., *Mem. Acad. Petersb. Ser. 6* (6) 2: 371 (1841). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Huttoo: *Royle 72* (LE holo).

**Recent Synonyms:** *Calamagrostis ciliata* Steud., *Syn. Pl. Gram.* 193 (1854). *Lachnagrostis scabra* Nees ex Trin., *Mem. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 6,4(3–4): 372 (1841)

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills* (1996) (779, Pl. 779), H.J.Noltie, *The Grasses of Bhutan* (2000) (605, Fig. 26), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (as *Lachnagrostis scabra*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 458).

**Derivation** (Clifford & Bostock 2007): *L. pilus*, a hair; -osa, abundance. -ula, diminutive.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 30–75 cm long, without nodal roots or rooting from lower nodes. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades 15–30 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough on both sides, glabrous or pubescent, sparsely hairy, hairy adaxially. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or ovate, dense or loose or effuse, (5–)10–30 cm long. Primary panicle branches 2–5 -nate, whorled at most nodes. Panicle branches flexuous, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.7–5.5 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–5 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5–3.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent or extending close to apex. Lemma surface pubescent. Lemma apex truncate,

awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 4–6 mm long overall, with twisted column. Palea 0.25–0.33 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75–1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

$N = 21$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. Western Asia, China.** Iran. China South Central, Qinghai. **Indian Subcontinent, Indo-China.** Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka, West Himalaya.

**TDWG4.** Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Punjab, Tamilnadu, Uttah Pradesh. Himachal Pradesh.

### **Agrostis pittieri** Hack. *Oesterr. Bot. Zeitschr.* 52(2) :60.1902.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Costa Rica, Potero del Alto: Pittier 2985 (W syn, US) ; Costa Rica, Potero del Alto: Pittier 334 (W syn, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Henry Francois de Fabrega Pittier (1857–1950) Swiss botanist and civil engineer.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms 30–60 cm long, 0.5–1 mm diam., 3 -noded. Culm-nodes purple. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 2.5–3.5 mm long. Leaf-blades filiform, conduplicate, 7–15 cm long, 0.6–1 mm wide. Leaf-blade surface ribbed, scaberulous, rough abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 9–11 cm long, 0.5–1 cm wide. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 1–2 length of fertile spikelet, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.9–3.9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 2.9–3.9 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2.8–3.4 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.9–2 mm long, hyaline, without keel. Lemma lateral veins obscure, extending close to apex. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 2–3 mm long overall, without a column. Palea 0.7–1.1 mm long, 0.33–0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.2–1.5 mm long, purple. Caryopsis with adherent pericarp. Hilum linear.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Mesoamerica.** Costa Rica.

### **Agrostis platensis** L. Parodi. *Rev. Argent. Agron.* 18: 143 (1951).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.R. Parodi* 4793, 15 Dec 1922, Argentina: Buenos Aires: Distrito Federal: Belgrano (BAA; IT: SI, US-1160948, US-997292).

**Illustrations (Books):** A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (226, Fig. 59).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From La Plata Province, Argentina, or Platte River between Uruguay and Argentina.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Basal innovations extravaginal. Culms decumbent, 70–150 cm long, rooting from lower nodes. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–8 mm long, lacerate. Leaf-blades 10–25 cm long, 4–8 mm wide, flaccid. Leaf-blade surface glabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or oblong, 12–25 cm long, 1–3 cm wide. Primary panicle branches appressed, 2–6 -nate, 2–5 cm long. Panicle axis smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1 length of fertile spikelet, scabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate, awned, 1 -awned, awn 0.5–1 mm long. Upper glume lanceolate, 3 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acuminate, awned, 1 -awned, awn 0.5–1 mm long.

**Florets.** Fertile lemma ovate, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight, 1–2 mm long overall, not or scarcely exerted from spikelet. Palea 0.8 mm long, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil South. Argentina Northeast.

**TDWG4.** Buenos Aires.

### **Agrostis polypogonoides** Stapf. *Fl. Cap.*7: 549 (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Polylogon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Coast Region: Cape Div.; Muizenburg Vlei, *Wolley Cod 2349*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling *Polylogon* with respect to the inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–75 cm long. Ligule an eciliate membrane. Leaf-blades 6–12 cm long, 3–4 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or elliptic, 10–16 cm long, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform or linear, 0.5–2 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 4–5 mm long, falling entire, deciduous with the pedicel. Floret callus pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 4–5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate, awned, 1 -awned, awn 1–3 mm long. Upper glume lanceolate, 4–5 mm long, 2–2.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acuminate, awned, 1 -awned, awn 1–3 mm long.

**Florets.** Fertile lemma oblong, 2 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3 mm long overall, with twisted column. Palea 1 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Northern Cape, Western Cape.

**Agrostis pourretii** Willd. *Ges. Naturf. Fr. Berl. Mag.* 2: 290 (1808).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Pierre Andri Pourret de Figeac (1754–1818) French cleric and botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 30–65 cm long, 3–5 -noded. Culm-internodes smooth. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 3.5–5 mm long, lacerate. Leaf-blades flat or conduplicate, 3–9 cm long, 1.5–2 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 4–18 cm long, 0.5–6 cm wide. Primary panicle branches 4–7 -nate, whorled at most nodes. Panicle axis smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–3.1 mm long, 0.25–1 length of fertile spikelet, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.7–3.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.7–3.2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.7–3.2 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 0.8–1.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3–4.8 mm long overall, with twisted column. Palea 0.1 mm long, 0.1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.7–1.4 mm long. Caryopsis with adherent pericarp, 0.8–0.9 mm long. Hilum linear.

*N* = 7 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Corsica, France, Portugal, Sardinia, Spain. : Italy, Sicily. **Northern Africa, Macaronesia.** Algeria, Morocco. Madeira.

**Agrostis producta** Pilger. *Engl. Jahrb.* 9: 600 (1907).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Kenya, Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mau plateau: *F.D. 14* (B syn, EA); Tanzania, Kilimanjaro: *Volkens 1156* (B syn).

**Illustrations (Books):** R.M.Pollhill, F.T.E.A., *Gramineae* (1(1970):109, Fig.36), G.V.Pope et al., *Flora Zambesiaca* 10 (1(1970):109, Fig. 36).

**Derivation** (Clifford & Bostock 2007): *L. produco*, extend. Rhachilla drawn out.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 30–80 cm long, 2–4 -noded. Ligule an eciliate membrane. Leaf-blades flat or involute (rarely), 3–25 cm long, 1–3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or ovate, dense or loose, 5–20 cm long. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.5–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 3.5–4.5 mm long, 1.7–1.8 length of adjacent fertile lemma,

membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pilose. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.25 way up back of lemma, geniculate, 4–7 mm long overall, with twisted column. Palea 1 length of lemma, hyaline, 2 -veined. Palea apex with excurrent keel veins. Rhachilla extension 0.3–0.7 length of fertile floret (1–3mm), pilose, hairy below.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. DRC. Sudan. Kenya, Tanzania, Uganda. Malawi, Zambia, Zimbabwe.

**Agrostis propinqua** S.W.L.Jacobs. *Telopea* 9(3): 681 (2002).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: New South Wales: Southern Tablelands: Diggers Creek Valley, Snowy R. Hydro-Electric Authority, growing on dry mineral soil of road embankment, 1954, *M. Mueller 1900* (HT: NSW-506463).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (110).

**Derivation** (Clifford & Bostock 2007): L. near to. Similar to another species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes absent or short. Culms erect or geniculately ascending, slender, 40–80 cm long, 4 -noded. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 2–5 mm long, erose. Leaf-blades flat or involute, 1.5–4 mm wide. Leaf-blade surface ribbed, grooved adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or ovate, 10–35 cm long, with spikelets clustered towards branch tips. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.8–2 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1.8–2 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.8–2 mm long, 1–1.4 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, 1.25–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex emarginate or truncate, mucous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.3–0.5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, A.C.T., Victoria.

**TDWG4.** Tablelands.

**Agrostis pubicallis** Keng ex Y.C. Yang. *Bull. Bot. Res. North-East. Forest. Inst.*, 4(4): 101 (1984).

Regarded by K as a synonym (*A.hookeriana*).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Sichuan: Kangding Xian, 3700–4600 m, 29 Aug. 1934, *C.S. Liu 1429* (HT: ?).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 30 cm long, 0.5–0.7 mm diam., 3–4 -noded. Culm-internodes smooth. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–5 mm long, lacerate, obtuse. Leaf-blades flat or involute, 7–9 cm long, 1.5 mm wide. Leaf-blade surface scaberulous. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 7–12 cm long, 3–8 cm wide. Primary panicle branches spreading, 2 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–4.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3.5–4.4 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3.5–4.4 mm long, membranous, purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 2.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 4–5 mm long overall, with twisted column. Palea 0–0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp, oblong, 1.7–1.8 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Sichuan.

**Agrostis quinqueseta** (Steud.) Hochst. *Flora* 38:285 (1855).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ethiopia. **Basionym or Replaced Name:** *Anomalotis quinqueseta* Steud., *Syn. Pl. Gram.* 198 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.H.W. Schimper s.n.*, 1850, Ethiopia (P; IT: US-75397 (fragm. ex P)).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (48, Fig. 22).

**Derivation** (Clifford & Bostock 2007): L. quinque, five; seta, bristle. Lemma five-awned.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect, 15–70 cm long. Ligule an eciliate membrane. Leaf-blades 4–25 cm long, 2–4 mm wide, stiff. Leaf-blade surface glabrous or pilose, sparsely hairy.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear, 4–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 3–4.5 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume primary vein scaberulous. Lower glume surface smooth. Lower glume apex acute. Upper glume lanceolate, 2.5–4 mm long, 1.2–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume surface smooth. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface glabrous or pubescent. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 3.5–5 mm long overall, with twisted column. Palea 0.6–0.7 length of lemma, hyaline, 2 -veined. Rhachilla extension 0–0.2 length of fertile floret, pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. West-central tropical Africa, Northeast tropical Africa, East tropical Africa.** Cameroon, Rwanda, DRC. Ethiopia (inc. Eritrea). Kenya, Uganda.

**Agrostis reuteri** Boiss. *Voy. Espagne*, 2: 645. (1845).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *A. capillaris* Desf. In *erვის et arenosis regionis calidae et montanae*, in provincia Malacitana Prolongo, prope Estepona Haenseler.,

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.



**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 35–70 cm long, 3–5-noded. Culm-internodes smooth. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2.5–4.5 mm long, lacerate, obtuse. Leaf-blades flat, 5–17 cm long, 1–2.5 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic or ovate, effuse, 10–20 cm long, 2–8 cm wide. Primary panicle branches 2–6-nate, whorled at most nodes. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–7 mm long, 1.1–1.4 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.4–1.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.4–1.8 mm long, 1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.4–1.8 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 0.9–1.3 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, mucicous. Palea 0.7–0.8 mm long, 0.6–0.75 length of lemma, hyaline. Palea apex erose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.9–1.2 mm long. Caryopsis with adherent pericarp, 1 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Europe, Africa, and South America.

**Region.** Southwestern Europe.

**Country /Province /State.** : Spain. **Northern Africa** and **Macaronesia**. Algeria, Morocco, Tunisia. Azores. **Southern South America**.

**Agrostis rigidula** Steud. *Syn. Pl. Gram.* 171. [Aug.] (1854).

Regarded by K as a synonym (*A. infirma*).

**Accepted by:** T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Indonesia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Java: *Zollinger 2589*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. rigidus*, stiff; -ula, diminutive. Plant with stiffly erect inflorescence branches or leaf-blades.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes absent or short. Basal innovations extravaginal or intravaginal. Culms erect or geniculately ascending, 40–85 cm long, rooting from lower nodes. Leaf-sheaths smooth. Ligule an eciliate membrane, 4–7 mm long, erose, truncate or obtuse or acute. Leaf-blades flat or involute, 10–25 cm long, 3–6.5 mm wide. Leaf-blade surface smooth or scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or elliptic, 15–30 cm long. Primary panicle branches 2–11 cm long. Panicle branches smooth or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.5–4.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.1–0.3 mm long, 0.1 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.5–4.1 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.4–4 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 1.2–3.25 mm long, hyaline, without keel, 5-veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate or obtuse or acute, mucicous or awned, 1-awned. Principal lemma awn dorsal, arising 0.3–0.8 way up back of lemma, geniculate, 2–4 mm long overall, with twisted column. Palea 0.1–2 mm long, 0.1–0.75 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.55–1.4 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China, Eastern Asia. Taiwan. Malesia, Papuaia. Borneo, Java, Lesser Sunda Is, Sumatra, Sulawesi, Philippines. New Guinea.

**Agrostis rosei** Scribn. & Merrill. *U.S. Dept. Agric. Bull. Agrost.* 24: 21. (1901).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.N. Rose* 2373, 18 Aug 1897, Mexico: Zacatecas: Sierra Madre mountains, [between Huasemote, Durango, and San Juan Capistrano] (US-301286; IT: NY-327649).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph Nelson Rose (1862–1928) who collected widely in the Americas.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–40 cm long. Ligule an eciliate membrane, 2 mm long. Leaf-blades 5–8 cm long, 2–3 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–15 cm long, 6–12 cm wide. Primary panicle branches spreading, whorled at lower nodes, 5–6 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, flexuous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.2 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate or ovate, 2–2.2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate or ovate, 2–2.2 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5 mm long, hyaline, without keel. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 1.5 mm long overall, with twisted column. Palea 1.3 mm long, 0.75 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.8–1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Northeast Mexico.

**TDWG4.** Durango, Zacatecas.

**Agrostis rossiae** Vasey. *Contrib. U. S. Nat. Herb.* 3: 76. (1892).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *E.A. Ross s.n.*, Jul 1890, USA: Wyoming (US-556216).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (658).

**Derivation** (Clifford & Bostock 2007): in honor of Edith A. Ross (fl. 1885–95) United States amateur botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 9–15 cm long. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths loose. Ligule an eciliate membrane, 1–2 mm long, erose. Leaf-blades flat or conduplicate, 1–2.5 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 5–6 cm long, with spikelets clustered towards branch tips. Primary panicle branches ascending, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 2–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate,

2–2.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 4 -fid, truncate, muticous. Palea 0.6 mm long, 0.4–0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.4–0.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA. Wyoming.

### **Agrostis rupestris** All. *Fl. Pedem.* 2: 237. (1785).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Italy. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Italy: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. rupes*, rock; -estre, place of growth; Growing amongst rocks.

**Classification.** Subfamily Pooideae. Tribe: Poae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 10–20 cm long, 2(–3) -noded. Culm-internodes smooth. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, lacerate, acute. Leaf-blades filiform, convolute, 1.5–5 cm long, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 3–5 cm long, 1–3 cm wide. Primary panicle branches ascending, 3–5 -nate, whorled at most nodes. Panicle axis smooth. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, 1.5–3.5 mm long, 0.75–1 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–3.5 mm long, 1.1–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.8–2.2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 5 mm long overall, with twisted column. Palea 0.2 mm long, 0.1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1–1.3 mm long. Caryopsis with adherent pericarp, 1.5 mm long. Hilum linear.

$2n = 14$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Austria, Czechoslovakia, Germany, Switzerland. : Corsica, France, Spain. : Albania, Bulgaria, Italy, Romania, Yugoslavia. Northwest European Russia, Ukraine. **Northern Africa.** Morocco.

**TDWG4.**

### **Agrostis salaziensis** C. Cordem. ex J. Cordem. *Fl. Ile Peunion* 124 (1895).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Reunion. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Reunion: Salazes.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Salazes, Le Reunion, Mascarenes.

**Classification.** Subfamily Pooideae. Tribe: Poae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–60 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2 mm long. Leaf-blades 10–20 cm long, 2–8 mm wide. Leaf-blade surface scabrous, rough abaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate, hardened.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 7–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–5 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4–5 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 3–3.5 mm long overall, with twisted column. Palea ovate, 0.3 mm long, 0.15 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Caryopsis with adherent pericarp, 1.7 mm long. Embryo 0.2–0.25 length of caryopsis.

**Distribution (TDWG).** **Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Reunion.

**Agrostis salsa** Korsh. *Acta Hort. Petrop.* 40: 135 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Urals, Khalilovo: *Litvinov 2690* (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. saline*. Growing in salty soils.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 20–70 cm long. Culm-internodes smooth. Ligule an eciliate membrane, 2.5–4.5 mm long. Leaf-blades filiform, involute, 0.5–2 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 4–8 cm long, 0.5–1 cm wide. Primary panicle branches appressed, 3–5 -nate. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2 mm long, 1.3–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.2–1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex truncate, muticous. Palea 0.7 mm long, 0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** **Continent.** Europe, Temperate Asia.

**Region.** Eastern Europe.

**Country /Province /State.** Central European Russia, East European Russia, South European Russia. Siberia. West Siberia.

**TDWG4.**

**Agrostis sandwicensis** Hillebr. *Fl. Haw. Isl.* 515. (1888).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

**TYPE** from Hawaii. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Hawaii, Maui & Oahu: Coll?.

**Illustrations (Books):** W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1493, Pl. 218).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From the Sandwich, now Hawaiian Islands.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 30–50 cm long. Culm-internodes antrorsely scabrous. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 3 mm long, acute. Leaf-blades involute, 1–2 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 5–10 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acuminate. Upper glume lanceolate, 3–4 mm long, 1.5–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 0.5–4 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Pacific.

**Country /Province /State.** North-central Pacific. Hawaii.

***Agrostis scabra*** Willd. *Sp. Pl.* 1: 370. (1797).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: North America: Coll?.

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (195, Fig. 68), K.F.Best, et al, *Prairie Grasses* (1971) (51), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (648), F.W.Gould, *The Grasses of Texas* (1975) (142, Fig. 70).

**Derivation** (Clifford & Bostock 2007): *L. rough* or gritty to the touch. Plants with rough leaf-blades, spikelets or stems.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–60 cm long. Ligule an eciliate membrane, 1.5–4 mm long. Leaf-blades 0.5–3 mm wide.

**Inflorescence.** Inflorescence a panicle, deciduous as a whole. Panicle open, ovate, effuse, 7–30 cm long, with spikelets clustered towards branch tips. Primary panicle branches spreading, rebranched above middle, 5–15 cm long. Panicle branches capillary, flexuous, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.2–3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 2.2–3 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, 0.9–1.2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex muticous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6 mm long. Caryopsis with adherent pericarp.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, North America, South America.

**Region.** Northern Europe (\*), Middle Europe, Eastern Europe.

**Country /Province /State.** : Great Britain. : Austria, Germany. Russian far east, **China, Eastern Asia.** Amur, Kamchatka, Khabarovsk, Kuril Is, Magadan, Primorye, Sakhalin. Japan. Japan Hokkaido, or Honshu. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Aleutian Is, Alaska, Yukon, Northwest Territories, Nunavut, Greenland. Alberta, British Columbia, Manitoba, Saskatchewan. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, Oklahoma, South Dakota, Wisconsin. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Arizona, California, Nevada, Utah. Texas. Florida. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Southern South America.** Chile Central.

**TDWG4.** Neuquén, Río Negro. La Araucanía. Mexico State, Morelos, Puebla, Tlaxcala. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato. Veracruz. Baja California. Jalisco, Michoacan, Oaxaca. Chiapas.

**Agrostis scabrifolia** Swallen. *Contrib. U. S. Nat. Herb.* 29: 264 (1948).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia, Santander: Cuatrecasas et al. 12608 (US holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. scaber, rough; folium, leaf. Leaf-blades rough.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 55 cm long. Culm-internodes antrorsely scabrous. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, scaberulous. Ligule an eciliate membrane, 2.5–5 mm long, scaberulous on abaxial surface, entire or erose, obtuse or acute. Leaf-blades erect, 10–15 cm long, 2–3 mm wide, stiff. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–15 cm long, 8 cm wide. Primary panicle branches ascending, 2–4 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.8–3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2.8–3 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.8–3 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, curved, 4 mm long overall. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, 0.7 mm long, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Agrostis schaffneri** Fourn. *Mexic. Pl.* 2: 94. 1886.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Tacubaya: Schaffner 308 (P syn) ; Mexico, Valle de Mexico: Schaffner 86 (LE syn).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Wilhelm Darmstadt Schaffner ( -1802) who collected in Mexico.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary or caespitose. Culms erect, 60–80 cm long. Culm-internodes smooth. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades 12–18 cm long, 2–4 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, oblong, 15–30 cm long. Primary panicle branches ascending or spreading, whorled at most nodes, 6–12 cm long. Panicle axis scabrous. Panicle branches stiff, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, 1.6–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, mucous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Southwest Mexico.

**TDWG4.** Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Queretaro. Michoacan, Oaxaca. Chiapas.

**Agrostis schlechteri** Rendle. *Journ. Bot.* 380. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa: *Schlechter 10274* .

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Friedrich Richard Rudolf Schlechter (1872–1925) German-born botanist and traveller.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms 3–65 cm long. Ligule an eciliate membrane. Leaf-blades 1–10 cm long, 2–2.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 1–15 cm long. Primary panicle branches ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3–3.5 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2–2.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pilose. Lemma apex dentate, 4 -fid, truncate, awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 4 mm long overall, with twisted column. Palea 0.66 length of lemma, hyaline, 2 -veined. Rhachilla extension 1.5–2.5 mm long, 0.5–0.75 length of fertile floret, pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Western Cape.

**Agrostis schleicheri** Jord. & Verlot. *F. Schultz, Arch. Fl. Fr. et Allem.* 339, 347 (1855).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from France. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: France, Jura, Reculet: *Verlot*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Johann Christoph Schleicher (1768–1834) Swiss botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–30 cm long. Culm-internodes smooth. Ligule an eciliate membrane, 2–4 mm long, acute. Leaf-blades filiform, 5–10 cm long, 0.5–1.5 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 1–6 cm long. Primary panicle branches appressed. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–5 mm long, 1.3–1.5 length of upper glume, membranous, pallid, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–4 mm long, 1 length of adjacent fertile lemma, membranous, pallid, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2–4 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.05 way up back of lemma, geniculate, 5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.5–2 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe.

**Region.** Middle Europe, Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Austria, Germany, Switzerland. : France, Spain. : Italy.

**Agrostis schmidii** (Hook.f.) Bor. *Grasses Burma, Ceyl., Ind. & Pakist.* 389 (1960).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Calamagrostis schmidii* Hook. f., *Fl. Brit. Ind.* 7: 264 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Ootacamund: Schmid (K holotype).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Ludwig Bernhard Ehregott Schmid (1788–1859) German-born Indian missionary and plant collector.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Rhizomes short. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms geniculately ascending, 20–25 cm long. Ligule an eciliate membrane. Leaf-blade base with a false petiole, petiole 0.3–0.5 cm long. Leaf-blades 5–7.5 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 3–4 cm long. Primary panicle branches 1–2 -nate. Panicle branches capillary, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3–3.5 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pilose. Lemma apex dentate, 4 -fid, with outer lobes longer, awned, 1 -



awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 3–5 mm long overall, with a straight or slightly twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Tamilnadu.

**Agrostis schneideri** Pilger. *Fedde, Repert.* 17: 130 (1921).

Regarded by K as a synonym (*A. nervosa*).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China, Lichiang: Schneider 2326 (K iso).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Camillo Karl Schneider (1876–1951) German botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms erect or geniculately ascending, 25–30 cm long, 1–2 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades flat or involute, 5–8 cm long, 1 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 5–9 cm long. Primary panicle branches ascending, 2–3 -nate, 1–3 cm long. Panicle axis smooth or scaberulous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2–2.1 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–2.1 mm long, 1.5–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1–1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 2 -fid, mucicous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Sichuan.

**Agrostis sclerophylla** C. E. Hubbard. *Kew Bull.* 1936, 310 (1936).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ethiopia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: : Based on *Sporobolus alpicola* .

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (48, Fig. 22).

**Derivation** (Clifford & Bostock 2007): Gk. skleros, hard; phyllon, leaf. Leaf-blades indurate or coriaceous.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, cushion forming. Culms erect, 2–6 cm long. Ligule an eciliate membrane. Leaf-blades aciculate, involute, 0.5–2 cm long, 0.5–1 mm wide, stiff.

**Inflorescence.** Inflorescence a panicle, comprising 5–12 fertile spikelets. Panicle open, ovate, 1 cm long, bearing few spikelets. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 2.5–3 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.2–2.7 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–2.25 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, mucicous or mucronate. Principal lemma awn dorsal, arising 0.5 way up back of lemma. Palea 0.75 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea). Kenya.

**Agrostis serranoi** R. Phil. Anal. Univ. Chil. 94: 12. (1896).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Rio Palena: Philippi 178 (SGO holo, BAA, W).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of A. Serrano (prior to 1886) who collected in South America.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations extravaginal. Culms erect, 20–60 cm long, 2 -noded. Lateral branches lacking. Leaf-sheaths smooth. Ligule an eciliate membrane, 2.5–5 mm long, scaberulous on abaxial surface, erose. Leaf-blades 3–8 cm long, 2–3 mm wide. Leaf-blade surface smooth or scabrous, rough on both sides. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Peduncle smooth. Panicle open, lanceolate, 8–20 cm long, 2–8 cm wide, with spikelets clustered towards branch tips. Primary panicle branches appressed or ascending, 2–3 -nate, whorled at most nodes, rebranched at middle. Panicle branches flexuous, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–15 mm long, smooth or scaberulous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.3–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, hairy in 2 tufts. Floret callus hairs 0.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2.3–3 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.3–3 mm long, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.7–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex mucicous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, straight, 1–2 mm long overall. Palea 0.5–0.7 mm long, hyaline.

**Flower and Fruit.** Lodicules 2, 0.5–0.6 mm long, membranous. Anthers 3, 0.4–0.5 mm long. Caryopsis with adherent pericarp, sulcate on hilar side, 1–1.2 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Chile Central, Chile South.

**TDWG4.** Chubut, Neuquén, Río Negro, Santa Cruz. Chiloe, Aisen, Magellanes. Valparaiso, La Araucania. Los Lagos, Aisen, Magellanes.

**Agrostis shandongensis** F.Z. Li. *Bull. Bot. Res. North-East. Forest. Inst.*, 11(2): 27 (1991).

Regarded by K as a synonym (*A. infirma*).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Shandong, Kunyushan: Zhang 88232.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Shandong Province, China.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China North-Central.

**TDWG4.** Shandong.

**Agrostis sichotensis** N.S. Probatova. *Bot. Zhurn.*, 69(2) : 252 (1984).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Ternej, Abrek: Schauljskaja (VLA holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Sichote-Alinji Mountains, Siberia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 45–50 cm long, 1.5–2 mm diam. Culm-internodes smooth. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, (2.5–)3.5–4.5 mm long. Leaf-blades 2–3.5 mm wide, grey-green. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle, comprising 90–150 fertile spikelets. Panicle contracted, lanceolate or oblong, 15 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, (2.7–)3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, (2.7–)3–3.5 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 4.2 mm long overall, with twisted column.

**Flower and Fruit.** Anthers 3, 1.6–1.8 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Russian far east. Primorye.

**Agrostis sinkiangensis** Y.C. Yang. *Bull. Bot. Res. North-East. Forest. Inst.* 4(4): 98 (1984).

Regarded by K as a synonym (*A. dshungarica*).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China, Nilka Xian: Guan 3968.

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms 20–50 cm long, 2–4 -noded. Leaves cauline. Leaf-sheaths mostly shorter than adjacent culm internode, smooth. Ligule an eciliate membrane, 2 mm long. Leaf-blades 4–10 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 7–10 cm long, 0.3–1 cm wide. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–4.2 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate or oblong, 3.5–4.2 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate or oblong, 3.5–4.2 mm long, membranous, purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–3.2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 3 mm long overall, with twisted column. Palea 1.4–1.6 mm long, 0.66 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Xinjiang.

**Agrostis sinocontracta** S.M.Phillips & S.L.Lu. *Fl. China* 22: 347 (2006).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *A. contracta* Yang ; China, Yunnan, Bijiang Xian: Coll. 58618.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 470).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms 30–50 cm long, 1–1.5 mm diam., 3–4 -noded. Culm-internodes scaberulous. Leaves cauline. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades 10–13 cm long, 3–5 mm wide. Leaf-blade surface scabrous. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 10–15 cm long, 3 cm wide. Primary panicle branches 5–10 -nate, whorled at most nodes. Panicle branches smooth, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth, glabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.5–3 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5–1.7 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, geniculate, 3 mm long overall, with twisted column. Palea 0.3 mm long, 0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, oblong, 0.6 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Yunnan.

**Agrostis sinorupestris** L.Liu ex S.M.Phillips & S.L.Lu. *Fl. China* 22: 346 (2006).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Yunnan, Lijiang Snow Range: Rock 10774 (US holo).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 469).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, slender, 12–20(–30) cm long, 0.5 mm diam., 2–3 -noded. Leaf-sheaths mostly shorter than adjacent culm internode. Ligule an eciliate membrane, 0.5 mm long, truncate or obtuse. Leaf-blades flat or involute, 3–15 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 3–8 cm long. Primary panicle branches 2–6 -nate, whorled at most nodes, 2–4 cm long. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.8–3.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3.2 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3.5–5 mm long overall, with a straight or slightly twisted column. Palea 0.4–0.6 mm long, 0.2–0.5 length of lemma, hyaline.

**Flower and Fruit.** Anthers 3, 0.6–0.8 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, Tibet.  
**TDWG4.** Sichuan, Yunnan.

**Agrostis sodiroana** Hack. *Oesterr. Bot. Zeitschr* 52(2) :61 (1902).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ecuador. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Ecuador, Pichincha: Sodiro 23/3 (W holo, QPLS, S).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. in honor of Luigi Sodiro (1836–1909) Italian-born Ecuadorian cleric and amateur botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–60 cm long. Culm-internodes distally glabrous. Ligule an eciliate membrane, 4–5 mm long. Leaf-blades 10–20 cm long, 2–5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 10–20 cm long, with spikelets clustered towards branch tips. Primary panicle branches drooping. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 1.8–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, straight, 2 mm long overall. Palea 1 mm long, 0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** **Continent.** South America.

**Country /Province /State.** **Western South America.** Ecuador, Peru.

**Agrostis sozanensis** Hayata.  *Ic. Pl. Formos.* 7: 85 (1918).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Taiwan. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Taiwan, Sozan: Coll?.

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (248), C-C Hsu, *Taiwan Grasses* (1975), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 468).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Sozan, Taihoku, Taiwan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect or geniculately ascending, 45–90 cm long, 1–1.2(–2.5) mm diam., 3–5 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–6 mm long, truncate or obtuse. Leaf-blades 7–20 cm long, 2–5 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic or ovate, 15–30 cm long. Primary panicle branches ascending, 2–4(–10) -nate, 5–10 cm long. Panicle branches capillary, flexuous, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 1.8–2.7(–3) mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.1–0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 1.8–3 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong or ovate, 1.3–2 mm long, hyaline, without keel, 4–5 -veined, more than 3-veined. Lemma apex truncate or obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.66 way up

back of lemma, straight or curved, 1–2(–3) mm long overall. Palea 0.25–0.5 mm long, 0.25–0.33 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Anthers 3, 0.7–1.2 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China, Eastern Asia. China South Central, China Southeast. Taiwan.

**TDWG4.** Anhui, Fujian, Guangdong, Henan, Hunan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan.

### **Agrostis stolonifera** Leers, non L.(1753). *Fl. Herbora* :20 (1775).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (& as *A. maritima*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

**TYPE** from Europe. **Basionym or Replaced Name:** *Agrostis transcaspica* Litw. *Sched. Herb. Fl. Ross.* 8: 146 (1922), *A. palustris* Huds., *Fl. Angl.* 27 (1762). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Herb. A. van Royen*, Europe (L-912.356–55). LT designated by Widin, *Fl. Fenn.* 5: ? (1971).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (304), L.Boulos, *Flora of Egypt* 4 (2005) (173, Pl. 48), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (as *A. albida*), H.J.Noltie, *The Grasses of Bhutan* (2000) (605, Fig. 26), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (184, Fig 132), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (111), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (133, Fig. 20), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1493, Pl. 218), K.F.Best, et al, *Prairie Grasses* (1971) (49 & 53 as *A. palustris*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (642), S.A.Renvoize, *Gramineas de Bolivia* (1998) (178, Fig. 43), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (372, Fig. 246), B.Rosengurt, *Gramineas Uruguayas* I (1970) (20, Fig. 2 as *A. palustris*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 459), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:9(1980)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002); E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);

**Derivation** (Clifford & Bostock 2007): L. stolo, shoot; fero, bear. Plant with well developed underground stems.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Stolons present. Culms geniculately ascending or decumbent, 8–40 cm long, 2–5 -noded, rooting from lower nodes. Culm-internodes smooth. Leaf-sheaths without keel, smooth. Ligule an eciliate membrane, 1–6 mm long, obtuse. Leaf-blades 1–10 cm long, 0.5–5 mm wide. Leaf-blade surface ribbed, scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear or lanceolate or oblong, continuous or interrupted, dense or loose, 1–13 cm long, 0.4–2.5 cm wide. Primary panicle branches whorled at most nodes. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 0.5–2 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic to oblong, 1.5–2.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex obtuse. Palea oblong, 0.6–0.8 length of lemma, hyaline, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 1–1.5 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, ellipsoid, isodiametric, biconvex, estipitate, without sulcus, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum linear, 0.9 length of caryopsis. Endosperm farinose.

$N = 14$  (1 ref TROPICOS), or 21 (1 ref TROPICOS).  $2n = 28$  (14 refs TROPICOS), or 42 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Foroyar, Great Britain, Iceland, Ireland, Northern Ireland, Norway, Sweden. : Austria, Liechtenstein, Belgium, Luxembourg, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : Baleares, Corsica, Channel Islands, France, Monaco, Portugal, Sardinia, Andorra, Gibraltar, Spain, Azores. : Albania, Bulgaria, Greece, Italy, San Marino, Vatican, Crete, Romania, Malta, Sicily, Turkey Europe, Yugoslavia. Belarus, Estonia, Kaliningrad, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. **Northern Africa, Macaronesia.** Algeria, Egypt, Morocco. Azores, Cape Verde, Madeira. Siberia, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Kamchatka, Kuril Is, Primorye, Sakhalin. Kazakhstan. North Caucasus, Transcaucasus. Iran, Iraq. China South Central, Inner Mongolia, Manchuria, China North-Central, China Southeast, Tibet, Xinjiang. Mongolia. Japan. Japan Hokkaido. **Indian Subcontinent, Indo-China, Malesia.** Assam, Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka, West Himalaya. Myanmar. Sumatra. **Australia, New Zealand.** New South Wales (\*), Queensland (\*), Tasmania (\*), Victoria (\*), Western Australia (\*). Chatham Is, New Zealand North I, New Zealand South I, Stewart Is, Campbell Is, Auckland Is. **South-central Pacific (\*), Northwestern Pacific (\*), North-central Pacific (\*).** Easter Is (\*). Marianas (\*). Hawaii (\*). **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, Southeastern USA, Mexico.** Greenland. British Columbia. Labrador, Newfoundland, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, Oklahoma, South Dakota, Wisconsin. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Arizona, California, Nevada, Utah. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Costa Rica, El Salvador. Dominican Republic, Haiti, Jamaica. Bolivia, Colombia, Ecuador, Peru. Argentina Northeast, Argentina South, Chile North, Chile Central, Chile South, Juan Fernandez Is. **Subantarctic islands.** Amsterdam-St Paul Is, Falkland Is (Malvinas).

**TDWG4.** Gansu, Shaanxi, Shandong, Shanxi. Anhui. Guizhou, Yunnan. Bhutan, Sikkim. Meghalaya. Tamilnadu, Uttah Pradesh. Himachal Pradesh, Jammu Kashmir. Coast, Tablelands. Mendoza. Buenos Aires, Cordoba, La Pampa. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Tarapaca. Coquimbo, Valparaiso, Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes. Distrito Federal, Mexico State, Puebla, Tlaxcala. Hidalgo. Veracruz. Jalisco. Chiapas.

**Agrostis striata** Colenso. *Trans. N. Z. Inst.* 21: 107. (1889).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Lachnagrostis striata* (Colenso) Zotov, *Rec. Domin. Mus., N. Zeal.* 5: 142 (1965). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand, Lake Waikaremoana: Hill (AK holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. stria*, furrow; -ata, possessing. Glumes and lemmas streaked.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Basal innovations extravaginal. Culms erect or geniculately ascending, 5–15 cm long. Culm-internodes retrorsely scabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 1–3 mm long, scaberulous on abaxial surface, erose, obtuse. Leaf-blades conduplicate, 2–10 cm long, 0.8–2 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle, deciduous as a whole. Panicle open, elliptic, 2–10 cm long, 1.5–7 cm wide. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.2–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.3 mm long, 0.25 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume linear or lanceolate, 1.05 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate or elliptic, 2.2–3.5 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, 1.2–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex truncate, awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, straight, 0.2–2 mm long overall. Palea 0.66–1 length of lemma, hyaline, 2 -veined. Palea apex with excurrent keel veins. Rhachilla extension 0.5 mm long, pubescent, with 0.5 mm long hairs.

**Flower and Fruit.** Lodicules 2, linear, membranous, acute. Anthers 3, 0.2–0.5 mm long. Caryopsis with adherent pericarp, 0.8–1.4 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand North I, New Zealand South I.

**Agrostis subpatens** Hitchcock. *N. Am. Fl.* 17: 527 (1937).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Costa Rica, Cerro de la Muerte: Pittier 10470 (US holo).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (37, Fig. 37).

**Derivation** (Clifford & Bostock 2007): L. sub, approaching.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 20–50 cm long, 0.5–1 mm diam., 2 -noded. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades erect, filiform, conduplicate, 5–15 cm long, 0.6 mm wide. Leaf-blade surface ribbed, scaberulous, rough abaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle 3–5 cm long. Panicle open, ovate, 8–9 cm long. Primary panicle branches spreading, 2–8 -nate, whorled at most nodes. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–2 length of fertile spikelet, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.9–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 2.9–3.7 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2.5–3.5 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.7–2.2 mm long, hyaline, without keel. Lemma lateral veins extending close to apex. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 3 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1–1.5 mm long, purple. Caryopsis with adherent pericarp, ovoid, 1.3–1.4 mm long. Hilum linear.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica.** Costa Rica, Guatemala.

Distrito Federal, Mexico State, Puebla, Tlaxcala. Hidalgo. Veracruz. Jalisco. Chiapas.

**Agrostis subrepens** (Hitchcock) Hitchcock. *N. Am. Fl.* 17: 525 (1937).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Mexico. **Basionym or Replaced Name:** *Agrostis hyemalis* var. *subrepens* Hitchc., *Bull. US Dept. Agric. Bur. Pl. Ind.* 68:44 (1905). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Sierra Madre: Pringle 1420 (K iso, NY).

**Illustrations (Books):** No illustration found (BKS).



**Derivation** (Clifford & Bostock 2007): L. sub, approaching. L. repo, crawl. Rhizome well developed.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 60–100 cm long, 3–4 -noded, with 0.5 of their length below uppermost node. Culm-internodes smooth. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades involute, 1–1.3 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex hardened.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 12–18 cm long, 10–15 cm wide. Primary panicle branches spreading, whorled at most nodes, 6–8 cm long. Panicle axis smooth. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 2.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, muticous. Palea 0.3 mm long, 0.1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Northeast Mexico. **Northern South America, Western South America.** Bolivia, Colombia, Ecuador.  
Chihuahua.

### **Agrostis subulata** Hook. f. *Fl. Antarct.* 95. (1845).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand, Campbell's Is.: *Hooker 1627* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. subulus, a fine point; -ata, possessing. Glumes, lemmas or calluses sharply tapered.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms 3–9 cm long. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 0.8–1 mm long, scaberulous on abaxial surface, erose. Leaf-blades involute, 1.5–4 cm long, 0.3–0.6 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle, aerial or shorter than basal leaves. Peduncle antrorsely scabrous above. Panicle spiciform, oblong, 1–2 cm long. Primary panicle branches appressed. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–3.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2–3.3 mm long, 1 length of upper glume, membranous, light green, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 2–3.3 mm long, membranous, light green, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.3–1.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma margins scabrous. Lemma apex erose, truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 1–2 mm long overall. Palea 0.3–0.4 mm long, 0.25 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.4 mm long, membranous. Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

*N* = 21 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. Campbell Is, Auckland Is.

**Agrostis subulifolia** Stapf. *Kew Bull.* 1910, 130. (1910).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa, Doodmans Krans Mt.: *Galpin 6910* ; South Africa, Wittebergen: *Galpin 6911* .

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. subulus*, fine sharp point; folium, a leaf. Leaf-blades narrow, tapering.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms weak, 5–30 cm long. Ligule an eciliate membrane. Leaf-blades filiform, conduplicate, 1–7 cm long, 0.5–1 mm wide, stiff.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear or lanceolate, 1.5–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2–3 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–3 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.7–2.7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex dentate, 4 -fid, truncate, mucicous or awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight, 0–1.5 mm long overall, without a column. Palea 0.66 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Kwazulu-Natal, Lesotho, Eastern Cape.

**Agrostis tandilensis** (Kuntze) L. Parodi. *Darwiniana*, 6:158 (1943).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Bromidium*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. **Basionym or Replaced Name:** *Bromidium hygrometricum* var. *tandilense* Kuntze, *Rev. Gen. Pl.* 3:343 (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina, Sierra Tandil: Kuntze (LP lecto).

**Recent Synonyms:** *Bromidium tandilense* (Kuntze) Rugolo, *Darwiniana*, 24: 202 (1982). *Agrostis kennedyana* A. A. Beetle, *Bull. Torr. Bot. Cl.* 72: 547 (1945).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (697 as *Bromidium tandilense*), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (176, Fig. 46 as *Bromidium*), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (127, Fig. 41), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (228, Fig. 60), B.Rosengurt, *Gramineas Uruguayas I* (1970) (22, Fig. 3).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Sierra de Tandil, Argentina.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 5–40 cm long. Ligule an eciliate membrane, 2 mm long. Leaf-blades 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 4–7 cm long, 0.5–0.9 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, 2 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex dentate, 4 -fid, truncate, awned, 3 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 5–5.5 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes (outer lobes), 1–1.5 mm long. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 1 (plus 2 rudiments), 0.3–0.4 mm long. Caryopsis with adherent pericarp, 1.3 mm long, dark brown. Hilum linear.

**Distribution (TDWG).** Continent. North America, South America.

**Country /Province /State.** Mexico. Northwest Mexico. **Brazil, Southern South America.** Brazil South. Argentina Northeast.

**TDWG4.** Buenos Aires, Cordoba, Corrientes, Entre Rios, Misiones. Baja California.

**Agrostis tateyamensis** Tateoka. *Bot. Mag. Tokyo*, 88 (1010): 84 (1975).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan, Mt. Tateyama: Tateoka 7397 (TNS holo, KYO, TI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Tateyama (Mt. Tate), a mountain in Toyama Prefecture, Japan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 15–30 cm long. Ligule an eciliate membrane, 0.5–2 mm long, obtuse. Leaf-blades flat or involute, 3–10 cm long, 0.5–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 5–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 1.9–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.9–2.8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.9–2.8 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 1.8–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 1.4–3.2 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5–0.8 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** Eastern Asia. Japan.

**Agrostis taylori** C. E. Hubbard. *Kew Bull.* 1937, 63 (1937).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Uganda. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uganda, Mt. Muhavura: Taylor 2133 (BM holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of William Ernest Taylor (1856–1927) English cleric who collected in tropical East Africa.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending or decumbent, 15–30 cm long. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades flat, 5–12 cm long, 1–2 mm wide. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 8–14 cm long, 1.5–5 cm wide. Primary panicle branches spreading, 2-nate, 2–5 cm long. Panicle branches stiff, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–10 mm long, smooth.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2.5–3 mm long, 1.1 length of upper glume, membranous, glandular (on veins), 1-keeled, 3 -veined. Lower glume apex obtuse or acute. Upper glume lanceolate, 2.2–2.8 mm long, 1–1.2 length of adjacent fertile lemma, membranous, glandular (on veins), 1-keeled, 3 -veined. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma elliptic, 2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface asperulous, rough above. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 2.5–4.5 mm long overall, with a straight or slightly twisted column. Palea 0.4 length of lemma, hyaline, 0–2 -veined, without keels or 2-keeled. Rhachilla extension 0.1 length of fertile floret, pubescent.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6–1 mm long. Caryopsis with adherent pericarp, 1.5 mm long. Hilum linear. Endosperm farinose.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, East tropical Africa. Rwanda, DRC. Uganda.

**Agrostis tenerrima** Trin. *Gram. Unifl.* 205 (1824).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. very thin. Culms or inflorescence branches thin.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 20–40 cm long, 4–5 -noded. Culm-internodes retrorsely scabrous. Leaf-sheaths smooth or papillose, glabrous on surface. Ligule an eciliate membrane, 1–3 mm long, lacerate, obtuse. Leaf-blades conduplicate, 1–5 cm long, 0.2–2 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 4.5–14 cm long, 2.5–8 cm wide. Primary panicle branches spreading, 4–6 -nate, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, 1.5–5 mm long, 2.5–7 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 0.6–0.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.7–5.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 0.6–0.7 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, 0.4–0.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex erose, truncate, mucous. Palea 0.1 mm long, 0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.3–0.4 mm long. Caryopsis with adherent pericarp, 0.5–0.6 mm long. Hilum linear.

$N = 7$  (2 refs TROPICOS).  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, South America.

**Region.** Northern Europe (\*), Southwestern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : France, Portugal, Spain. **Northern Africa.** Algeria, Morocco. **Mesoamerica.** Costa Rica.

**Agrostis thompsoniae** S.W.L.Jacobs. *Telopea* 9(3): 682 (2002).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New South Wales: Southern Tablelands: Creek southwest of Hedkey Tarn, Kosciuszko [as Kosciusko] National Park, in gravel on wet creek flat with *Luzula*, 6 Feb 1978, *J. Thompson* 2889 (HT: NSW-506462).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (111).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): in honor of Edward John Thompson (1949-) Australian ecologist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms erect or geniculately ascending, slender, 20–40 cm long, 2 -noded. Culm-internodes striate. Leaves mostly basal. Leaf-sheaths loose. Ligule an eciliate membrane, 3–5 mm long, obtuse. Leaf-blades 2.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or ovate, 6–12 cm long, bearing few spikelets. Panicle branches straight. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, straight, 1–2 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1.5–2.5 mm long, 1 length of upper glume, membranous, light green or purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5–2.5 mm long, 1.1–1.4 length of adjacent fertile lemma, membranous, light green or purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, 1.3–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, mucous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.4–0.5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** New South Wales, Victoria, Tasmania.

**TDWG4.** Tablelands.

**Agrostis tibestica** DeMire & Quezel. *Bull. Soc. Bot. France* 106: 137, f. 1,2.. 1958.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Chad. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chad, Tibesti, Emi Koussi: Mire.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ica*, belonging to. From Tibesti Mountains, on border of Chad and Libya.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms 30–60 cm long, 3–5 -noded. Leaf-sheaths 3–12 cm long. Ligule an eciliate membrane, 5–6 mm long. Leaf-blades flat, 5–7.5 cm long, 2.5–3 mm wide. Leaf-blade surface scaberulous, glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear. Panicle axis pubescent. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.6–0.8 mm long, pubescent, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2.4–2.6 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume

margins ciliolate. Lower glume apex acute. Upper glume lanceolate, 2.4–2.6 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume margins ciliolate. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, excurrent. Lemma surface scaberulous, rough above, glabrous. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, geniculate, 1.5 mm long overall, with a straight or slightly twisted column. Palea 0.8–1.1 mm long, 0.5 length of lemma, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, 0.5–0.6 mm long, membranous. Anthers 3, yellow.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Chad.

**Agrostis tilenii** G. Nieto Feliner & S. Castroviejo. *An. Jard. Bot. Madrid* 40(2): 472 (1984).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Spain. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: : Based on *A. exasperata* Feliner & Castro ; Spain, Mt. Tileni: Feliner 719 (MA holo).

**Recent Synonyms:** *Agrostis exasperata* G. Nieto Feliner & S. Castroviejo, non Trin. (1845), *An. Jard. Bot. Madrid*, 39(2): 382 (1983).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineae* (1981–1982) (476, Fig. 102 as *A. exasperata*), M.N. Correa, *Flora Patagonica Parte III, Gramineae* (1978) (396, Fig. 265 as *A. exasperata*).

**Derivation** (Clifford & Bostock 2007): from serra del Telino, Spain.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Basal innovations intravaginal. Culms erect, 6–17 cm long, 2–3 -noded. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 3–4 mm long, 2.5–3 mm long on basal shoots, lacerate. Leaf-blades conduplicate, 1.5–12 cm long, 0.4–1.7 mm wide, glaucous. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 1.5–8 cm long, 0.4–1 cm wide. Primary panicle branches appressed, 2–4 -nate. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 2.2–2.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous, rough above. Lower glume apex acute. Upper glume lanceolate, 2.2–2.3 mm long, 1–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous, rough above. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.5–2.3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface scabrous, rough below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 1 mm long overall, with twisted column. Palea oblong, 2 mm long, 0.2 length of lemma, hyaline, 2 -veined. Apical sterile florets 1 in number, barren, lanceolate, 0.5 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 0.5 mm long.

**Flower and Fruit.** Lodicules 2, lanceolate, 0.3 mm long, membranous. Anthers 3, 1–1.7 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp, 1.7 mm long, apex unappendaged. Hilum linear. Endosperm farinose.

$2n = 1442$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, South America.

**Region.** Southeastern Europe.

**Country /Province /State.** : Greece. **Brazil.** Brazil South.

Catarina, Rio Grande do Sul. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso.

**Agrostis tolucensis** Kunth. *Nov. Gen. et Sp.* 1: 135. (1816).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Mexico, Toluca: Humboldt & Bonpland (P holo, B, BM).

**Recent Synonyms:** *Agrostis glomerata* (Presl.) Kunth, *Enum. Pl.* 1: 219. (1830).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (657), S.A.Renvoize, *Gramineas de Bolivia* (1998) (176, Fig. 42), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (34, Fig. 6).

**Illustrations (Journals):** *Ruizia* (13:174, Fig 19a-c (1993)).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Toluca, Mexico.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, slender, 8–32 cm long, 0.5 mm diam., 1–3 -noded. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2.8–4.5 mm long. Leaf-blades erect, filiform, conduplicate, 5–10 cm long, 0.7–1 mm wide. Leaf-blade surface ribbed, scaberulous.

**Inflorescence.** Inflorescence a panicle. Peduncle 4–8 cm long. Panicle spiciform, linear, 3–10 cm long, 0.3–0.8 cm wide. Primary panicle branches appressed, 0.5–2 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–3 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.3–3.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 2.3–3.6 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2.1–3.2 mm long, 1.1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2–2.8 mm long, hyaline, without keel. Lemma lateral veins extending close to apex. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 2–2.8 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long, purple. Caryopsis with adherent pericarp. Hilum linear.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America, Southern South America.** Costa Rica, Guatemala, Panama. Bolivia, Colombia, Ecuador, Peru. Argentina Northwest, Chile North.

**TDWG4.** Catamarca, Jujuy, Salta, Tucuman. Tarapaca. Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Durango, Guanajuato. Veracruz. Guerrero, Jalisco, Oaxaca. Chiapas.

**Agrostis trachychlaena** C.E.Hubb. *Bull. Brit. Mus. (Nat. Hist.), Bot.*, 8(4): 383 (1981).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tristan da Cunha. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Tristan da Cunha, Inaccessible Is.: Christopherson 2578 (K holo, O).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *trachys*, rough; *chlaena*, cloak. Glumes scabrid.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Stolons present. Culms decumbent, 20–55 cm long. Culm-internodes terete, smooth, distally glabrous. Lateral branches ample. Leaf-sheaths longer than adjacent culm internode, striately veined, smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 1–3 mm long, lacerate. Leaf-blades 2–7 cm long, 0.5–2 mm wide. Leaf-blade surface ribbed, grooved adaxially, scaberulous, rough adaxially. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate or oblong, 1.5–5.5 cm long, 0.6–1.6 cm wide. Primary panicle branches appressed or ascending, 3–5 -nate, 0.3–1.5 cm long. Panicle axis glabrous or hispidulous. Panicle branches stiff, flexuous, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, terete, 0.3–2 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes deciduous, similar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3–4 mm long, 1.3–1.4 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 2–3 mm long, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent or distinct. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma oblong or ovate, dorsally compressed, 1.3–1.8 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent or extending close to apex. Lemma apex erose, obtuse. Palea oblong, 0.6–0.8 mm long, 0.2 length of lemma, hyaline, 2 -veined. Palea surface scaberulous. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. Antarctica.

**Country /Province /State.** Subantarctic islands. Tristan de Cunha.

**Agrostis trachyphylla** Pilger. *Notizbl. Bot. Gart. Berlin* 9: 512 (1926).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Kenya. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mt. Kenya: *Fries 1308* (K iso).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. trachys, rough; phyllon, leaf. Leaf-blades scabrid.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 6–50 cm long. Ligule an eciliate membrane. Leaf-blades filiform, involute, 5–15 cm long, 1 mm wide, stiff. Leaf-blade venation with continuous uniform subepidermal sclerenchyma layer on the underside. Leaf-blade surface scabrous, rough abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 3–15 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 3–4.5 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2.5–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface pubescent. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 3 mm long overall, with twisted column. Palea 1 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.05–0.1 length of fertile floret.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West-central tropical Africa, East tropical Africa. DRC. Kenya, Tanzania, Uganda.

**Agrostis triaristata** (Hook. f.) Bor, non Knapp (1804). *Grasses Burma, Ceyl., Ind. & Pakist.* 391 (1960).

Regarded by K as a synonym (*A. triplifera*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L. Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Deyeuxia triaristata* Hook. f., *Fl. Brit. Ind.* 7: 266. (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Sikkim, Yeumtong: Hooker (K holo).

**Recent Synonyms:** *Deyeuxa tripilifera* (Hook. f.) Keng, *Sunyatsenia*, 6: 68 (1941).

**Illustrations (Books):** H.J. Noltie, *The Grasses of Bhutan* (2000) (605, Fig. 26).



**Derivation** (Clifford & Bostock 2007): L. tres, three; arista, bristle; -ata, possessing. Spikelets with lower glume two-awned and upper glume one-awned.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, slender, 12–60 cm long, 2–3 -noded. Culm-nodes brown. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3–7 mm long, acute. Leaf-blades 4–16 cm long, 2–5 mm wide. Leaf-blade surface smooth or scaberulous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic or pyramidal, 5–16 cm long, 1–8 cm wide. Primary panicle branches spreading. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4.5–5.5 mm long, 0.8–1 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus 0.33 mm long, pubescent. Floret callus hairs 1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 4–5.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4.2–5 mm long, 1.3–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex dentate, 4 -fid, truncate, awned, 3 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 6–7.5 mm long overall, with twisted column. Lateral lemma awns present. Palea 2.2–2.5 mm long, 0.75 length of lemma, hyaline, 2 -veined. Palea keels scaberulous, adorned above. Rhachilla extension 0.4 mm long, pilose.

**Flower and Fruit.** Lodicules 2, 0.7 mm long, membranous. Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp, ellipsoid, 1.3 mm long. Hilum linear.

*N* = 14 (1 ref TROPICOS).

**Distribution (TDWG), Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent, Indo-China. Eastern Himalaya.

**TDWG4.** Darjeeling, Bhutan, Sikkim. West Bengal.

**Agrostis trichoides** (HBK) Roem. & Schult. *Syst.* 2: 361 (1817).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Vilfa trichoides* H. B. & K., *Nov. Gen. et Sp.* 1: 139 (1815). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Peru, Near Monta, Santa Cruz & Guambos: Humboldt & Bonpland (P holo).

**Illustrations (Journals):** *Ruizia* (13:174, Fig 19d-f (1993)).

**Derivation** (Clifford & Bostock 2007): Gk. thrix, hair; -odes, resembling. Leaf-blades slender.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–20 cm long. Leaves mostly basal. Ligule an eciliate membrane, 2–2.5 mm long. Leaf-blades filiform, involute, 1–3 cm long, 1 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 2–5 cm long. Primary panicle branches ascending or spreading. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, mucicous. Palea 0.66 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG), Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Colombia, Ecuador, Peru.

**Agrostis truncatula** Parl. *Fl. Ital.* 1: 185. (1848).

Regarded by K as a synonym (*A.delicatula*).

**TYPE** from Italy. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Italy, Spagna: Parlatore.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. trunco*, shorten by cutting off; -ula, indicating tendency. Ligules much reduced.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 25–50 cm long, 3–5 -noded. Culm-internodes smooth. Leaf-sheaths longer than adjacent culm internode, scaberulous, glabrous on surface. Ligule an eciliate membrane, 2–3.5 mm long, lacerate, acute. Leaf-blades curved, filiform, conduplicate, 2–6 cm long, 0.3–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic or ovate, 6–12 cm long, 2–9 cm wide. Primary panicle branches 1–3 -nate. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, 2–7 mm long, 2–6 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1–1.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1–1.2 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex truncate. Upper glume lanceolate, 1–1.2 mm long, 2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex erose, truncate.

**Florets.** Fertile lemma elliptic, 0.5–0.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, muticous. Palea 0.3–0.4 mm long, 0.6–0.7 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6–0.8 mm long. Caryopsis with adherent pericarp, 1 mm long. Hilum linear.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe.

**Region. Southeastern Europe.**

**Country /Province /State.** : Italy.

**Agrostis tsaratananensis** A. Camus. *Bull. Soc. Bot. France*, 78: 35. (1931).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Tsaratanana: *Perrier 16374* .

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (113, Fig. 34).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Mt Tsaratanana, Madagascar.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms geniculately ascending, 45–100 cm long. Ligule an eciliate membrane, 2.5–4.5 mm long. Leaf-blades 15–20 cm long, 3–5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 15–30 cm long, 10–15 cm wide. Primary panicle branches whorled at lower nodes, 5–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3.5–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume

lanceolate, 3.5–4.5 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2.5–3 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins excurrent. Lemma surface puberulous. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, straight, 4–5 mm long overall, without a column. Palea 1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Agrostis tsiafajavonensis** A. Camus. *Bull. Soc. Bot. France.* 106: 339 (1960).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Mt. Tsiafajavona: Perrier 13556 ; Madagascar, Mt. Tsiafajavona: Perrier 14715 ; Madagascar, Mt. Tsiafajavona: Perrier 15811.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Mount Tsiafajavona, Madagascar.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, slender, 30–40 cm long. Culm-internodes smooth, distally glabrous. Culm-nodes brown. Leaf-sheaths striately veined. Ligule an eciliate membrane, 3 mm long. Leaf-blades 10–17 cm long, 3–4 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, effuse, 13–16 cm long. Primary panicle branches spreading, 4–5 -nate, whorled at lower nodes, 3–6 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 5–10 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 4–4.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 2.5–3 mm long, hyaline, without keel. Lemma surface pubescent. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, straight, 5 mm long overall, without a column. Palea hyaline.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Agrostis tsitondroinensis** A. Camus. *Not. Syst., Paris,* 15: 136 (1956).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Mt. Tsitondroina: Boileau 4730.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Mt Tsitondroina, Madagascar.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms 2.5 mm diam., 4 -noded. Culm-internodes ridged, smooth, distally glabrous. Leaf-sheaths striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades 12–16 cm long, 3–4 mm wide. Leaf-blade surface scaberulous, glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 20–25 cm long, 12–13 cm wide. Primary panicle branches spreading, 5–6 -nate, whorled at lower nodes. Panicle axis with lower internodes 5 cm long, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4.5–4.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4.5–4.7 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.5–4.7 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.5–3 mm long, hyaline, without keel. Lemma lateral veins extending close to apex. Lemma surface pilose. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 4–5 mm long overall, with twisted column. Palea hyaline.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Agrostis tungnathii** S. Bhattacharya & S.K. Jain. *Bull. Bot. Surv. India*, 25:204 (1985).

Regarded by K as a synonym (*A. pilosula*).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Uttar Pradesh, Tungnath: Bhattacharya 1524 (CAL holo, BSD).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): from Tungnath, a mountain in Uttar Pradesh, India.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent. India.

**TDWG4.** Uttah Pradesh.

**Agrostis turkestanica** Drobov. *Fl. Uzbekist.*, ed. Schreder, 1: 202, 537 (1941).

Regarded by K as a synonym (*A. vinealis*).

**Accepted by:** S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Mynjilke: Koroykova & Titov 1477 (TAK holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ica*, belonging to. From Turkestan region of Kazakhstan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Middle Asia, Western Asia, China. Kazakhstan, Kirgizistan, Tadzhikistan, Uzbekistan. Iran. Xinjiang.

**Agrostis turrialbae** Mez. *Fedde, Repert.* 18: 4 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Costa Rica, Volcan Turrialba: Pittier 855 (B holo, US).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (34, Fig. 6).

**Derivation** (Clifford & Bostock 2007): from Mt. Turrialba, a volcano in Costa Rica.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending or decumbent, 10–40 cm long, 0.5–1 mm diam., 1–2 -noded, without nodal roots or rooting from lower nodes. Culm-nodes purple. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.5–3.5 mm long. Leaf-blades flat, 5–10 cm long, 1–2 mm wide. Leaf-blade surface ribbed, smooth or scaberulous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Peduncle 5–10 cm long. Panicle open, elliptic or pyramidal, 4–12 cm long, 2–6 cm wide. Primary panicle branches 3–6 -nate, whorled at most nodes. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume oblong, 2–2.1 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 1.8–2 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.2–1.4 mm long, hyaline, without keel. Lemma lateral veins extending close to apex. Lemma apex erose, obtuse, mucous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.7 mm long, purple. Caryopsis with adherent pericarp, ellipsoid. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America, Western South America. Costa Rica, Guatemala. Venezuela. Colombia.

**Agrostis tuvinica** G.A. Peshkova. *Fl. Sibir. (Poaceae)*, 2: 111 (2001).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Tuva: Krasnoborov & Chanaminzum 732.

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms 15–55 cm long. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 1–2(–3.5) mm wide, light green. Leaf-blade surface scabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate, 5–13 cm long, 1–3 cm wide. Primary panicle branches ascending. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2–2.5 mm long, 1.1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.9–2.4 mm long, 1.2 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.7–2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, with twisted column. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.8–1.2 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia. Tuva.

**Agrostis uliginosa** Phil. *Anales Univ. Chil.* 27: 323. (1865).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Mirador: Philippi (SGO holo, B).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (372, Fig. 247).

**Derivation** (Clifford & Bostock 2007): L. uligo, wetness of the earth; -osa, abundance. Growing in swampy places.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–85 cm long. Culm-nodes brown, glabrous. Leaf-sheaths tight, 7–12 cm long, smooth or scaberulous. Ligule an eciliate membrane, 3–5 mm long, obtuse. Leaf-blades 4–17 cm long, 2–6 mm wide. Leaf-blade surface smooth or scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 11–23 cm long. Primary panicle branches whorled at most nodes. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets elliptic, laterally compressed, 3.1–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.25 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.1–4.5 mm long, 1.5–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–2.2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough on veins. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 3.5–4 mm long overall. Palea 0.8–1 mm long, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5–0.8 mm long. Caryopsis with adherent pericarp, 1.5–1.6 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina South, Chile Central, Chile South.

**TDWG4.** Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Rest of Chile- Biobio, La Araucania, Maule, O'Higgins, Santado, Valpariso, Chiloe, Aisen, Magellanes. Biobio, La Araucania. Los Lagos, Aisen, Magellanes.

### **Agrostis umbellata** Colla. *Mem. Acc. Torin.* 39: 23. (1836).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. **Basionym or Replaced Name:** *Colpodium pusillum* Nees, *Fl. Afr. Austr.* 149 (1841). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Colpodium pusillum* ; South Africa, Table Mt: Drege (B holo, K).

**Recent Synonyms:** *Agrostis paradisiaca* Steud., *Syn. Pl. Gram.* 163 (1854).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. umbella, parasol; -ata, possessing. Inflorescence branches whorled.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived, caespitose. Culms erect, 20–65 cm long, 2–3 -noded. Culm-internodes brown, distally glabrous. Lateral branches lacking. Leaf-sheaths striately veined, glabrous on surface. Ligule an eciliate membrane, 2.5–3 mm long, glabrous on abaxial surface, erose, acute. Leaf-blades 3–8 cm long, 1–2 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 8–13 cm long, 5–10 cm wide. Primary panicle branches whorled at most nodes, branching divaricately. Panicle axis smooth. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 8–22 mm long, scabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.7–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus sparsely hairy, hairy on the margins.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 2.7–4 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 1.8–2.2 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn subapical, straight, 1.4–2.5 mm long overall, clearly exerted from spikelet. Palea 0.2–0.4 mm long, 0.1–0.2 length of lemma, 0 -veined.

**Flower and Fruit.** Lodicules 2, 0.3 mm long, membranous. Anthers 3, 1–1.4 mm long. Caryopsis with adherent pericarp, 1.6–1.7 mm long. Hilum elliptic. Endosperm farinose.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Chile Central.

Rest of Chile- Biobio, La Araucania, Maule, O'Higgins, Santado, Valpariso. Valpariso, Santiago, O'Higgins, Maule, Biobio, La Araucania.

**Agrostis ushae** H.J. Noltie. *Edinburgh J. Bot.*, 56(3): 388 (1999).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India, Upper Lasha Chhu valley: *EENS 360* (E holo, BSHC).

**Illustrations (Books):** H.J. Noltie, *The Grasses of Bhutan* (2000) (605, Fig. 26).

**Derivation** (Clifford & Bostock 2007): in honor of Usher Ganguli Lachungpa, of the Forest Department, Sikkim State, India.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Stolons absent. Culms 25–50 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3.5–4 mm long, acute. Leaf-blades 7–15 cm long, 2.5–3 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear, continuous or interrupted, 9–18 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1.5–2.5 mm long, 0.5–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 1.5–2 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 3.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5–0.75 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Eastern Himalaya. Sikkim.

**Agrostis variabilis** Rydb. *Mem. N. York Bot. Gard.* 1: 32. (1900).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Canada. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: : Based on *A. varans* Trin. ; Canada: Hooker 217 (LE holo).

**Illustrations (Books):** M.E. Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (657).

**Derivation** (Clifford & Bostock 2007): *L. varius*, variable; -abilis, indicating capacity.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 8–15 cm long. Lateral branches lacking. Leaves mostly basal. Ligule an eciliate membrane, 0.5–2.5 mm long, lacerate, truncate. Leaf-blades flat or conduplicate, 1–2 mm wide. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 3–6 cm long, 0.5–1 cm wide. Primary panicle branches appressed, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acute. Upper glume lanceolate, 2.5 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, truncate, mucicous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, straight, 2–2.5 mm long overall. Palea 0.2–0.4 mm long, 0.1–0.2 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, 0.3–0.5 mm long, membranous. Anthers 3, 0.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Western Canada, Northwest USA, Southwestern USA. Alberta. Colorado, Idaho, Oregon, Washington. California, Nevada, Utah.

### **Agrostis venezuelana** Mez. *Fedde, Repert.* 18: 4 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Pico de Naiguata: Pittier.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From Venezuela.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms 30–40 cm long. Ligule an eciliate membrane, lacerate. Leaf-blades 2–3 mm wide. Leaf-blade surface scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Peduncle scaberulous above. Panicle open, ovate, 8–10 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3.3 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.75 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, mucicous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.75 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

### **Agrostis venusta** Trin. *Mem. Acad. Petersb. Ser.* 6, 4(3–4): 340. (1845).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia, Tasmania: Coll?.

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (185, Fig. 134), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (473, Fig. 92), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (111), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (168, Fig. 25), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. beautiful, graceful. Mostly a reference to habit.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 15–40 cm long, 2 -noded. Culm-internodes smooth or scaberulous. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 2–3 mm long, lacerate, obtuse. Leaf-blades filiform, involute, 2–8 cm long, 0.5 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, effuse, 2–15 cm long, with spikelets clustered towards branch tips. Primary panicle branches spreading, whorled at most nodes, branching divaricately. Panicle axis scaberulous (above). Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–6 mm long, scabrous.



**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 2.5–4 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume margins ciliate. Lower glume apex acute. Upper glume lanceolate, 2–3.7 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex entire or dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.5 way up back of lemma, straight or geniculate, 3–6 mm long overall, without a column or with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.2–0.3 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, A.C.T., South Australia, Tasmania, Victoria, Western Australia.

**TDWG4.** Tablelands, Western Slopes.

**Agrostis vidalii** Sennen, nom nud. *Bull. Soc. Bot. France*, 74: 406. (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Rio Puelo: Vidal (SGO holo, BAA, K).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (372, Fig. 248).

**Derivation** (Clifford & Bostock 2007): in honor of Francesco Vidal Gormaz, Chilean Army Officer.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 20–60 cm long. Culm-nodes brown or purple, glabrous. Leaf-sheaths 2–14 cm long, smooth or scaberulous. Ligule an eciliate membrane, 2–3.5 mm long, erose, obtuse. Leaf-blades 2–11 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 6–15 cm long. Panicle axis smooth or with occasional prickles. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, hairy in 2 tufts.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–4 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough on veins. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, 0.5 mm long overall. Palea 1.1–1.5 mm long, hyaline.

**Flower and Fruit.** Lodicules 2, 0.6–0.8 mm long, membranous. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp, 1.2–1.6 mm long. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Chile South.

**TDWG4.** Chubut, Neuquén, Río Negro. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Los Lagos, Aisen.

**Agrostis vinealis** Vollst., non Schreb. (1771). *Verz. Aller Gew. Teutschl.* 205 (1782).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as A.

*planifolia*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Germany. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Germany, Leipzig: Schreber (LE iso).

**Recent Synonyms:** *Agrostis planifolia* C.Koch, *Linnaea*, 21: 380 (1848). *Agrostis trinii* Turcz., *Bull. Soc. Nat. Mosc.* 19, 1: 18 (1856).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (605, Fig. 26), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (645).

**Derivation** (Clifford & Bostock 2007): *L. vinea*, vineyard; -alis, pertaining to. Growing in vineyards.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect or geniculately ascending, 10–60 cm long. Ligule an eciliate membrane, 1–5 mm long, obtuse or acute. Leaf-blades flat or convolute, 2–15 cm long, 1–3 mm wide. Leaf-blade surface scabrous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or oblong or ovate, 2–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2–3.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–3.3 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 1.5–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.4 way up back of lemma, geniculate, 2–4.5 mm long overall, with twisted column. Palea 0.5 mm long, hyaline, 2 -veined.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1–1.5 mm long. Stigmas 2, laterally exerted. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

$N = 7$  (2 refs TROPICOS), or 14 (1 ref TROPICOS).  $2n = 28$  (4 refs TROPICOS), or 42 (1 ref TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Temperate Asia, Tropical Asia, North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Great Britain, Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands. : France, Portugal. : Romania, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Khabarovsk, Magadan, Primorye, Sakhalin. Turkmenistan. North Caucasus, Transcaucasus. Iran. Inner Mongolia, Manchuria. Mongolia. Japan, Korea. **Indian Subcontinent.** Bangladesh, Eastern Himalaya, Pakistan. **Subarctic America.** Greenland. **Southern South America.** Chile Central.

**TDWG4.** Darjeeling. Chubut. Coquimbo.

**Agrostis virescens** Kunth. *Nov. Gen. et Sp.* i. 135. (1816).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Toluca: Humboldt & Bonpland (P holo, LE).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. viresco*, become green. Panicle shiny-green.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40–80 cm long, 2–3 -noded. Leaves basal and cauline. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades 9–22 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 17–20 cm long, 1 cm wide. Primary panicle branches ascending, rebranched below middle. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.9–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or sparsely hairy.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume oblong, 2.9–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume oblong, 2.9–3.5 mm long, 1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 1.6–2 mm long, hyaline, without keel. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, geniculate, 1.5–3 mm long overall, clearly exerted from spikelet, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.6–0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. North America, South America.

**Country /Province /State.** Mexico. Central Mexico. Mesoamerica, Western South America. Costa Rica, Panama. Ecuador, Peru. Mexico State.

**Agrostis volkensis** Stapf. *Kew Bull.* 1897, 289. (1897).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tanzania, Kilimanjaro: *Volkens 1856* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Georg Ludwig August Volkens (1855–1917) German botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 6–45 cm long. Ligule an eciliate membrane. Leaf-blades filiform, involute, 5–10 cm long, 1 mm wide, stiff. Leaf-blade venation without layer of subepidermal sclerenchyma masking vein striation or with continuous uniform subepidermal sclerenchyma layer on the underside. Leaf-blade surface scabrous, rough abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 2–10 cm long. Panicle branches flexuous, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 2–4.5 mm long, 1–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2–3 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface glabrous or pilose. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 3–5 mm long overall, with twisted column. Palea 1 length of lemma, hyaline, 2 -veined. Palea apex with excurrent keel veins. Rhachilla extension 0.05–0.1 length of fertile floret.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3. Caryopsis with adherent pericarp. Hilum linear. Endosperm farinose.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda.

**Agrostis wacei** C.E.Hubb. *Bull. Brit. Mus. (Nat. Hist.), Bot.*, 8(4): 383 (1981).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tristan da Cunha. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Tristan da Cunha: Wace T-319 (K holotype, BM).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Nigel Morritt Wace (1929–2005) English-born Australian botanist and geographer.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, cushion forming, clumped densely. Culms slender, 10–20 cm long. Culm-internodes terete, smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths longer than adjacent culm internode, ribbed, scaberulous, glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades straight or curved, aciculate, involute, 1–1.5 cm long, 0.5 mm wide, stiff. Leaf-blade surface ribbed, grooved adaxially, scaberulous, rough adaxially. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–4 fertile spikelets, shorter than basal leaves. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–1.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 1.6–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma, parallel to lemmas or gaping. Lower glume lanceolate, 1.6–2 mm long, 1–1.1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume surface asperulous. Lower glume apex obtuse or acute. Upper glume lanceolate, 1.6–2 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 1.2–1.4 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 5 -fid, truncate. Palea oblong, 1 mm long, 0.6–0.8 length of lemma, hyaline, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Antarctica.

**Country /Province /State. Subantarctic islands.** Tristan de Cunha.

### **Agrostis wardii** Bor. *Kew Bull.* 1949: 444 (1949).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India, Manipur, Sirhoi Kashong: *Kingdon-Ward 18145* (K holotype).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Francis Kingdon-Ward (1885–1958) English botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 30–60 cm long. Culm-nodes glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blades 15–25 cm long, 4–8 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 7–14 cm long, 1–2.5 cm wide. Primary panicle branches whorled at most nodes, 3–6 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, gaping. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2.7–3.1 mm long, 1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2–2.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma margins ciliate. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 6 mm long overall, with twisted column. Column of lemma awn 2 mm long. Palea 2 mm long, 0.8–1 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. Tropical Asia.  
**Country /Province /State.** Indian Subcontinent. Assam.  
Manipur.

**Agrostopoa barclayae** Davidse, Soreng & P.M.Peterson. *Novon* 19: 36 (2009).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Magdalena: Sierra Nevada de Santa Marta, alrededores de cabeceras de Rí: Sevilla, 3490 m, 20 Jan 1959, H.G. Barclay & P. Juajibioy 6567 (HT: MO-5114991; IT: COL, US-2434406, US).

**Illustrations (Journals):** *Novon* (19:37, Fig 2 (2009)).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Butt sheaths persistent and investing base of culm, with soft dead sheaths. Culms erect or geniculately ascending, 11–29 cm long, 3–10 -noded, without nodal roots or rooting from lower nodes. Culm-internodes smooth. Leaves basal and cauline. Leaf-sheaths open for most of their length. Ligule an eciliate membrane, 1–3.1 mm long, erose. Leaf-blades flat or involute, 1.5–5 cm long, 0.3–0.5 mm wide. Leaf-blade surface smooth, glabrous.

**Inflorescence.** Inflorescence a panicle, comprising 5–20(–30) fertile spikelets. Panicle open, oblong, 2–4 cm long. Primary panicle branches spreading, bearing 1–3 fertile spikelets on each lower branch. Panicle axis 2–4 noded. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.7–4 mm long, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–10 mm long, with hairs extending (3.5–)4–4.5 mm beyond apex, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, reaching apex of florets. Lower glume lanceolate, (2.8–)3.4–4.4 mm long, 0.8–1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined or 3 -veined. Lower glume primary vein scaberulous (above). Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume lanceolate, (3.2–)4–4.4 mm long, 1 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 1 -veined or 3 -veined. Upper glume primary vein scaberulous (above). Upper glume lateral veins absent or distinct. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 4–4.5 mm long, membranous, much thinner above, keeled, 5 -veined, more than 3-veined. Lemma midvein scaberulous (above). Lemma lateral veins obscure. Lemma surface papillose. Lemma apex entire or dentate, 3 -fid, with lobes 0.2 mm long, acute, awned, 1 -awned. Principal lemma awn apical or from a sinus, straight or curved or flexuous, 2–5.2 mm long overall. Palea 1 length of lemma. Palea keels 0.25 mm apart, scabrous, adorned above.

**Flower and Fruit.** Lodicules 2, lanceolate, 0.5 mm long, veinless, acute. Anthers 3, 2.1–2.7 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America. Colombia.

**Agrostopoa wallisii** (Mez) P.M.Peterson, Soreng & Davidse. *Novon* 19: 34 (2009).

**TYPE** from Colombia. **Basionym or Replaced Name:** *Muhlenbergia wallisii* Mez, Spec. Nov. Regni. Veg. 17: 214 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *G. Wallis*, Colombia: Sierra Nevada de Santa Marta (US-90978 (fragm. ex B); IT: US-90979 (fragm. ex B)). LT designated by Davidse, Soreng & P.M. Peterson, *Novon* 19(1): 34 (2009).

**Illustrations (Journals):** *Novon* (19:35, Fig 1 (2009)).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, slender, 7–15 cm long, 6–8 -noded. Culm-internodes smooth, distally glabrous. Lateral branches ample, arising from lower culm. Leaves mostly basal. Leaf-sheaths loose, open for most of their length, smooth. Ligule an eciliate membrane, 0.8–3.5 mm long, entire or erose, acute. Leaf-blades flat or involute, 0.8–2.5 cm long, 0.3 mm wide. Leaf-blade surface smooth, glabrous.

**Inflorescence.** Inflorescence a panicle, comprising 5–15 fertile spikelets, embraced at base by subtending leaf. Panicle open, oblong, 1–3.5 cm long, bearing few spikelets. Primary panicle branches 1–4 -nate, 1–1.5 cm long. Panicle axis 3–5 noded. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.4–3 mm long, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–10 mm long, with hairs extending 2.4–3.9 mm beyond apex, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets. Lower glume lanceolate, 2.3–2.6 mm long, 0.66–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 2.4–3.9 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 2.1–3 mm long, membranous, much thinner above, keeled, 5 -veined, more than 3-veined. Lemma midvein scaberulous (above). Lemma lateral veins obscure. Lemma apex acute, awned, 1 -awned. Principal lemma awn apical, 2.5–5.2 mm long overall, without a column (but loosely twisted). Palea 1 length of lemma. Palea keels 0.2 mm apart, smooth.

**Flower and Fruit.** Lodicules 2, 0.3 mm long. Anthers 3, 1.6–2.1 mm long. Caryopsis with adherent pericarp, 1.5 mm long, dark brown.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Agrostopoa woodii** Davidse, Soreng & P.M.Peterson. *Novon* 19: 38 (2009).

**Illustrations (Journals):** *Novon* (19:39, Fig 3 (2009)).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect or geniculately ascending, 15–20 cm long, 2–3 -noded, without nodal roots or rooting from lower nodes. Leaves basal and cauline. Leaf-sheaths open for most of their length, with 0.25 of their length closed, 4 cm long. Ligule an eciliate membrane, 0.5–2.5 mm long, lacerate. Leaf-blades flat or conduplicate or involute, 1.5–4.5 cm long, 0.5–0.8 mm wide. Leaf-blade surface smooth, glabrous. Leaf-blade apex abruptly acute, hooded.

**Inflorescence.** Inflorescence a panicle, comprising 8–11 fertile spikelets. Panicle open, oblong, 2–3 cm long, bearing few spikelets. Primary panicle branches spreading, 1–3 -nate, 0.4–0.6(–1) cm long, bearing 1 fertile spikelets on each lower branch. Panicle axis 3–5 noded. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–10 mm long, with hairs extending 4.5–5.6 mm beyond apex, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets. Lower glume lanceolate, 4.4–5.6 mm long, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined or 3 -veined. Lower glume primary vein scaberulous (above). Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume lanceolate, 4.7–5.6 mm long, 1.3 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 1 -veined or 3 -veined. Upper glume primary vein scaberulous (above). Upper glume lateral veins absent or distinct. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 3.7–4.5 mm long, membranous, much thinner above, keeled, 5 -veined, more than 3-veined. Lemma midvein scaberulous (above). Lemma lateral veins obscure. Lemma surface papillose. Lemma apex entire or dentate, 3 -fid, with lobes 0.1 mm long, acute, mucronate, 1 -awned. Principal lemma awn apical or from a sinus, 0.2–0.6 mm long overall. Palea 0.9 length of lemma. Palea keels 0.25 mm apart, scaberulous, adorned above.

**Flower and Fruit.** Lodicules 2, 0.7 mm long. Anthers 2 (rarely) or 3, 1.7–2.2 mm long. Caryopsis with adherent pericarp, fusiform, 2 mm long, light brown.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Aira caryophyllea** L. *Sp. Pl.* 66. (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Europe. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Anon.*, Europe (LINN-85.22). LT designated by Clayton in Milne-Redhead & Polhill (ed.), *Fl. Trop. E. Africa*, Gramineae 1: 84 (1970).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (258), G.Hegi, *Flora von Mitteleuropa* 1 (1909) (as *A. capillaris*), H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (185, Fig. 106), R.M.Pohill, F.T.E.A., *Gramineae* (1(1970):85, Fig. 29), G.V.Pope et al., *Flora Zambesiaca* 10 (1(1970):80, Fig. 24), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (39, Fig. 18), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (187, Fig. 135), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (112), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (260, Fig. 35 as *caryophyllea*), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1497, Pl. 219), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (617 as var. *caryophyllea* & var. *capillaris* & var. *cupaniana*), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (246, Fig. 78), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (40, Fig. 8), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (156, Fig. 42), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (221, Fig. 143), B.Rosengurt, *Gramineas Uruguayas I* (1970) (38, Fig. 10), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 453).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);.

**Derivation** (Clifford & Bostock 2007): foliage resembling that of *Dianthus caryophyllus*.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 3–40(–55) cm long, 2–3 -noded. Leaves mostly basal. Ligule an eciliate membrane, 2–5 mm long, erose, obtuse. Leaf-blades filiform, involute, 0.5–5 cm long, 0.3–1 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 1–12 cm long, (2–)3.5–10(–14) cm wide. Panicle branches capillary, terete, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–10 mm long, tip pyriform.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong to ovate, laterally compressed, 2.4–3.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets (florets arising at about the same level). Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 2.4–3.1 mm long, 1 length of upper glume, membranous, 1-keeled, keeled above, 1–3 -veined. Lower glume primary vein scaberulous. Lower glume apex acute. Upper glume ovate, 2.4–3.1 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, laterally compressed, lanceolate in profile, (1.8–)2–2.4(–2.6) mm long, cartilaginous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous, rough above. Lemma margins involute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 2.6–3.6 mm long overall, with twisted column. Palea elliptic, 0.7 length of lemma, cartilaginous, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 0.25–0.6 mm long. Stigmas 2, protandrous, laterally exerted. Caryopsis with adherent pericarp, fusiform, isodiametric, biconvex, estipitate, without sulcus, 1 mm long, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum punctiform. Endosperm farinose.

$N = 7$  (2 ref TROPICOS), or 14 (1 ref TROPICOS).  $2n = 14$  (2 refs TROPICOS), or 28 (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America (\*), South America (\*), Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Great Britain, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : Corsica, France, Portugal, Sardinia, Spain, Azores. : Albania, Bulgaria, Greece, Italy, Romania, Sicily, Turkey Europe, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Krym, Central European Russia, Northwest European Russia, Ukraine. **Northern Africa, Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa.** Algeria, Morocco, Tunisia. Azores, Canary Is, Madeira. Nigeria. Cameroon, Rwanda. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Malawi. **Caucasus, Western Asia, China, Russia.** Iran. Tibet. **Indian Subcontinent.** India. **Australia, New Zealand.** New South Wales (\*), A.C.T. (\*), Queensland (\*), South Australia (\*), Tasmania (\*), Victoria (\*), Western Australia (\*). Chatham Is, New

Zealand North I, New Zealand South I, Stewart Is. **North-central Pacific** (\*). Marquesas (\*). Hawaii (\*). **Subarctic America, Western Canada, Northwest USA, Northeast USA, Southwestern USA, Southeastern USA, Mexico.** Yukon. British Columbia. Oregon, Washington. Massachusetts, Ohio, New York, Pennsylvania. California. Alabama, Delaware, Florida, Georgia, Louisiana, South Carolina, Virginia. Northwest Mexico, Southwest Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Costa Rica. Ecuador. Brazil West Central, Brazil South. Argentina Northeast, Argentina South, Chile North, Chile Central, Chile South, Juan Fernandez Is, Uruguay. **Subantarctic islands.** Falkland Is (Malvinas).

**TDWG4.** Himachal Pradesh. South East. Coast, Tablelands, Western Slopes. Tucuman. Buenos Aires, Cordoba. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Antofagasta. Coquimbo, Valparaiso, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes. Baja California. Jalisco, Oaxaca.

**Aira cupaniana** Guss. *Fl. Sic. Syn.*1: 145 (1843).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Sicily. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Itay: Sicily,.

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (86, Fig. 57), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (35, Fig. 13), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (188, Fig. 136), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (38, Pl. 9), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (461, Fig. 90), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (112), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (86), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (260, Fig. 35).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990);.

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Francesco Cupani (1657–1780). Italian botanist, cleric and physician.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 10–35 cm long, 2–3 -noded. Leaves mostly basal. Ligule an eciliate membrane, 1–5 mm long. Leaf-blades 1–6 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 2–12 cm long. Primary panicle branches ascending or spreading. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, tip globular.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong to ovate, laterally compressed, 1.3–2.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets (florets arising at about the same level). Floret callus pubescent.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 1.3–2.3 mm long, 1 length of upper glume, membranous, 1-keeled, keeled above, 1–3 -veined. Lower glume primary vein scaberulous. Lower glume apex obtuse. Upper glume ovate, 1.3–2.3 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume apex obtuse.

**Florets.** Fertile florets all alike or with the lowest dissimilar. Lowest fertile lemma muticous. Fertile lemma ovate, laterally compressed, lanceolate in profile, 1.3–2 mm long, cartilaginous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous, rough above. Lemma margins involute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 1.8–2.5 mm long overall, with twisted column. Palea elliptic, 0.7 length of lemma, cartilaginous, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 0.1–0.25 mm long. Stigmas 2, protandrous, laterally exerted. Caryopsis with adherent pericarp, fusiform, isodiametric, biconvex, estipitate, without sulcus, 1 mm long, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum punctiform. Endosperm farinose.

$N = 7$  (4 refs TROPICOS).  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Australasia (\*).

**Region.** Northern Europe, Southwestern Europe, Southeastern Europe (\*).



**Country /Province /State.** : Great Britain (\*). : Balears, Corsica, France, Portugal, Sardinia, Spain. : Greece, Italy, Crete, Sicily. **Northern Africa, Southern Africa** (\*). Algeria, Libya, Morocco, Tunisia. Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. **Australia.** New South Wales (\*), A.C.T. (\*), Queensland (\*), South Australia (\*), Victoria (\*), Western Australia (\*), Lord Howe-Norfolk Is (\*).

**TDWG4.** South-West. North, South East. Coast, Tablelands, Western Slopes, Western Plains.

**Aira elegantissima** Schur. *Verh. Siebenb. Ver. Naturw.* 4: 85 (1853).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (& as *A. elegans*), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *A. elegans*).

**TYPE** from Romania. **Basionym or Replaced Name:** *Aira elegans* Vill. ex Steud., in syn, *Nom. ed.* 2 (1) 44 (1840). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Rumania, Hermannstadt: Schur.

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 265), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (189, Fig. 137), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (461, Fig. 90 as *A. elegans*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (113), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (260, Fig 35), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), F.W.Gould, *The Grasses of Texas* (1975) (133, Fig. 65 as *A. elegans*).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. elegans*, elegant; -issima, most. Very attractive in some respect, usually the inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, slender, 10–40 cm long. Ligule an eciliate membrane, 2–3 mm long, acute. Leaf-blades filiform, flat or convolute, 2–4 cm long, 0.5–1 mm wide. Leaf-blade surface scaberulous, glabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle. Panicle open, obovate, effuse, 4–9 cm long, 2–5 cm wide. Primary panicle branches branching dichotomously. Panicle branches capillary, terete, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 5–13 mm long, 2–5 length of fertile spikelet, tip pyriform.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 1.5–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rachilla internodes suppressed between florets (florets arising at about the same level). Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 1.5–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, keeled above, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1.5–2.5 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile florets all alike or with the lowest dissimilar. Lowest fertile lemma muticous or awned. Fertile lemma ovate, laterally compressed, lanceolate in profile, 1.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scabrous. Lemma margins involute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 1.5–2 mm long overall, clearly exerted from spikelet, with twisted column.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 0.3–0.5 mm long. Stigmas 2.

$2n = 5$  (5 refs TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Africa, Temperate Asia, Australasia (\*), North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe (\*), Eastern Europe.

**Country /Province /State.** : Great Britain (\*). : Austria, Czechoslovakia, Germany, Hungary, Switzerland. : Balears, Corsica, France, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym. **Northern Africa, Macaronesia, Western Indian ocean.** Algeria, Morocco. Canary Is. Mauritius (\*), Madagascar (\*). **Middle Asia, Caucasus, Western Asia.** Turkmenistan. Iran. **Australia, New Zealand.** New South Wales (\*), A.C.T. (\*), South Australia (\*), Tasmania (\*), Victoria (\*), Western Australia (\*). New Zealand North I, New Zealand South I. **Northwest USA, Southwestern USA, South-central USA, Southeastern USA.** Oregon. California. Texas. Alabama, Arkansas, Georgia, Louisiana, Maryland, Mississippi,

North Carolina, South Carolina, Virginia. **Western South America, Brazil, Southern South America.** Chile Central, Uruguay.

**TDWG4.** South-West. Southern. Tablelands, Western Slopes. Tucuman. Buenos Aires. Valparaiso, La Araucania.

**Aira praecox** L. *Sp. Pl.* 65. (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Europe. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: CT: (LINN-85.21). LT designated by Cope, *Taxon* 41: 556 (1992); CT proposed by Jarvis, *Taxon* 41: 556 (1992).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (260), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (189, Fig. 137), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (113), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (617), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (246, Fig. 78), M.N.Correa, *Flora Patagonica Parte III, Gramineae* (1978) (221, Fig. 144).

**Images:** D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002);

**Derivation** (Clifford & Bostock 2007): L. early. Flowering early in the spring.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 2–25 cm long, 2–3 -noded. Leaves mostly basal. Ligule an eciliate membrane, 1.5–3.5 mm long, entire, obtuse. Leaf-blades filiform, involute, 0.5–5 cm long, 0.3–0.5 mm wide. Leaf-blade surface smooth or scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or oblong, 0.5–4.5 cm long, 0.2–0.8 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, terete, 1–3 mm long.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong to ovate, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets (florets arising at about the same level). Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 3–3.5 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, 1-keeled, keeled above, 1–3 -veined. Lower glume primary vein scaberulous. Lower glume apex acute. Upper glume ovate, 3–3.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, laterally compressed, lanceolate in profile, 2.7–3.1 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous, rough above. Lemma margins involute, covering most of palea. Lemma apex dentate, 3 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 3.4–4.3 mm long overall, with twisted column. Palea elliptic, 0.7 length of lemma, cartilaginous, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 0.25–0.3 mm long. Stigmas 2, protandrous, laterally exerted. Caryopsis with adherent pericarp, fusiform, isodiametric, biconvex, estipitate, without sulcus, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum punctiform. Endosperm farinose.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Australasia (\*), North America, South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Foroyar, Great Britain, Ireland, Norway, Sweden. : Belgium, Czechoslovakia, Germany, Netherlands, Poland, Switzerland. : France, Portugal, Spain, Azores. : Italy. Estonia, Latvia, Lithuania, Baltic States, Krym. **Macaronesia.** Azores, Canary Is, Madeira. Western Cape. **Caucasus, Western Asia.** North Caucasus. Turkey. **Australia, New Zealand.** New South Wales (\*), Tasmania (\*), Victoria (\*), Western Australia (\*). Chatham Is, New Zealand North I, New Zealand South I, Stewart Is. **Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, Southeastern USA.** British Columbia. Nova Scotia. Oregon, Washington. New Jersey. California. Delaware, Maryland, Virginia. **Southern South America.** Argentina South, Chile South, Juan Fernandez Is, Uruguay. **Subantarctic islands.** Falkland Is (Malvinas).

**TDWG4.** South-West. Coast. Santa Cruz, Tierra del Fuego. Los Lagos, Magellanes.

**Aira provincialis** Jord. *Pugill. Pl. Nov.* 142 (1852).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from France. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: S. France.,

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (113).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. provincia, province; -alis, pertaining to. Relating to a province, in particular to Provincia, now Provence, France.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, slender, 10–40 cm long. Ligule an eciliate membrane, 2–3 mm long, acute. Leaf-blades filiform, flat or convolute, 2–4 cm long, 0.5–1 mm wide. Leaf-blade surface scaberulous, glabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle. Panicle open, obovate, effuse, 4–9 cm long, 2–5 cm wide. Primary panicle branches branching dichotomously. Panicle branches capillary, terete, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 2–5 length of fertile spikelet, tip widened (gradually).

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets (florets arising at about the same level). Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 3.5 mm long, 1 length of upper glume, membranous, 1-keeled, keeled above, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3.5 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile florets with the lowest dissimilar. Lowest fertile lemma muticous or awned (shorter than upper). Fertile lemma ovate, laterally compressed, lanceolate in profile, 2.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scabrous. Lemma margins involute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 2.5 mm long overall, clearly exerted from spikelet (upper) or not or scarcely exerted from spikelet (lower), with twisted column.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3. Stigmas 2.

$N = 14$  (1 ref TROPICOS).  $2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Australasia (\*).

**Region.** Northern Europe (\*), Southwestern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Corsica, France. **Australia.** New South Wales (\*).

**TDWG4.** Tablelands.

**Aira scoparia** Adam. *Denkschr. Akad. Wien, Math.Nat.* 74: 117. (1904).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Yugoslavia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Yugoslavia, Bitolj: *Jovanovic* .

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. scopae, broom; -aria, pertaining to. Inflorescences condensed resembling a broom.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 3–40 cm long. Leaves mostly basal. Ligule an eciliate membrane. Leaf-blades filiform, involute, 0.5–5 cm long, 0.3–1 mm wide. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Panicle open, ovate, dense, 1–12 cm long. Panicle branches terete, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–2 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong to ovate, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets (florets arising at about the same level). Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 2 mm long, 1 length of upper glume, membranous, 1-keeled, keeled above, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex obtuse, mucronate. Upper glume ovate, 2 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume apex obtuse, mucronate.

**Florets.** Fertile florets all alike or with the lowest dissimilar. Lowest fertile lemma mucicous or awned. Fertile lemma ovate, laterally compressed, 1.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous, rough above. Lemma margins involute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 2–3 mm long overall, with twisted column. Palea cartilaginous, 2 -veined.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged. Hilum punctiform. Endosperm farinose.

**Distribution (TDWG).** Continent. Europe.

**Region.** Southeastern Europe.

**Country /Province /State.** : Yugoslavia.

**Aira tenorii** Guss. *Fl. Sic. Prod.* 1: 62 (1827).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Sicily. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Sicily: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Michele Tenore (1780–1861) Italian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, slender, 10–40 cm long, 2–3 -noded. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–3 mm long, acute. Leaf-blades flat or involute, 2–4 cm long, 0.4–0.8 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate or globose, effuse, 4–9 cm long, 2–5 cm wide. Primary panicle branches branching divaricately. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 5–8 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong to ovate, laterally compressed, 1.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets (florets arising at about the same level). Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 1.5–3 mm long, 1 length of upper glume, membranous, 1-keeled, keeled above, 1–3 -veined. Lower glume primary vein scaberulous. Lower glume apex entire or erose, obtuse, mucicous or mucronate. Upper glume ovate, 1.5–3 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume apex obtuse, mucicous or mucronate.

**Florets.** Fertile lemma ovate, laterally compressed, lanceolate in profile, 1.2–2.5 mm long, cartilaginous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous, rough above. Lemma margins involute, covering most of palea. Lemma apex dentate, 2 -fid, mucicous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 2–3 mm long overall, with twisted column. Palea elliptic, 0.7 length of lemma, cartilaginous, 2 -veined. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 0.7–1.7 mm long. Stigmas 2, protandrous, laterally exerted. Caryopsis with adherent pericarp, fusiform, isodiametric, biconvex, estipitate, without sulcus, 1 mm long, smooth, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum punctiform. Endosperm farinose.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Europe, Africa.

**Region.** Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Balears, Corsica, France, Sardinia, Spain. : Greece, Italy, Crete, Sicily. Northern Africa. Algeria, Libya, Morocco, Tunisia.

**Aira uniaristata** Cav. *Anales Cienc. Nat.* 6: 148. (1803).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Morocco. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Morocco, Mogador: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. unus, one; arista, bristle; -ata, possessing. Lemma one-awned.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 3–40 cm long. Leaves mostly basal. Ligule an eciliate membrane, entire. Leaf-blades filiform, involute, 0.5–5 cm long, 0.3–1 mm wide. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 1–12 cm long. Primary panicle branches branching divaricately. Panicle branches flexuous, terete, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–2 length of fertile spikelet.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong to ovate, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets (florets arising at about the same level). Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 2–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, keeled above, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume ovate, 2–2.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume apex acute.

**Florets.** Fertile florets all alike or with the lowest dissimilar. Lowest fertile lemma muticous or awned. Fertile lemma ovate, laterally compressed, 1.5–2 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous, rough above. Lemma margins involute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 2–3 mm long overall, with twisted column. Palea cartilaginous, 2 -veined.

**Flower and Fruit.** Lodicules 2, lanceolate, membranous. Anthers 3, 1.3 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged. Hilum punctiform. Endosperm farinose.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe.

**Region.** Southwestern Europe.

**Country /Province /State.** : Portugal, Spain.

**Airopsis tenella** (Cav.) Coss. & Dur. *Expl. Sc. Alger.* 97 (1855).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. **Basionym or Replaced Name:** *Milium tenellum* Cav.,  *Ic.* 3: 37 (1794). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Habitat in arenosis prope oppidum vulgo Pobra totnesa.",.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. slender. Culms or inflorescence branches slender.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 3–20(–30) cm long. Ligule an eciliate membrane, 1–2 mm long, lacerate, obtuse. Leaf-blades convolute, 1–6 cm long, 0.5–1.5 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or oblong. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, tip pyriform.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets orbicular, laterally compressed, 1.2–1.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume orbicular, gibbous, 1.2–1.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume orbicular, gibbous, 1.2–1.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma orbicular, gibbous, 1–1.3 mm long, membranous, shiny, without keel, 3 -veined, 0–3 -veined. Lemma margins pilose. Lemma apex obtuse.

**Flower and Fruit.** Anthers 3, 0.3 mm long. Ovary glabrous. Caryopsis with adherent pericarp, orbicular, dorsally compressed, plano-convex, 0.5 mm long. Endosperm farinose.

*N* = 4 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Corsica, France, Portugal, Spain. : Italy, Sicily. **Northern Africa.** Morocco, Tunisia.

**Alexfloydia repens** B.K. Simon. *Austrobaileya* 3(4): 670 (1992).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.G. Floyd* 2165, 7 Apr 1991, Australia: New South Wales: North Coast Division: Boambee, Cordwells Creek, Dutton's Estate, Portion 40:30'45"S, 153:04'40"E (BRI-AQ540193; IT: BRI, CANB, DNA, K, L, MEL, MO-4616117, NSW).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (113), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austrobaileya* 3(4): 671, Fig.1 (1992)).

**Derivation** (Clifford & Bostock 2007): L. repo, crawl. Rhizome well developed.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms decumbent, 18–24 cm long, 3–4 -noded. Lateral branches sparse. Leaf-sheaths longer than adjacent culm internode. Ligule a fringe of hairs. Leaf-blades 0.5–6 cm long, 1–1.5 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface glabrous. Leaf-blade margins smooth.

**Inflorescence.** Inflorescence a panicle, comprising 3–6 fertile spikelets. Panicle contracted, linear, 1.5 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, terete, 4–7 mm long, smooth.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, 1.5 mm wide, falling entire.

**Glumes.** Glumes thinner than fertile lemma. Lower glume ovate, 2 mm long, 0.66 length of spikelet, chartaceous, 5–7 -veined. Lower glume apex acute. Upper glume elliptic, 3 mm long, 1 length of spikelet, chartaceous, without keels, 9 -veined. Upper glume lateral veins ribbed. Upper glume surface glabrous or pilose (sparsely in middle), with tubercle-based hairs. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic, 3 mm long, 1 length of spikelet, chartaceous, 9 -veined, ribbed, acute. Fertile lemma oblong, dorsally compressed, 1.5 mm long, cartilaginous, yellow, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface striate. Lemma margins flat. Lemma apex acute. Palea gaping, oblong, 1.5 mm long, cartilaginous.

**Flower and Fruit.** Lodicules 2, 0.5 mm long. Anthers 3, 2.5 mm long or 0.8 mm long (upper). Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** New South Wales.

**TDWG4.** Coast.

**Alloochaete andongensis** (Rendle) C. E. Hubbard. *Hook. Ic. Pl.* v. t. 3418 (1940).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Angola. **Basionym or Replaced Name:** *Danthonia andongensis* Rendle, *Cat. Welw. Afr. Pl.* 2: 212 (1899). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Pungo Andongo* 2744, Africa: on the rocks of the praesidium

IT: *Pungo & Cabondo* 7417, Africa: on the higher rocks of the praesidium at Pedra Cazella.

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.3418 (1940)).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Pungo Andongo District, Angola.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped moderately. Butt sheaths coriaceous, glossy, woolly, persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 30–60 cm long. Ligule a fringe of hairs, 0.8 mm long. Leaf-blades involute, 12–23 cm long, 3–6 mm wide. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 13–18 cm long. Primary panicle branches ascending, bearing spikelets almost to the base. Panicle branches puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus obtuse.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong or ovate, 5–6.5 mm long, 1 length of upper glume, herbaceous, 1-keeled, 3 -veined. Lower glume apex acuminate, awned, 1 -awned, awn 0.5 mm long. Upper glume oblong or ovate, 5–6.5 mm long, 0.75 length of adjacent fertile lemma, herbaceous, 1-keeled, 3 -veined. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 0.5 mm long.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, lanceolate or ovate, 6 mm long, herbaceous, 5 -veined, dentate, 2 -fid, awned. Awn of lower sterile floret straight, 1 mm long. Fertile lemma elliptic, 6–7 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins absent or obscure below. Lemma surface with marginal hair tufts, bearing 2 hair tufts in all. Lemma apex lobed, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 7–9 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, shorter than principal. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, glabrous. Anthers 3, 3 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa. Angola.

**Alloochaete geniculata** Kabuye. *Kew Bull.* 30(3): 575 (1975).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Malawi. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Mulanje: Phipps 2769 (K hol., BM, SRGH).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. genus, knee; -ulus, diminutive. -ata, possessing. Plants with bent culms or awns.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped moderately. Butt sheaths papery, woolly, persistent and investing base of culm, with fibrous dead sheaths. Culms 30–60 cm long. Ligule a fringe of hairs, 0.5–0.6 mm long. Leaf-blades convolute, 8–17 cm long, 2–3.5 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 15–25 cm long. Primary panicle branches 1–3 -nate. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 11–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic, 6–8 mm long, 1 length of upper glume, herbaceous, 1-keeled, 3 -veined. Lower glume apex acuminate, awned, 1 -awned, awn 0.5 mm long. Upper glume elliptic, 6–8 mm long, 1 length of adjacent fertile lemma, herbaceous, 1-keeled, 3–5 -veined. Upper glume apex dentate, 3 -fid, awned, 1 -awned, awn 0.5 mm long.

**Florets.** Basal sterile florets 1, male or barren (sometimes bisexual), with palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, lanceolate or ovate, 7–7.5 mm long, herbaceous, 5 -veined, eciliate on margins or ciliate on margins, dentate, 2 -fid, awned. Awn of lower sterile floret geniculate, 5–10 mm long. Palea of lower sterile floret 0.8 length of lemma, pubescent, adorned on keels. Fertile lemma elliptic, 6 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface with marginal hair tufts, bearing 2 hair tufts in all. Lemma hairs 1–1.3 mm long. Lemma apex lobed, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, with twisted column. Lateral lemma awns present, arising on apex of lobes, shorter than principal. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, glabrous. Anthers 3.  
**Distribution (TDWG). Continent.** Africa.  
**Country /Province /State.** South tropical Africa. Malawi.

**Alloochaete gracillima** Kabuye. *Kew Bull.*, 30(3): 576 (1975).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Malawi. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mulanje, Chambe Plateau: *Jackson 2169* (K holo, SRGH).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. very delicate. Of slender habit.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped moderately. Butt sheaths thickened and forming a bulb, woolly, persistent and investing base of culm, with compacted dead sheaths. Culms 30–66 cm long. Leaf-sheath oral hairs ciliate, 2.5 mm long. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades convolute, 15–30 cm long, 4–6 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 8–16 cm long. Primary panicle branches ascending, 1–3 -nate. Panicle branches scaberulous, rough distally. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, laterally compressed, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 4–6.3 mm long, 0.7–0.9 length of upper glume, herbaceous, 1-keeled, 1–3 -veined. Lower glume surface puberulous. Lower glume apex acuminate, muticous or awned, 1 -awned, awn 0.5 mm long. Upper glume lanceolate or ovate, 3.7–7 mm long, 0.8–0.9 length of adjacent fertile lemma, herbaceous, 1-keeled, 3–5 -veined. Upper glume surface puberulous. Upper glume apex acuminate, muticous or awned, 1 -awned, awn 0.5 mm long.

**Florets.** Fertile florets with the lowest dissimilar (hair tufts weaker). Fertile lemma elliptic, 7–8 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface with marginal hair tufts, bearing 2 hair tufts in all. Lemma apex lobed, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 5–10 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, shorter than principal. Palea 0.8 length of lemma. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, glabrous. Anthers 3, 1.8 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa. Malawi.

**Alloochaete namuliensis** Chippind. *Journ. S. Afr. Bot.* 11: 101 (1945).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Malawi. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Namuli Peaks: *Torre 5146* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Namuli Mountains, Mozambique.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped moderately. Butt sheaths thickened and forming a bulb, glossy, woolly, persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 40–80 cm long. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades flat or involute, 17–45 cm long, 3–6 mm wide. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 13–14.5 cm long. Primary panicle branches spreading, bearing spikelets almost to the base. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 3–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–7(–12) mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5 mm long. Floret callus obtuse.



**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 3–5 mm long, 1 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume surface glabrous or puberulous. Lower glume apex acuminate, mucous. Upper glume lanceolate or ovate, 3–5 mm long, 0.75–0.8 length of adjacent fertile lemma, chartaceous, 1-keeled, 3–5 -veined. Upper glume surface glabrous or puberulous. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 0.5–1 mm long.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, lanceolate or ovate, 4 mm long, herbaceous, 5 -veined, puberulous, hairy above, dentate, 2 -fid, awned. Awn of lower sterile floret straight or flexuous (reflexed), 1 mm long. Fertile lemma elliptic, 4–6 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous or puberulous, hairy above, with marginal hair tufts, bearing 2 hair tufts in all. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 6 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, shorter than principal. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, glabrous. Anthers 3, 2–3.3 mm long. Caryopsis 2.3 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa. Mozambique.

**Alloochaete oreogena** Launert. *Garcia de Orta, Sirie de Botbnica* 1(1–2): 91. 1973.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Malawi. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mt. Mulanje, Likuleze Valley, 23.vi.1958, *Chapman 669* (BM, holo; K; SRGH).

**Illustrations (Books):** G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999):10, T. 5), T.R.Soderstrom, K.W.Hilu, C.S.Campbell & M.E.Barkworth (246, Fig. 22.6).

**Derivation** (Clifford & Bostock 2007): Gk. oros, mountain; genea, birthplace. Mountain born, that is growing on mountains.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short (up to 12 mm diam). Butt sheaths papery, woolly, persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 100–200 cm long. Ligule a fringe of hairs, 0.5–0.9 mm long. Leaf-blades 60–130 cm long, 10–20 mm wide. Leaf-blade apex hooded.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or oblong, dense, 23–42 cm long. Panicle branches pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, (3–)6–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 20–26 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5 mm long. Floret callus elongated, 1.6–2 mm long, bearded, obtuse. Floret callus hairs 0.3 length of lemma.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic, 7–10 mm long, 0.75 length of upper glume, membranous, 1-keeled, (3–)5 -veined. Lower glume surface pilose, hairy above. Lower glume apex acuminate. Upper glume elliptic, 9–14 mm long, 0.9–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume surface pilose, hairy above. Upper glume apex dentate, 2 -fid, awned, 1 -awned.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, elliptic, (11–)13–15 mm long, membranous, 5 -veined, pilose, hairy above, dentate, 2 -fid, awned. Awn of lower sterile floret straight, 1 mm long. Fertile lemma elliptic, 10 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy above, with marginal hair tufts, bearing 2 hair tufts in all. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 13–15 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 2–4 mm long, shorter than principal. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, glabrous. Anthers 3, 5–6 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa. Malawi.

**Alloochaete ulugurensis** Kabuye. *Kew Bulletin* 30(3): 537. 1975.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mzingo: *Pocs, Kondela & Nchimbi 6298c* (EA holo, K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From the Uluguru Mountains, Tanzania.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short (1–2mm diam). Butt sheaths indurate, glossy, woolly, persistent and investing base of culm, with compacted dead sheaths. Culms robust, 50–100 cm long. Ligule a fringe of hairs, 0.8 mm long. Leaf-blades deciduous at the ligule, linear or lanceolate, flat or convolute, 35–70 cm long, 4–8 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex acute, hooded.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate or oblong, 12–14 cm long, 5–6 cm wide. Primary panicle branches ascending. Panicle branches angular, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 5–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, laterally compressed, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse. Floret callus hairs 1.5 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic, 3–3.5 mm long, 0.8–0.9 length of upper glume, herbaceous, 1-keeled, 3–5 -veined. Lower glume surface puberulous. Lower glume apex obtuse or acute, awned, 1 -awned, awn 0.5 mm long. Upper glume elliptic, 3.5–4 mm long, 0.75 length of adjacent fertile lemma, herbaceous, 1-keeled, 3–5 -veined. Upper glume surface puberulous. Upper glume apex obtuse or acute, awned, 1 -awned, awn 0.5 mm long.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, lanceolate or ovate, 4.5 mm long, herbaceous, 5 -veined, dentate, 2 -fid, awned. Awn of lower sterile floret straight, 1 mm long. Palea of lower sterile floret 0.66 length of lemma, pubescent, adorned on keels. Fertile lemma elliptic, 4.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous or puberulous, hairy above, without hair tufts. Lemma apex lobed, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, curved, reflexed, 6 mm long overall, without a column. Lateral lemma awns present, arising on apex of lobes, shorter than principal. Palea 0.75–0.8 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, glabrous. Anthers 3, 0.8–1 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa. Tanzania.

**Allolepis texana** (Vasey) Soderstr. & H. F. Decker. *Madrono* 18: 34 (1965).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Poa texana* Vasey, *Contrib. U. S. Nat. Herb.* 2: 60 (1890). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.C. Nealley 1078*, 1887, USA: Texas: El Paso Co. (US-81565).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (29).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From Texas, USA.

**Classification.** Subfamily Chloridoideae. Tribe: Eragrostideae.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms geniculately ascending, 25–65 cm long. Ligule a ciliate membrane, 0.5–1.4 mm long. Leaf-blades flat or conduplicate, 15–30 cm long, 2.5–6 mm wide. Leaf-blade margins scabrous. Dioecious.

**Inflorescence.** Inflorescence composed of racemes. Racemes 5–9, borne along a central axis, ascending or appressed, paucilateral, 1–6 cm long. Central inflorescence axis 5–20 cm long. Rhachis angular. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 8–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–20 mm long, 2.5–3.5 mm wide, falling entire.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume ovate, 7–9 mm long, 0.9 length of upper glume, coriaceous, much thinner on margins, without keels, 5–7 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume ovate, 7.5–10 mm long, 1 length of adjacent fertile lemma, coriaceous, without keels, 3(–7) -veined. Upper glume primary vein scabrous. Upper glume apex acute.

**Florets.** Fertile florets female. Fertile lemma ovate, 7.5–10 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma apex acute. Palea tightly convolute

around flower, bowed outwards, 0.9 length of lemma, coriaceous, 2 -veined. Palea keels winged, narrowly winged, ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 3–3.5 mm long.

Male inflorescence similar to female, of racemes along a central axis. Male spikelets similar to female but less developed, 4–14 flowered, persistent, lanceolate, 9–23 mm long. Male spikelet glumes 2. Male spikelet lemma 3 -veined, muticous.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** South-central USA, Mexico. Texas. Northeast Mexico. Coahuila.

**Alloteropsis angusta** Stapf. Prain, *Fl. Trop. Afr.* 9: 485 (1919).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Angola. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Benguella: Gossweiler* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. narrow*. Narrow, with respect to leaf- blades or spicate panicles.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths herbaceous, glabrous or pubescent. Culms decumbent, slender, 50–100 cm long, wiry. Ligule a fringe of hairs. Leaf-blades convolute, 5–15 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, digitate, unilateral, 4–13 cm long. Rhachis angular. Spikelet packing lax, irregular. Raceme-bases brief or filiform. Spikelets in pairs or clustered at each node. Fertile spikelets pedicelled, 2–4 in the cluster. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 2.5–4 mm long, falling entire.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.33 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, fenestrate (at base), 5 -veined, acuminate. Fertile lemma oblong, 2–3.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 0.5–1 mm long overall. Palea chartaceous. Palea surface smooth, pubescent.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, East tropical Africa, South tropical Africa. Nigeria. Kenya, Uganda. Angola, Zambia, Zimbabwe.

**Alloteropsis cimicina** (L.) Stapf. Prain, *Fl. Trop. Afr.* 9: 487 (1919).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Milium cimicinum* L., *Mant.2*: 184 (1771). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Malabar: Koenig (LINN holo).

**Illustrations (Books):** R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):618, Fig. 144), G.V.Pope et al., *Flora Zambesiaca* 10, J.Bosser, *Gramineae des Paturage et des Cultures a Madagascar* (1969) (351, Fig 132), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (217, Fig. 89), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (225, Fig. 128), K.M.Mathew, Illustrations on the *Flora of Tamilnadu Carnatic* (1982) (Pl. 801), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (215, Fig. 24), H.B.Gilliland, *Grasses of Malaya* (1971) (201, Fig. 42), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (33, Fig. 20), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (386), F.W.Gould, *The Grasses of Texas* (1975) (234, Fig. 234 as *Panicum fasciculatum*), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (250, Fig. 200 as *Panicum fasciculatum*), S.A.Renvoize, *The Grasses of Bahia*, 1984 (130, Fig. 45, as *Panicum fasciculatum*), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 727).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);, K.Domin, *Bibliotheca Botanica* 85 (1915) (326, fig.75 as *Axonopus maidenianus*).

**Derivation** (Clifford & Bostock 2007): L. cimex, bug; -ina, resemblance. Mature spikelets bear a fanciful resemblance to a small bug.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 30–120 cm long. Culm-nodes bearded. Leaf-sheaths loose, open for most of their length, with flat margins, 1.5–12 cm long, without keel, striately veined, hirsute, with tubercle-based hairs. Ligule a fringe of hairs. Leaf-blade base amplexicaul. Leaf-blades lanceolate or ovate, 3–15 cm long, 5–20 mm wide. Leaf-blade midrib evident, prominent beneath. Leaf-blade venation distinct. Leaf-blade surface ribbed, glabrous (except midrib). Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acute, simple.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–11, digitate or borne along a central axis (then corymbose and only lowest node whorled), unilateral, 7–25 cm long. Central inflorescence axis 0–10 cm long, puberulous. Rhachis angular, scabrous on surface. Spikelet packing irregular. Raceme-bases filiform (0.2–0.5 of raceme), 10–30 mm long, pilose, hairy at base. Spikelets ascending, in pairs or clustered at each node. Fertile spikelets pedicelled, 2–4 in the cluster. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, 3.5–5.5 mm long, falling entire.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume ovate, 1 length of spikelet, cartilaginous, without keels, 5 -veined. Upper glume margins ciliate (hairs 1–2mm). Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, fenestrate (at base), 5 -veined, acuminate. Fertile lemma oblong or ovate, 3–5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 2–4.5 mm long overall. Palea 1 length of lemma, chartaceous. Palea surface papillose, glabrous. Palea apex entire.

**Flower and Fruit.** Anthers 3, linear, 0.5–1 mm long, anther tip smooth. Stigmas purple. Styles 0.5–1 mm long. Ovary glabrous. Caryopsis ovoid, laterally compressed.

*N* = 18 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia, Australasia, North America (\*), South America.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean. Nigeria. Burundi, DRC. Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania, Uganda. Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana. Madagascar. **China.** Hainan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, India, Pakistan, Sri Lanka, West Himalaya. Andaman Is, Cambodia, Myanmar, Nicobar Is, Thailand. Borneo, Java, Lesser Sunda Is, Malaya, Singapore, Philippines, Sumatra. New Guinea PNG. New Guinea. **Australia.** Northern Territory, Queensland. **Southeastern USA.** Florida, Maryland. **Caribbean.** Cuba, Jamaica (as *Panicum fasciculatum*), Windward Islands (as *Panicum fasciculatum*).

**TDWG4.** Tripura. Andhra Pradesh, Delhi, Diu, Daman, Goa, Gujarat, Kerala, Karnataka. Madhya Pradesh, Maharashtra, Rajasthan, Tamilnadu, West Bengal. Darwin & Gulf. North, Central, Inland.

**Alloteropsis paniculata** (Benth.) Stapf. Prain, *Fl. Trop. Afr.* 9: 486 (1919).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Nigeria. **Basionym or Replaced Name:** *Urochloa paniculata* Benth., Hook. *Niger Fl.* 558. (1849). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Ansell s.n.*, At the confluence of the Niger on Stirling Hill, Nigeria (K).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (233, Fig. 158), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (347, Fig. 130).

**Derivation** (Clifford & Bostock 2007): L. panus, thread; -ula, diminutive; -ata, possessing. Inflorescence open with thread-like pedicels.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 60–150 cm long. Culm-nodes glabrous. Ligule a fringe of hairs. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 4–12 cm long, 8–20 mm wide. Leaf-blade margins glabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 8–25, digitate, in several whorls, unilateral, 9–20 cm long. Rhachis angular. Spikelet packing irregular. Raceme-bases brief. Spikelets in pairs or clustered at each node. Fertile spikelets pedicelled, 2–6 in the cluster. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 3.5–4.5 mm long, falling entire.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.33–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume margins ciliate (hairs 0.5mm). Upper glume apex acute or acuminate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 5 -veined, acuminate. Fertile lemma oblong, 3–4 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 2.5–7 mm long overall. Palea chartaceous. Palea surface smooth, glabrous.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa, Western Indian ocean. Ghana, Guinea, Ivory Coast, Liberia, Mali, Nigeria, Sierra Leone, DRC, Tanzania, Angola, Mozambique, Mauritius, Madagascar.

**Alloteropsis papillosa** W.D.Clayton. *Kew Bull.* 33(1): 21 (1978).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Kenya. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: KIAambu Dist.: Nairobi, 31 May 1974, *Mbuvi 469* (HT: K; IT: EA).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. papilla, nipple; -osa, abundance. With papillae on the glumes or lemmas.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths thickened and forming a bulb, pubescent. Culms erect or geniculately ascending, 40–70 cm long. Ligule a fringe of hairs. Leaf-blades 4–25 cm long, 2–8(–10) mm wide. Leaf-blade margins tuberculate-ciliate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–10, digitate, unilateral, 3–12(–20) cm long. Rhachis angular. Spikelet packing irregular. Raceme-bases brief or filiform. Spikelets in pairs or clustered at each node. Fertile spikelets pedicelled, 2–4 in the cluster. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 2.5–5 mm long, falling entire.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.25–0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume ovate, 1 length of spikelet, cartilaginous, without keels, 5 -veined. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, cartilaginous, fenestrated (at base), 5 -veined, acute. Fertile lemma lanceolate, 2–4.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 0.5–4 mm long overall. Palea chartaceous. Palea surface papillose, glabrous.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa, Southern Africa. Kenya, Tanzania, Mozambique, Mpumalanga, Kwazulu-Natal.

**Alloteropsis semialata** (R.Br.) Hitchcock. *Contrib. U. S. Nat. Herb.* 12: 210 (1909).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (& as *A. distachya*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma,

Ceylon, India and Pakistan (1960), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Australia. **Basionym or Replaced Name:** *Panicum semialatum* R.Br., *Prodromus Florae Novae Hollandiae* 1: 192. 1810. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia:, *R. Brown 6101* (HT: BM; IT: K, US-75473 (fragm.)) Littora Novae Hollandiae intra tropicum.

**Illustrations (Books):** W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi*, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (59, Pl. 22), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (424, Fig. 352), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (36, Fig 14), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (351, Fig. 132), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (217, Fig. 89), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (334, Fig. 129), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (482), C-C Hsu, *Taiwan Grasses* (1975) (526, Pl. 1420), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (26, Pl.2 as *Panicum hians*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (229, Pl. 68), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1121, Fig. 323), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (114), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (88), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (235, Fig. 37), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 728 as *Alloteropsis semialata* var. *semialata* & *A. semialata* var. *eckloniana*).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. semi, half; ala, wing; -ata, possessing; Upper glumes winged.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short, woody. Butt sheaths thickened and forming a bulb (base at times flabellate), pubescent or woolly. Culms erect or geniculately ascending, 20–150 cm long. Culm-internodes eglandular, ridged, smooth, distally glabrous. Culm-nodes bearded. Lateral branches lacking. Leaves basal and cauline. Leaf-sheaths loose, open for most of their length, with flat margins, 2–15 cm long, longer than adjacent culm internode, wider than blade at the collar, without keel, striately veined, glabrous on surface or woolly, with simple hairs or tubercle-based hairs, outer margin hairy. Leaf-sheath oral hairs bearded. Ligule a ciliate membrane (ca 0.75mm) or a fringe of hairs. Collar glabrous or pubescent. Leaf-blade base tapering to the midrib or simple (rarely). Leaf-blades flat or convolute, 10–50 cm long, 1–10 mm wide, light green or glaucous. Leaf-blade midrib evident, prominent beneath. Leaf-blade venation distinct. Leaf-blade surface scabrous, rough on both sides, glabrous or hirsute, hairy on both sides, with tubercle-based hairs. Leaf-blade margins glabrous or tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4(–8), digitate, unilateral, 2–22 cm long. Rhachis angular, with scattered hairs (rarely) or villous on surface. Spikelet packing irregular. Spikelets solitary (rarely) or in pairs or clustered at each node. Fertile spikelets pedicelled, 2–4 in the cluster. Pedicels present, angular, ciliate or villous, hairy all along but hairs longer above, tip cupuliform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension or with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 4–7.5 mm long, falling entire.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–0.7 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume ovate, 1 length of spikelet, membranous, light green (rarely with transverse purple bands), without keels, 5 -veined. Upper glume surface puberulous. Upper glume margins ciliate. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, chartaceous, fenestrate (at base), 5 -veined, truncate. Fertile lemma lanceolate, 3.5–7 mm long, chartaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma margins involute, ciliolate. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 1.5–3 mm long overall. Palea chartaceous. Palea surface smooth, pubescent. Rhachilla extension 0–0.1 length of fertile floret.

**Flower and Fruit.** Lodicules 2, cuneate. Anthers 2 or 3, 0.3 mm long, brown. Stigmas yellow or purple. Styles 0.3 mm long. Ovary glabrous. Caryopsis ovoid, 1.3–1.5 mm long.

*N* = 942 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia, Australasia, Pacific.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean. Benin, Ghana, Guinea, Nigeria, Senegal, Sierre Leone. Burundi, Central African Republic, Cameroon, DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Limpopo,

North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Eastern Cape. Madagascar. **China, Eastern Asia.** China South Central, Hainan, China Southeast. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, India, Sri Lanka. Cambodia, Laos, Myanmar, Thailand, Vietnam. Lesser Sunda Is, Malaya, Moluccas, Philippines, Sulawesi. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is. **Australia.** Western Australia, Northern Territory, Queensland, New South Wales. **Southwestern Pacific.** New Caledonia.

**TDWG4.** Fujian, Guangdong, Guangxi. Sichuan, Yunnan. Assam, Manipur, Meghalaya. Kerala. Tamilnadu, Uttah Pradesh. Kimberley. Darwin & Gulf, Victoria R & Barkly Tableland. North, Central, South East, Inland. Coast, Tablelands, Western Slopes.

**Alopecurus aequalis** Sobol. *Fl. Petrop.* 16 (1799).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Habitat in locis uliginosis cum *Alopecurus geniculatus*, in lacubus natans est, *Sobolewski s.n.* (HT: LE).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (328), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (250), C-C Hsu, *Taiwan Grasses* (1975) (403, Pl. 1377 as var. *amurensis*), H.J.Noltie, *The Grasses of Bhutan* (2000) (597, Fig. 24), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (191, Fig 139), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (232, Fig 32), D.Sharp & B.K.Simon, *AusGrass*. *Grasses of Australia*. CD-Rom Version 1.0. (2002), K.F.Best, et al, *Prairie Grasses* (1971) (55), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (785 as var. *aequalis* & var. *sonomensis*), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (343, Fig. 229), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:11(1980)).

**Derivation** (Clifford & Bostock 2007): *L. aequus*, equal; -alis, pertaining to. Glumes or lemmas similar in length.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived. Culms decumbent, 10–35 cm long, without nodal roots or rooting from lower nodes. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 2–10 cm long, 2–5 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 1–5 cm long, 0.3–0.6 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or oblong, laterally compressed, 2–2.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, similar, reaching apex of florets. Lower glume oblong, 2–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pubescent. Lower glume apex obtuse. Upper glume oblong, 2–2.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pubescent. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, 2–2.5 mm long, membranous, keeled, 4 -veined, more than 3-veined. Lemma margins connate below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.35–0.45 way up back of lemma, 1–1.5 mm long overall, not or scarcely exerted from spikelet. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1–1.3 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 7$  (2 refs TROPICOS), or  $14$  (1 ref TROPICOS).  $2n = 14$  (10 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Tropical Asia, Australasia (\*), North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Great Britain, Iceland, Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : France, Portugal, Spain. : Bulgaria, Greece, Italy, Romania, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European

Russia, Ukraine. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Khabarovsk, Kuril Is, Magadan, Primorye, Sakhalin. Kazakhstan, Kirgizistan, Turkmenistan, Tadzhikistan, Uzbekistan. Iran. China South Central, Inner Mongolia, Manchuria, China North-Central, Tibet, Xinjiang. Mongolia. Japan, Korea, Nansei-Shoto, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China.** Eastern Himalaya, Nepal, Pakistan, West Himalaya. Myanmar. **Australia, New Zealand.** New South Wales (\*), Victoria (\*). New Zealand North I, New Zealand South I. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA.** Aleutian Is, Alaska, Yukon, Northwest Territories, Greenland. Alberta, Manitoba, Saskatchewan. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, South Dakota, Wisconsin. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Vermont. Arizona, California, Nevada, Utah. New Mexico. **Mesoamerica, Northern South America, Western South America, Southern South America.** Colombia. Argentina South.

**TDWG4.** Gansu, Hebei, Shaanxi, Shandong. Anhui, Fujian, Guangdong, Henan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan. Bhutan. Assam, Nagaland. Andhra Pradesh. Uttar Pradesh. Jammu Kashmir. Western Slopes. Chubut, Neuquén, Santa Cruz, Tierra del Fuego.

**Alopecurus albovii** Tsvelev. *Novosti Sist. Vyssh. Rast.* 8: 16 (1971).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mt. Adzituko: *Albov 17* (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Nicolas Mikhailowitch Alboff (1866–1897) Russian tobanist and traveller.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes short. Butt sheaths herbaceous, glabrous. Culms 10–30 cm long. Ligule an eciliate membrane, 0.3–0.7 mm long. Leaf-blades 1.5–4 mm wide. Leaf-blade surface smooth to scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Panicle spiciform, elliptic, 0.9–1.8 cm long, 0.6–1.1 cm wide. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.5–5 mm long, falling entire.

**Glumes.** Glumes similar, exceeding apex of florets. Lower glume oblong, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pubescent. Lower glume apex acute, awned, 1 -awned, awn 0.7–1.5 mm long. Upper glume oblong, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pubescent. Upper glume apex acute, awned, 1 -awned, awn 0.7–1.5 mm long.

**Florets.** Fertile lemma ovate, 2–3 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins ciliolate, hairy above. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, curved, 3.5–6 mm long overall, clearly exerted from spikelet. Palea 0.5 length of lemma.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1.3–2 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** **Caucasus.** North Caucasus.

**TDWG4.**

**Alopecurus anatolicus** M. Dogan. *Notes Roy. Bot. Gard. Edinburgh* 45(1): 114 (1988).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turkey, Sivas to Tatlica: Tobey 1679 (E holo).

**Illustrations (Books):** No illustration found (BKS).



**Derivation** (Clifford & Bostock 2007): *L. -ica*, belonging to. From Anatolia, Turkey.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 15–33 cm long, 2-noded. Culm-internodes smooth, distally glabrous. Leaf-sheaths glabrous on surface or puberulous, outer margin hairy (below). Ligule an eciliate membrane, 2–4 mm long, obtuse. Leaf-blades 2–6 cm long, 2–6 mm wide, glaucous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, oblong, 2.5–3 cm long, 0.7–1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5–7 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.15 of their length connate, similar, exceeding apex of florets, recurved at apex. Lower glume lanceolate, 5–7 mm long, 1 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume primary vein ciliate. Lower glume apex acuminate. Upper glume lanceolate, 5–7 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume primary vein ciliate. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 4–5 mm long, membranous, keeled, 5-veined, more than 3-veined. Lemma margins connate below, with 0.5 of their length connate. Lemma apex acute, awned, 1-awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or curved, 5–6.5 mm long overall, with a straight or slightly twisted column. Palea 3 mm long, 1-veined.

**Flower and Fruit.** Lodicules absent. Anthers 3, 3 mm long, yellow.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Western Asia.** Turkey.

***Alopecurus apiatus*** Ovczinn. Komarov, *Fl. URSS* 2: 146, 744 (1934).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, N. Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ary-Tasch: *Alexeenkov 1355* (LE holo).

**Illustrations (Books):** N.L. Bor, *Gramineae in Flora of Iraq* (1968) (296, Pl. 106).

**Derivation** (Clifford & Bostock 2007): *L. crisped*. Inflorescence invested in curly hairs which turn red at maturity.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect, 30–60 cm long. Culm-internodes glaucous. Ligule an eciliate membrane. Leaf-blades 7–15 cm long, 2–6 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, linear, 1.5–4 cm long, 0.8–1.1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 4.5–5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.2–0.25 of their length connate, similar, reaching apex of florets, recurved at apex. Lower glume lanceolate, 4.5–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume primary vein ciliate. Lower glume surface pilose. Lower glume apex acute. Upper glume elliptic, 4.5–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume primary vein ciliate. Upper glume surface pilose. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 4.5–5 mm long, membranous, keeled, 5-veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma margins connate below. Lemma apex truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 8–9 mm long overall, clearly exerted from spikelet, with twisted column.

**Flower and Fruit.** Lodicules absent. Anthers 3. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Middle Asia, Western Asia.** Turkmenistan. Iran, Iraq.

**TDWG4.**

**Alopecurus arundinaceus** Poir. *Encyc.* 8: 766. (1808).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from France. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Paris: *Poiret* (P holo).

**Illustrations (Books):** N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (563 (377), Pl.7 as *A. pratensis*), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 287), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (783), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 512).

**Derivation** (Clifford & Bostock 2007): *L. arundo*, reed; -acea, like. Culm tall, thereby resembling a reed.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 23–105 cm long, 2-noded. Leaf-sheaths glabrous on surface or puberulous. Ligule an eciliate membrane, 1.5–5 mm long, truncate or obtuse. Leaf-blades 6–40 cm long, 3–10 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, linear, 1.7–7 cm long, 0.6–1.4 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3.5–7 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.25 of their length connate, similar, reaching apex of florets or exceeding apex of florets, recurved at apex. Lower glume lanceolate, 3.5–7 mm long, 1 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume primary vein ciliate. Lower glume surface pilose, hairy on veins. Lower glume hairs 1–2 mm long. Lower glume apex acute. Upper glume lanceolate, 3.5–7 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume primary vein ciliate. Upper glume surface pilose, hairy on veins. Upper glume hairs 1–2 mm long. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 3.5–5.8 mm long, membranous, keeled, 5-veined, more than 3-veined. Lemma margins connate below, with 0.33 of their length connate. Lemma apex truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.4 way up back of lemma, straight or curved, 5–7.5 mm long overall, not or scarcely exerted from spikelet.

**Flower and Fruit.** Lodicules absent. Anthers 3, 3–3.6 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 14$  (4 refs TROPICOS).  $2n = 28$  (7 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Tropical Asia, North America (\*).

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Norway, Sweden. : Germany, Poland, Switzerland. : Portugal, Spain. : Bulgaria, Greece, Italy, Romania, Turkey Europe, Yugoslavia. Estonia, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Russia.** Buryatiya, Chita, Irkutsk, Tuva. Amur, Kuril Is, Magadan, Primorye. Kazakhstan, Kirgizistan, Turkmenistan, Tadzhikistan, Uzbekistan. Iran, Iraq. Inner Mongolia, Manchuria, China North-Central, Qinghai, Xinjiang. Mongolia. **Indian Subcontinent.** Pakistan, West Himalaya. **North-central USA.** North Dakota.

**TDWG4.** Gansu.

**Alopecurus aucheri** Boiss. *Diagn. Ser.* 1, 8: 41. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Iran. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Mt. Elbrus: Aucher 5457 (G syn).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Pierre Martin Reni Aucher-Elroy (1792–1838) French botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Butt sheaths glabrous, persistent and investing base of culm, with reticulate dead sheaths. Culms erect, 20–60 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2 mm long, obtuse. Leaf-blades 3–15 cm long, 2–5 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, elliptic or oblong, 1.3–2.5 cm long, 1–1.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4.5–5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.1 of their length connate, similar, exceeding apex of florets. Lower glume lanceolate, 4.5–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pilose. Lower glume apex acuminate, awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 4.5–5 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pilose. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma oblong, 3–4 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight or geniculate, 6.5–10 mm long overall, clearly exerted from spikelet, without a column or with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1.8–2.7 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Caucasus, Western Asia.** Transcaucasus. Iran.

**TDWG4.**

**Alopecurus baptarrhenius** S.M. Phillips. *Kew Bull.* 41(4): 1027 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Dinsho: *Gilbert 1818* (K holotype).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (53, Fig. 25).

**Derivation** (Clifford & Bostock 2007): Gk. bapto, bright-colored; arrhen, male. The persistent anthers are initially yellow, then reddish-brown.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived. Culms erect or geniculately ascending, 10–30 cm long. Leaf-sheaths loose. Ligule an eciliate membrane, 3–6 mm long, acute. Leaf-blades flat or conduplicate, 5–10 cm long, 1–3 mm wide. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or oblong, 2.5–4.5 cm long. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–4.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, similar, reaching apex of florets. Lower glume oblong, 3–4.5 mm long, 1 length of upper glume, membranous, much thinner above, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pubescent. Lower glume hairs 0.5 mm long. Lower glume apex obtuse. Upper glume oblong, 3–4.5 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pubescent. Upper glume hairs 0.5 mm long. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, 3–4.5 mm long, membranous, keeled, 4 -veined, more than 3-veined. Lemma margins connate below, with 0.33–0.5 of their length connate. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 3 mm long overall, clearly exerted from spikelet (1–1.6mm). Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1.3–2 mm long, orange. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Ethiopia (inc. Eritrea).

**Alopecurus bonariensis** Parodi & Thellung. Fedde, *Repert.* 23 :302 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Avellaneda: *Parodi 6526*.

**Illustrations (Books):** A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (131, Fig. 43), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (214, Fig. 55), M.N.Correa, *Flora Patagonica Parte III, Gramineae* (1978) (343, Fig. 230), B.Rosengurt, *Gramineas Uruguayas I* (1970) (22, Fig. 3).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Provincia de Buenos Aries, Argentina.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 5–30 cm long. Ligule an eciliate membrane, 2–3.5 mm long, obtuse. Leaf-blades 3–6 cm long, 2.5–3 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath, exerted or embraced at base by subtending leaf. Peduncle cylindrical at apex. Panicle spiciform, oblong or ovate, 1–3 cm long, 0.4–0.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 2.6–2.8 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.33 of their length connate, similar, exceeding apex of florets. Lower glume ovate, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scabrous, ciliate (below / tip). Lower glume surface pubescent. Lower glume apex obtuse. Upper glume ovate, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous, ciliate (below / tip). Upper glume surface pubescent. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, 2.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.33 of their length connate. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3–3.5 mm long overall, with twisted column.

**Flower and Fruit.** Lodicules absent. Anthers 3, 0.5–0.6 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp, 1.3–1.5 mm long. Hilum punctiform.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast, Argentina South.

**TDWG4.** Buenos Aires, Distrito Federal, Entre Rios, La Pampa, Santa Fe. Chubut.

**Alopecurus borii** Tsvelev. *Novosti Sist. Vyssh. Rast.*, 8: 21 (1971).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Amu Darya: *Nadezhina* (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Norman Loftus Bor (1893–1972) Irish-born Indian forest botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 10–30 cm long. Ligule an eciliate membrane, 1.5–4 mm long. Leaf-blades 1.2–4 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 2–6 cm long, 0.2–0.45 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs, puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 2.7–3.2 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.25–0.33 of their length connate, similar, shorter than spikelet. Lower glume elliptic, 2.5–3 mm long, 1 length of upper glume, cartilaginous, 1-keeled, winged on keel, 3 -veined. Lower glume primary vein ciliate. Lower glume apex acute. Upper glume elliptic, 2.5–3 mm

long, 0.9 length of adjacent fertile lemma, cartilaginous, 1-keeled, winged on keel, 3 -veined. Upper glume primary vein ciliolate. Upper glume hairs 0.2 mm long. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2.7–3.2 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below. Lemma apex truncate, mucous. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 0.5–0.8 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Middle Asia. Uzbekistan.

**TDWG4.**

### **Alopecurus bornmuelleri** Domin. *Fedde, Repert. Nov. Sp.* 1: 4. (1905).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Palestine. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Palestine: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph Friedrich Nicolaus Bornmüller (1862–1948) German botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms erect, 25–35 cm long. Ligule an eciliate membrane, 2 mm long. Leaf-blades 2–5 mm wide.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, oblong, 2–4 cm long, 1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 6–6.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.33 of their length connate, similar, exceeding apex of florets, parallel to lemmas. Lower glume oblong, 1 length of upper glume, membranous, 1-keeled, winged on keel, winged narrowly, 3 -veined. Lower glume primary vein scabrous, ciliate (below). Lower glume apex acute. Upper glume oblong, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, winged on keel, 3 -veined. Upper glume primary vein scabrous, ciliate (below). Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 5.5–6 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.33 of their length connate. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0–0.1 way up back of lemma, geniculate, 8–12 mm long overall, with twisted column.

**Flower and Fruit.** Lodicules absent. Anthers 3. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Palestine, Israel & Jordan.

### **Alopecurus brachystachyus** Bieb. *Fl. Taur. Cauc. Suppl.* 56. (1819).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Transbaical: Coll? (LE holotype).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 510).

**Derivation** (Clifford & Bostock 2007): Gk. brachys, short; stachys, ear of corn. Inflorescence comprised of short branches or spikelets short.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 30–80 cm long. Leaf-sheaths smooth. Ligule an eciliate membrane, 1.5–2 mm long, truncate or obtuse. Leaf-blades 4–8 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, oblong, 2–3.5 cm long, 1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 4–5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.33 of their length connate, similar, reaching apex of florets, recurved at apex. Lower glume elliptic, 4–5 mm long, 1 length of upper glume, cartilaginous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pubescent. Lower glume hairs 0.2 mm long. Lower glume apex acute. Upper glume elliptic, 4–5 mm long, 1 length of adjacent fertile lemma, cartilaginous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pubescent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 4–5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 10–12 mm long overall, clearly exerted from spikelet, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, Russian far east, **China, Mongolia.** Buryatiya, Chita, Irkutsk, Tuva. Amur, Primorye. Inner Mongolia, Manchuria, China North-Central, Qinghai. Mongolia.

**TDWG4.** Hebei.

### **Alopecurus bulbosus** Gouan. *Hort. Monsp.* 37 (1762).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from France. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Montpellier: *Gouan* (K holotype).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (3330).

**Derivation** (Clifford & Bostock 2007): *L. bulbosus*, onion; -osa, abundance. Culm-bases swollen.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 15–50 cm long, swollen at the base, forming an ovoid corm. Ligule an eciliate membrane, 2–6 mm long. Leaf-blades flat or convolute, 1.5–12 cm long, 1–3.5 mm wide. Leaf-blade surface smooth.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 1.5–7 cm long, 0.3–0.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis or with lateral stumps on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–4 mm long, falling entire.

**Glumes.** Glumes similar, exceeding apex of florets. Lower glume oblong, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliolate. Lower glume surface pubescent, hairy below. Lower glume apex acute. Upper glume oblong, 3–4 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliolate. Upper glume surface pubescent, hairy below. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.5–3.5 mm long, membranous, keeled, 4 -veined, more than 3-veined. Lemma margins connate below. Lemma apex truncate, pubescent, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 5–7 mm long overall, clearly exerted from spikelet, with a straight or slightly twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp, 1.6 mm long. Hilum punctiform.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Great Britain. : Belgium, Germany, Netherlands. : Corsica, France, Sardinia, Spain. : Italy, Sicily, Yugoslavia. **Northern Africa.** Algeria, Morocco, Tunisia. **Western Asia.** Turkey.

### **Alopecurus carolinianus** Spreng., non Walt.(1788). *Nachr.1 Bot. Gart. Halle*, 10 (1801).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Cornucopiae perennans* ; USA, South Carolina: Walter.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (787), F.W.Gould, *The Grasses of Texas* (1975) (151, Fig. 75).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From Carolina, USA.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 10–50 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3.5–7 mm long. Leaf-blades 3–15 cm long, 1–4 mm wide. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 2–6 cm long, 0.4–0.6 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.8–3 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.25–0.33 of their length connate, similar, reaching apex of florets. Lower glume ovate, 1.8–3 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 1.8–3 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 1.8–2 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 3–5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 0.3–0.5 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp, 1–1.4 mm long. Embryo 0.25 length of caryopsis. Hilum punctiform.

$2n = 14$  (1 ref TROPICOS), or  $28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** **Western Canada, Eastern Canada, Northwest USA, North-central USA, Southwestern USA, South-central USA, Southeastern USA.** British Columbia, Saskatchewan. Quebec. Idaho. Missouri. California. Texas. Alabama, Arkansas, Delaware, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia.

## **Alopecurus creticus** Trin. *Spreng. Neue Entdeck.* 2: 45. (1820).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as *A. thracicus*), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Crete. **Basionym or Replaced Name:** *Alopecurus agrestis* Sieber ex Kunth, in syn, *Enum. Pl.* 1: 24 (1833). T:<Type of Basionym>; *fide* TROPICOS and Kew Synonymy Database: *Sieber* (LE iso).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (787), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (214, Fig. 55 as *A. agrestis*).

**Derivation** (Clifford & Bostock 2007): L. -icum, belonging to. From Crete.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 7–22 cm long, 2–3 -noded, rooting from lower nodes. Culm-internodes distally glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, obtuse. Leaf-blades 1–7 cm long, 1–3.5 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an unspecialized leaf-sheath or an inflated leaf-sheath. Panicle spiciform, linear, 2–3.5 cm long, 0.4–0.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–4 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.5–0.8 of their length connate, similar, exceeding apex of florets, recurved at apex. Lower glume lanceolate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, winged on keel, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pilose, hairy above. Lower glume apex obtuse, mucronate. Upper glume lanceolate, 3–4 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, winged on keel, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pilose, hairy above. Upper glume apex obtuse, mucronate.

**Florets.** Fertile lemma oblong, 2.7–3.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.5–0.66 of their length connate. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, geniculate, 3–6 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1.2–2.5 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, South America.

**Region. Southeastern Europe.**

**Country /Province /State.** : Bulgaria, Greece, Crete, Yugoslavia. **Western Asia.** Turkey. **Southern South America.** Argentina Northeast, Argentina South.

**TDWG4.** Buenos Aires. Río Negro.

### ***Alopecurus dasyanthus* Trautv. Act. Hort. Petrop. 5: 486 (1877).**

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kerigo: Radde (LE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. dasys, hairy; anthos, flower. Glumes and lemmas densely hairy.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths scarious, persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 15–30 cm long. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blades filiform, conduplicate or involute, 5–10 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform or capitate, elliptic or globose, 1–1.7 cm long, 1–1.2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–4.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, similar, reaching apex of florets, recurved at apex. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume margins ciliate. Lower glume apex acuminate, awned, 1 -awned, awn 1–1.5 mm long. Upper glume lanceolate, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume margins ciliate. Upper glume apex acuminate, awned, 1 -awned, awn 1–1.5 mm long.

**Florets.** Fertile lemma ovate, 3–4.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 9 mm long overall, clearly exerted from spikelet, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 14$  (2 refs TROPICOS), or  $28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** **Caucasus, Western Asia.** North Caucasus, Transcaucasus. Iran.

**TDWG4.**

### ***Alopecurus davisii* Bor. Notes Roy. Bot. Gard. Edinb. 25: 63 (1963).**

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Samos: Davis 1688 (K holo, E).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Peter Hadland Davis (1918-) Scots botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Butt sheaths villous. Culms erect, 7.5–38 cm long, 1 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–2 mm long, acute. Leaf-blades convolute, 1–5 cm long, 1–3 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate. Leaf-blade apex obtuse, simple or apiculate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle capitate, ovate, 0.9–2 cm long, 0.7–1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.



**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3.5–4.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, similar, reaching apex of florets. Lower glume lanceolate, 3.5–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pilose. Lower glume apex acute, awned, 1 -awned, awn 1–1.5 mm long. Upper glume lanceolate, 3.5–5.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pilose. Upper glume apex acute, awned, 1 -awned, awn 1–1.5 mm long.

**Florets.** Fertile lemma oblong, 3.5–4 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.33 of their length connate. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, geniculate, 7–10 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2.5–3 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. East Aegean Is.

### **Alopecurus geniculatus** Linn. *Sp. Pl.* ed. I. 60. (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983) (& as *A. australis*).

**TYPE** from Europe. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Herb. Burser* 1: 26, (UPS). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 245 (2000).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (332), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (191, Fig. 140), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (499, Fig. 97), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (115), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (90), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (133, Fig. 20), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (232, Fig. 32), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (785), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (343, Fig. 231 as var. *patagonicus*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:12(1980)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): L. genus, knee; -ulus, diminutive. -ata, possessing. Plants with bent culms or awns.

**Classification.** Subfamily Pooideae. Tribe: Poaeae.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 15–45 cm long, 1–5 -noded, rooting from lower nodes. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 2–12 cm long, 2–7 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 1.5–7 cm long, 0.3–0.7 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 2.5–3.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, similar, exceeding apex of florets or reaching apex of florets. Lower glume oblong, 2.5–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pubescent. Lower glume apex obtuse. Upper glume oblong, 2.5–3.5 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pubescent. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, 2.5–3.5 mm long, membranous, keeled, 4 -veined, more than 3-veined. Lemma margins connate below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, 3.5–5 mm long overall, clearly exerted from spikelet. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1.5–2 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 7$  (1 ref TROPICOS).  $2n = 28$  (11 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Foroyar, Great Britain, Iceland, Ireland, Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands, Switzerland. : France, Portugal, Spain. : Bulgaria, Italy, Romania, Sicily, Turkey Europe, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa.** Algeria. Russian far east, **Western Asia.** Kuril Is, Sakhalin. Iran. **Indian Subcontinent, Malesia.** Assam. Malaya. **Australia, New Zealand.** New South Wales (\*), Queensland (\*), South Australia (\*), Tasmania (\*), Victoria (\*), Western Australia (\*). Chatham Is, New Zealand North I, New Zealand South I, Stewart Is, Campbell Is, Auckland Is. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Labrador, New Brunswick, Newfoundland, Nova Scotia, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Kansas. Connecticut, Maine, Massachusetts, Michigan, New Jersey, New York, Pennsylvania, Rhode Island. Arizona, California. Virginia. Northeast Mexico. **Southern South America.** Argentina Northeast, Argentina South, Chile South.

**TDWG4.** Assam. Uttah Pradesh. Himachal Pradesh, Jammu Kashmir. Eremean. NW & Lake Eyre, Southern. South East, Inland. Tablelands, Western Slopes, Western Plains. Buenos Aires. Chubut, Río Negro, Santa Cruz, Tierra del Fuego. Magellanes. Chihuahua.

**Alopecurus gerardii** (All.) Vill. *Fl. Delph. 5; Hist. Pl. Dauph. 2:* 66. t. 2. (1787).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from France. **Basionym or Replaced Name:** *Phleum gerardii* All., *Fl. Pedem. 2:* 232 (1785). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Villars s.n.*, France: au fond du Valgaudemar, a Orcieres, sur le Mont-Genevre, vivace (GRM).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of John Gerard (1545–1612) English botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect or geniculately ascending, 7–40 cm long, 2-noded. Culm-internodes smooth, distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades 1–7 cm long, 1–4.2 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, ovate, 1–2 cm long, 0.7–1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4–6.3 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.1 of their length connate, similar, exceeding apex of florets, recurved at apex. Lower glume lanceolate, 4–6.3 mm long, 1 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume primary vein ciliate. Lower glume surface pilose. Lower glume apex mucronate or awned, 1-awned, awn 0.5–1.5 mm long. Upper glume lanceolate, 4–6.3 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume primary vein ciliate. Upper glume surface pilose. Upper glume mucronate or awned, 1-awned, awn 0.5–1.5 mm long.

**Florets.** Fertile lemma oblong, 3–4 mm long, membranous, keeled, 5-veined, more than 3-veined. Lemma surface with conspicuous apical hairs. Lemma margins free. Lemma apex truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 0.8–6 mm long overall, not or scarcely exerted from spikelet. Palea linear, 2.5–3.5 mm long, 1-veined, 1-keeled. Palea keels ciliate, adorned above, with 0.5 of their length adorned. Palea apex acuminate.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2–2.5 mm long. Stigmas terminally exerted, pubescent.

$2n = 14$  (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : France, Spain. : Albania, Bulgaria, Greece, Italy, Yugoslavia. **Western Asia.** Turkey.

**Alopecurus glacialis** C. Koch. *Linnaea* 21: 382. (1848).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Koch s.n.*, Aug 1843, Turkey: A8 Rize: auf dem Rcken des pontischen Gebirges, im Gaue Hemschin, auf Granitboden, 2652 m (B(destroyed); IT: G).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. frozen. Growing at high altitudes.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths glabrous. Culms erect, 35–70 cm long, 2-noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–1.5 mm long, obtuse. Leaf-blades 2–15 cm long, 1–2.7 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, oblong or ovate, 0.9–2.5 cm long, 0.6–0.9 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3.5–5.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.1 of their length connate, similar, exceeding apex of florets, recurved at apex. Lower glume lanceolate, 3.5–5.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 3-veined. Lower glume primary vein ciliate. Lower glume surface pilose. Lower glume apex setaceously acuminate, mucronate. Upper glume lanceolate, 3.5–5.5 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3-veined. Upper glume primary vein ciliate. Upper glume surface pilose. Upper glume apex setaceously acuminate, mucronate.

**Florets.** Fertile lemma oblong, 3–4 mm long, membranous, keeled, 5-veined, more than 3-veined. Lemma margins connate below. Lemma apex erose, truncate, awned, 1-awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight or geniculate, 3–4.4 mm long overall, not or scarcely exerted from spikelet, without a column or with twisted column. Palea present or absent or minute, linear, 2–2.6 mm long, 1-veined, 1-keeled.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2–3.5 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Caucasus, Western Asia. Iran.

**TDWG4.**

**Alopecurus hebeochloides** Hack. Fedde, *Repert.* 10:166 (1911).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Colina to Batuco: Reiche (W hol).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *-oides*, resembling. Resembling *Heleochloa* in some respect.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 3–8 cm long, 2–3-noded. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, obtuse or acute. Leaf-blades 4–10 cm long, 2–3 mm wide, flaccid. Leaf-blade surface scaberulous, glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, shorter than basal leaves, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Panicle spiciform, ovate, loose, 1–1.5 cm long, 0.6–0.8 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, truncate, 3 mm long, 1.5 mm wide, falling entire.

**Glumes.** Glumes similar, shorter than spikelet or reaching apex of florets, recurved at apex. Lower glume oblong, 3 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, 1-

keeled, 3 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins distinct, convergent at apex. Lower glume surface hispidulous, hairy on veins. Lower glume apex obtuse. Upper glume oblong, 3 mm long, 0.9–1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein ciliolate. Upper glume lateral veins convergent at apex. Upper glume surface hispidulous, hairy on veins. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, 3 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.75–0.8 of their length connate. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, straight, 1–1.5 mm long overall, not or scarcely exerted from spikelet. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 2, 1 mm long. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Chile Central, Chile South. Coquimbo, Santiago. Magellanes.

### **Alopecurus himalaicus** Hook. f. *Fl. Brit. Ind.* 7: 238. (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Kashmir: *Falconer* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From the Himalayas.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect, 30–80 cm long. Ligule an eciliate membrane, 2–3 mm long, obtuse. Leaf-blades 5–12 cm long, 3–6 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, elliptic or ovate, 1.5–3.2 cm long, 0.8–1.2 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.1 of their length connate, similar, exceeding apex of florets, parallel to lemmas or recurved at apex. Lower glume lanceolate, 3–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface villous. Lower glume hairs 2–3 mm long. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 3–5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface villous. Upper glume hairs 2–3 mm long. Upper glume apex acute to setaceously acuminate.

**Florets.** Fertile lemma oblong, 2.7–4.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.33–0.5 of their length connate, eciliate or ciliate, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, geniculate, 9.5 mm long overall, clearly exerted from spikelet, with twisted column. Column of lemma awn 4.5 mm long.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2–3 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, Tropical Asia.

**Region. Southeastern Europe.**

**Country /Province /State. :** Bulgaria. **Middle Asia, Western Asia, China.** Kirgizistan, Turkmenistan, Tadjikistan. Afghanistan, Iran. Xinjiang. **Indian Subcontinent.** Pakistan, West Himalaya.

**TDWG4.** Jammu Kashmir.

### **Alopecurus hitchcockii** Parodi. *Rev. Fac. Agron. & Vet., Buenos Aires*, 7: 366 (1931).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.F. MacBride* 3078, 28 Mar 1923, Peru: Pasco (US-1256386).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (Fig. 47).

**Illustrations (Journals):** *Ruizia* (13:209, Fig 22d-f (1993)).

**Derivation** (Clifford & Bostock 2007): in honor of Albert Spear Hitchcock (1865–1935), United States agrostologist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms decumbent, 20–40 cm long. Leaf-sheaths inflated, glabrous on surface. Ligule an eciliate membrane, 3 mm long, acuminate. Leaf-blades 5–12 cm long, 1–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or oblong, 1.5–3.5 cm long. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–3.2 mm long, falling entire.

**Glumes.** Glumes similar, reaching apex of florets. Lower glume oblong, 3–3.2 mm long, 1 length of upper glume, membranous, purple or black, 1-keeled, 3 -veined. Lower glume apex truncate. Upper glume oblong, 3–3.2 mm long, 1 length of adjacent fertile lemma, membranous, purple or black, 1-keeled, 3 -veined. Upper glume apex truncate.

**Florets.** Fertile lemma elliptic, 3–3.2 mm long, membranous, keeled, 4 -veined, more than 3-veined. Lemma apex truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight, 1–1.5 mm long overall, not or scarcely exerted from spikelet. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia. Argentina Northwest.

**TDWG4.** Jujuy.

**Alopecurus japonicus** Steud. *Syn. Pl. Gram.* 149. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Japan. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Japan:, (HT: L).

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (200, Fig 70), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 514).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to; Japan, a modified spelling Zhapan introduced into Europe by Marco Polo as a transliteration for the Chinese name for the large islands to the east of that country. From Japan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped densely. Basal innovations intravaginal. Culms geniculately ascending, 20–60 cm long, 1–2 mm diam., 3–4 -noded. Culm-internodes 2–8 cm long. Leaves basal and cauline. Leaf-sheaths loose, 3–4 cm long. Ligule an eciliate membrane, 2–4 mm long, white, obtuse. Leaf-blades 3–15 cm long, 3–8 mm wide, glaucous, pruinose. Leaf-blade surface scabrous, rough adaxially, glabrous.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, linear, 3–10 cm long, 0.5–1 cm wide. Primary panicle branches accrescent to a central axis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.3–0.8 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5–6 mm long, falling entire.

**Glumes.** Glumes free, similar, shorter than spikelet, shiny. Lower glume elliptic, 4.2–4.5 mm long, 1.1 length of upper glume, membranous, light green, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume apex acute. Upper glume elliptic, 4–4.3 mm long, 0.8 length of adjacent fertile lemma, membranous, light green, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 5–6 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins free or connate below. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 10–12 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1 mm long, pallid or yellow. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp, 2–2.5 mm long. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China, Eastern Asia.** China South Central, China North-Central, China Southeast. Japan, Korea. Japan Honshu, or Shikoku, or Kyushu.

**TDWG4.** Shaanxi. Anhui, Fujian, Guangdong, Henan, Jiangsu, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan.

**Alopecurus laguroides** Balansa. *Bull. Soc. Bot. Fr.* 21: 11 (1874).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Balansa 1551*, 15 Aug 1866, Turkey: A8 Riza: region alpine Karadeniz audessus se Djimil (Cimil) vers 3000 m alt. (P; IT: E, G).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling *Lagurus* in respect of the inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Butt sheaths glabrous. Culms erect, 5–20 cm long, 1–2 -noded. Culm-internodes distally glabrous. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.3–1 mm long, erose, truncate. Leaf-blades flat or convolute, 1–8 cm long, 0.5–2.5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins smooth or scaberulous. Leaf-blade apex obtuse to acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an unspecialized leaf-sheath or an inflated leaf-sheath. Panicle capitate, elliptic or ovate, 0.8–2 cm long, 0.8–1.4 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3.5–4 mm long, falling entire.

**Glumes.** Glumes free or connate along margins below, 0–0.1 of their length connate, similar, exceeding apex of florets. Lower glume linear, 3.5–4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface villous. Lower glume apex acute, awned, 1 -awned, awn 0.8–2 mm long, awn ciliate. Upper glume linear, 3.5–4 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface villous. Upper glume apex acute, awned, 1 -awned, awn 0.8–2 mm long, awn ciliate.

**Florets.** Fertile lemma oblong, 2.4–3 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins connate below. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.25 way up back of lemma, geniculate, 7–9 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1–1.4 mm long, yellow or purple. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Western Asia.** Turkey.

**Alopecurus lanatus** Sibth. & Sm. *Prod.* 1: 43. (1806).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turkey, Olympi Bythyni: *Sibthorp* (OXF holo, BM).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. lana, wool; -ata, possessing. Leaf-blades densely pubescent.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Butt sheaths pubescent. Culms erect, 3.5–30 cm long, 1 -noded. Culm-internodes distally pubescent. Leaves mostly basal. Leaf-sheaths pubescent. Ligule an eciliate membrane, 1.5–2.5 mm long, acute. Leaf-blades convolute, 1.5–5 cm long, 2–3 mm wide. Leaf-blade surface pubescent, densely hairy, hairy on both sides. Leaf-blade apex obtuse, simple or apiculate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle capitate, ovate or globose, 0.8–1.5 cm long, 0.8–1.5 cm wide. Primary panicle branches accrescent to a central axis, with evident

branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3.5–5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.1 of their length connate, similar, exceeding apex of florets. Lower glume lanceolate, 3.5–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface hispid. Lower glume apex acute, awned, 1 -awned, awn 1–1.5 mm long. Upper glume lanceolate, 3.5–5 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface hispid. Upper glume apex acute, awned, 1 -awned, awn 1–1.5 mm long.

**Florets.** Fertile lemma oblong, 2.4–3.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma surface pilose, hairy above. Lemma margins connate below, with 0.1 of their length connate. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.15–0.2 way up back of lemma, geniculate, 6.5–11 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1.8–2.7 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

*N* = 7 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Turkey.

### ***Alopecurus lechleri*** Steud. *Syn. Pl. Gram.* 148 (1854).

Regarded by K as a synonym (*A. magellanicus*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Chile: Valdivia, *hb Lechler 440A. antarcticus* Lechler mspt.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Willibeld Lechler (1814–1856) German apothecary and traveller who collected in South America.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Chile South. Los Lagos.

### ***Alopecurus longearistatus*** Maxim. *Prim. Fl. Amur.* 327 (1859).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Khakhe: Maximovich (LE holo, K).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 513).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; arista, bristle. Lemmas or glumes long awned.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending, 15–35 cm long. Leaf-sheaths loose, smooth. Ligule an eciliate membrane, 3–4 mm long, acute. Leaf-blades 3–10 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Panicle spiciform, linear, 4–7 cm long, 0.3–0.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, falling entire.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume oblong, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume apex acute. Upper glume oblong, 1 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 2.5–3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 5–9 mm long overall, clearly exerted from spikelet, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 0.5–0.7 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Russian far east, **China.** Primorye. Manchuria.

**TDWG4.** Heilongjiang.

## **Alopecurus magellanicus** Lam. *Illustr.* 1:168 (1791).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as *A. borealis*).

**TYPE** from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Magellan: Commerson (P holo).

**Recent Synonyms:** *Alopecurus alpinus* Sm., non Vill.(1786), *Fl. Brit.* 3: 1386. (1803).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (336, as *A. alpinus*), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (783), S.A.Rennoize, *Gramineas de Bolivia* (1998) (241, Fig 47), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (168, Fig. 42), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (214, Fig. 55 as *A. antarcticus* var. *brachyatherus*), M.N.Correa, *Flora Patagonica Parte III, Gramineae* (1978) (332, Fig 225 as varieties *brachyatherus* & *bracteatus*).

**Images:** Plant Image Collection Smithsonian Institution; R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007); (as *A. borealis*).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From the Straits of Magellan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 20–100 cm long, 3–6 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades 10–35 cm long, 5–10 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle tipped by a glumaceous appendage. Panicle spiciform, oblong or ovate, 1.5–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 4.5–6 mm long, falling entire.

**Glumes.** Glumes similar, exceeding apex of florets. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pubescent. Lower glume hairs 1–2 mm long. Lower glume apex acute. Upper glume lanceolate, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pubescent. Upper glume hairs 1–2 mm long. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 3.5–4.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.5 of their length connate, ciliolate, hairy above. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 4.5–9 mm long overall, with twisted column.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2.5–3 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, South America, Antarctica.

**Region. Northern Europe, Eastern Europe.**

**Country /Province /State. :** GB Aliens (Ryves et al). East European Russia, North European Russia, South European Russia. Siberia, Russian far east, **Middle Asia.** Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Kamchatka, Magadan. Kazakhstan. **Western Canada, Eastern Canada, Northwest USA, Southwestern USA.** British Columbia, Manitoba, Saskatchewan. Labrador, Ontario. Colorado, Idaho, Montana, Wyoming. Utah. **Western South America, Southern South America.** Bolivia. Argentina South, Chile Central, Chile South. **Subantarctic islands.** Falkland Is (Malvinas).

**TDWG4.** Mendoza. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Rest of Chile- Biobio, La Araucania, Maule, O'Higgins, Santado, Valpariso, Chiloe, Aisen, Magellanes. Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes.



**Alopecurus mucronatus** Hack. ex Paulsen. *Kjoeb. Vidensk. Meddel.* 1903, 162. (1903).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Pamir: Paulsen 772 (C holotype, LE).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. mucro, sharp point; -ata, possessing. With glumes or lemmas contracted into a short hard point or bifid and shortly awned from between the teeth.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Butt sheaths glabrous. Culms erect, 7–14 cm long. Leaves mostly basal. Ligule an eciliate membrane. Leaf-blades flat or conduplicate, 6–10 cm long, 4 mm wide, stiff. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform or capitate, oblong or ovate, 1.5–2 cm long, 1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile floret, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or ovate, laterally compressed, 4 mm long, falling entire.

**Glumes.** Glumes similar, exceeding apex of florets, recurved at apex. Lower glume oblong, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pilose. Lower glume apex acuminate, mucronate. Upper glume oblong, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pilose. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma ovate, 4 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, 4 mm long overall. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Middle Asia, Western Asia. Turkmenistan. Iran.

**TDWG4.**

**Alopecurus myosuroides** Huds. *Fl. Angl.* 23 (1762).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Britain. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: In arvis et ad vias, *Hudson s.n.*.

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (326), G.Hegi, *Flora von Mitteleuropa* 1 (1909), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 288), L.Boulos, *Flora of Egypt* 4 (2005) (180, Pl. 51), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (289, Pl. 102), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (252), C-C Hsu, *Taiwan Grasses* (1975), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (462, Fig 450), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (192, Fig 141), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (115), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (232, Fig 32), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (787), M.N.Correa, *Flora Patagonica* Parte III, *Gramineae* (1978) (332, Fig. 226 as *A. agrestis*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:13(1980)).

**Derivation** (Clifford & Bostock 2007): Gk. mys, mouse; ourus, tail; -oides, resemblance. Inflorescence resembling the tail of a mouse.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending or decumbent, 20–80 cm long. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 3–16 cm long, 2–8 mm wide. Leaf-blade surface scaberulous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, tapering above, 2–12 cm long, 0.3–0.6 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4.5–7 mm long, falling entire.

**Glumes.** Glumes connate along margins below, similar, reaching apex of florets. Lower glume lanceolate or oblong, 4.5–7 mm long, 1 length of upper glume, membranous, 1-keeled, winged on keel, winged narrowly, winged above, 3 -veined. Lower glume primary vein ciliolate. Lower glume surface pubescent, hairy below. Lower glume apex acute. Upper glume lanceolate or oblong, 4.5–7 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, winged on keel, winged above, 3 -veined. Upper glume primary vein ciliolate. Upper glume surface pubescent, hairy below. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 4.5–7 mm long, membranous, keeled, 4 -veined, more than 3-veined. Lemma margins connate below. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 8–14 mm long overall, clearly exerted from spikelet, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 3–4 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 7$  (1 ref TROPICOS), or 14 (3 refs TROPICOS).  $2n = 14$  (8 refs TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Great Britain, Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : Corsica, France, Portugal, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Estonia, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa.** Algeria, Egypt, Libya. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia, Russia.** Sakhalin. Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. North Caucasus, Transcaucasus. Iran, Iraq. Taiwan. **Indian Subcontinent.** Assam, Pakistan, West Himalaya. **Australia, New Zealand.** New South Wales (\*), Queensland (\*), South Australia (\*), Tasmania (\*), Western Australia (\*). **Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA.** Oregon, Washington. Kansas. Connecticut, Maine, Massachusetts, Michigan, New Jersey, New York, Pennsylvania, Rhode Island, West Virginia. California. Texas. **Southern South America.** Argentina Northeast, Argentina South, Chile South.

**TDWG4.** Assam, Manipur, Meghalaya, Nagaland. Jammu Kashmir. Eremean, South-West. Southern. South East. Coast, Tablelands, Western Slopes. Buenos Aires, Distrito Federal. Río Negro. Magellanes.

**Alopecurus nepalensis** Trin. ex Steud. *Syn. Pl. Gram.* 148. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Nepal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nepal: *Wallich 3780*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Nepal.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, (5–)15–45 cm long. Leaf-sheaths inflated (slightly). Ligule an eciliate membrane, 2–3 mm long, obtuse. Leaf-blades 4–9 cm long, 2.5–3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, tapering above, 1–5 cm long, 0.3–0.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3–3.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, similar, reaching apex of florets. Lower glume oblong, 3–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, winged on keel, 3 -veined. Lower glume primary vein ciliolate. Lower glume surface glabrous. Lower glume apex obtuse or acute. Upper glume oblong, 3–3.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, winged on keel, 3 -veined. Upper glume primary vein ciliolate. Upper glume surface glabrous. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma elliptic, 3–3.5 mm long, membranous, keeled, 4 -veined, more than 3-veined. Lemma margins connate below. Lemma apex obtuse or acute, muticous (or with a basal stump). Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 0.6 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

*N* = 7 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** Middle Asia, Western Asia. Uzbekistan. Iran. Indian Subcontinent. Pakistan.

**TDWG4.** Punjab, Uttah Pradesh.

### ***Alopecurus ovatus*** Knapp. *Gram. Brit.* pl. 15. 1804.

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Loch-ne-gar, the giant of Aberdeenshire,.

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** Europe.

**Region.** Northern Europe.

**Country /Province /State.** : Great Britain.

### ***Alopecurus ponticus*** C. Koch. *Linnaea*, 21: 382 (1848).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Turkey. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Turkey, Ponte Mts.: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Pontus in ancient times, a Province of Asia Minor, now Turkey.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes elongated. Butt sheaths light brown, pubescent, persistent and investing base of culm. Culms 20–70 cm long. Ligule an eciliate membrane, 1–1.5 mm long, obtuse. Leaf-blades flat or conduplicate, 3–5 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or oblong, 1–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5–5.5 mm long, falling entire.

**Glumes.** Glumes similar, exceeding apex of florets, recurved at apex. Lower glume oblong, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein ciliate. Lower glume lateral veins absent. Lower glume margins eciliate or ciliate. Lower glume apex acuminate. Upper glume oblong, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein ciliate. Upper glume lateral veins absent. Upper glume margins eciliate or ciliate. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 4.5–5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma apex attenuate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, curved, 2.5 mm long overall, not or scarcely exerted from spikelet. Palea 0.5 length of lemma, 1 -veined.

**Flower and Fruit.** Lodicules absent. Anthers 3. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Caucasus, Western Asia. Turkey.

**TDWG4.**

### ***Alopecurus pratensis*** L. *Sp. Pl.* 1:60 (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (& as *A. seavshanicus*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Europe. **Basionym or Replaced Name:** *Alopecurus seravshanicus* Ovczinn., Komarov, *Fl. URSS*, 2: 151, 745 (1934). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: (LINN-82.1). LT designated by Cope, *Regnum Veg.* 127: 17 (1993).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (334 & 374), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (193, Fig. 142), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (144, Pl. 43), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (115), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (232, Fig. 32), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.F.Best, et al, *Prairie Grasses* (1971) (57), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (783), M.N.Correa, *Flora Patagonica* Parte III, *Gramineae* (1978) (343, Fig 228), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 511).

**Images:** Plant Image Collection Smithsonian Institution; R.Darke, *Ornamental Grasses* (2004); R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);

**Derivation** (Clifford & Bostock 2007): L. pratium, a meadow; -ense, place of origin. Meadow species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 30–120 cm long, without nodal roots. Ligule an eciliate membrane, 1–2.5 mm long. Leaf-blades 6–40 cm long, 3–10 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 2–13 cm long, 0.5–1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or oblong, laterally compressed, 4–6 mm long, falling entire.

**Glumes.** Glumes connate along margins below, similar, reaching apex of florets. Lower glume oblong, 4–6 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pubescent. Lower glume apex acute. Upper glume oblong, 4–6 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pubescent. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic or ovate, 4–6 mm long, membranous, keeled, 4 -veined, more than 3-veined. Lemma margins connate below. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2–0.3 way up back of lemma, 6–10 mm long overall, clearly exerted from spikelet. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2–3.5 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 28$  (11 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Foroyar, Great Britain, Iceland, Ireland, Northern Ireland, Norway, Sweden. : Austria, Liechtenstein, Belgium, Luxembourg, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : Corsica, Channel Islands, France, Monaco, Sardinia, Andorra, Gibraltar, Spain, Azores. : Albania, Bulgaria, Italy, San Marino, Vatican, Romania, Malta, Sicily, Turkey Europe, Yugoslavia. Belarus, Estonia, Kalingrad, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. **Northern Africa, Macaronesia.** Algeria, Morocco, Tunisia. Azores. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Primorye. Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Iran. Inner Mongolia, Manchuria, Xinjiang. Mongolia. Japan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent.** Eastern Himalaya. **Australia, New Zealand.** New South Wales (\*), South Australia (\*), Tasmania (\*), Victoria (\*), Western Australia (\*). New Zealand North I, New Zealand South I. **North-central Pacific.** Hawaii (\*). **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA.** Alaska, Yukon, Northwest Territories, Greenland. Alberta, British Columbia, Saskatchewan. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Montana, Oregon, Washington, Wyoming. Wisconsin. Connecticut, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont. **Western South America, Southern South America.** Colombia. Argentina South, Chile South.

**TDWG4.** Bhutan. Punjab, Uttah Pradesh. Himachal Pradesh, Jammu Kashmir. South-West. Southern. Tablelands, Western Slopes. Buenos Aires. Neuquén, Tierra del Fuego. Los Lagos, Aisen, Magellanes.

**Alopecurus rendlei** Eig. *Journ. Bot., Lond.* 75: 187 (1937).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from France. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Phalaris utriculatus* ; LT: *Bauhin, Theatr. Bot.* 44 (1658), LT designated by Cope in Cafferty et al., *Taxon* 49(2): 253 (2000).

ET: *F. Lacroix s.n.*, May 1879, France: prairies des bords de la Saône, à Pontanevaux pres Mâcon (Saône-et-Loire) (K). ET designated by Cope in Cafferty et al., *Taxon* 49(2): 253 (2000).

LT: *Dalechamps, Hist. Generalis Pl. 1: t. "Gramen pratense" (1587)*, LT designated (as type) by Dogan, *Turk. J. Bot.* 23(4): 248 (1999), but incorrect as this illustration is not original material.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (785), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:14(1980)).

**Derivation** (Clifford & Bostock 2007): in honor of Alfred Barton Rendle (1865–1938) English botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Rhizomes short. Culms erect or geniculately ascending, 8–40 cm long, 3–4 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–3 mm long, obtuse. Leaf-blades 0.7–16 cm long, 1–3 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, oblong or ovate, tapering above, 1.1–3.2 cm long, 0.9–1.1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–8 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.33–0.5 of their length connate, similar, reaching apex of florets. Lower glume lanceolate, gibbous, 5–8 mm long, 1 length of upper glume, coriaceous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume apex cuspidate. Upper glume lanceolate, gibbous, 5–8 mm long, 1 length of adjacent fertile lemma, coriaceous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume apex cuspidate.

**Florets.** Fertile lemma oblong, 5–8 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.5 of their length connate. Lemma apex obtuse or acute, awned, 1 -awned. Principal lemma awn dorsal, geniculate, 7–18 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 3.4–4.9 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe, Middle Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Belgium, Germany, Switzerland. : France, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Sicily, Turkey Europe, Yugoslavia. **Western Asia.** Turkey.

**Alopecurus saccatus** Vasey. *Coult. Bot. Gaz.* 6: 290 (1881).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T.J. Howell* 5, Jun 1881, USA: Oregon (US-75442; IT: US-746408 (fragm.)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (787).

**Derivation** (Clifford & Bostock 2007): *L. saccus*, *sac*; -atus, possessing. Upper leaf-sheaths inflated.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 10–25 cm long. Culm-internodes distally glabrous. Ligule an eciliate membrane, 2 mm long. Leaf-blades 5–12 cm long, 1–5 mm wide.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath, exerted or embraced at base by subtending leaf. Panicle spiciform, linear or oblong, loose, 2–4 cm long. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4–5 mm long, falling entire.

**Glumes.** Glumes similar, exceeding apex of florets. Lower glume oblong, 4–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface puberulous, hairy on veins. Lower glume apex obtuse. Upper glume oblong, 4–5 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface puberulous, hairy on veins. Upper glume apex obtuse.

**Florets.** Fertile lemma ovate, 2.7–3 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2–0.25 way up back of lemma, geniculate, 8–12 mm long overall. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1 mm long. Stigmas protogynous, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA, Mexico. Oregon, Washington. California. Northwest Mexico.

Baja California.

**Alopecurus setarioides** Gren. *Mem. Soc. Emul. Doubs*, Ser. 3, 2: 459 (1857).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from France. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: France, Marseille: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Inflorescence spicate resembling that of *Setaria*.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms erect or geniculately ascending, 12–35 cm long, 2–3 -noded. Lateral branches lacking or sparse. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2.5 mm long, erose, obtuse or acute. Leaf-blades 1.2–10 cm long, 0.8–3.5 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, oblong or ovate, 0.8–3.2 cm long, 0.6–1.1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.2–4.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.33 of their length connate, similar, exceeding apex of florets. Lower glume lanceolate, 3.2–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume apex acute. Upper glume lanceolate, 3.2–4.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 3–3.6 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.33 of their length connate. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, geniculate, 6.5–10.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 1.5–2 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Northern Europe (\*), Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Greece, Turkey Europe, Yugoslavia. **Caucasus, Western Asia.** Turkey.

**Alopecurus textilis** Boiss. *Diagn. Ser.* 1, 13: 40. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Iran. **Basionym or Replaced Name:** *Alopecurus tiflisiensis* (Westb.) Grossheim & Schischk. *Sched. Herb. Pl. Or. Exsicc.* 15 (1924). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Iran, Besmitschal: *Kotschy 351* (G holo, E, K).

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 43), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (291, Pl. 103).

**Derivation** (Clifford & Bostock 2007): *L. textilis*, intertwined. Used for weaving or thatching.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Butt sheaths pubescent, persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 5–70 cm long. Leaves mostly basal. Leaf-sheaths pubescent. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Leaf-blades filiform or linear, flat or convolute, 15–30 cm long, 1–3 mm wide. Leaf-blade surface smooth. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, elliptic, 1–3 cm long, 0.6–1.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 4.5–6 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.25 of their length connate, similar, exceeding apex of florets. Lower glume lanceolate, 4.5–6 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pilose. Lower glume apex acute, mucronate or awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 4.5–6 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pilose. Upper glume apex acute, mucronate or awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma oblong, 4–5.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins connate below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 8–14(–17) mm long overall, with twisted column. Palea 2.5–4 mm long, 1 -veined, 1-keeled.

**Flower and Fruit.** Lodicules absent. Anthers 3, 3.5–4 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Middle Asia, Caucasus, Western Asia. Tadjhikistan. Iran, Iraq.

**TDWG4.**

***Alopecurus turczaninovii*** O.D. Nikiforova. *Bot. Zhurn.*, 73(11): 1601 (1988).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Russia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Baical, Possolskoi: Turczaninov.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Porphir Kiril nicolas Stepanovich Turczaninov (1796–1864) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes short. Culms erect or geniculately ascending, 15–30 cm long, 2–3 -noded. Ligule an eciliate membrane. Leaf-blades 1–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, 2–3 cm long, 1–1.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4–4.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.1 of their length connate, similar, exceeding apex of florets. Lower glume lanceolate, 4–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pilose, hairy on veins. Lower glume apex truncate. Upper glume lanceolate, 4–4.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pilose, hairy on veins. Upper glume apex truncate.

**Florets.** Fertile lemma oblong, 3.5–4 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins connate below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, 9–10 mm long overall.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia. Irkutsk.

**Alopecurus utriculatus** Banks & Sol. *Russ. Nat. Hist. Aleppo (ed. 2)* 2: 243 (1794).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as *A. anthoxanthoides*), T.G.Tutin et al, *Flora Europaea* 5 (1980), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Syria. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Russell s.n.*, Syria: Aleppo (BM).

**Illustrations (Books):** G.Hegi, *Flora von Mitteleuropa* 1 (1909), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 289), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (293, Pl. 104).

**Derivation** (Clifford & Bostock 2007): *L. utriculus*, little belly; -ata, possessing. Upper leaf-sheath inflated.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms geniculately ascending, 4–40 cm long, 3–4 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–4 mm long, erose, truncate. Leaf-blades 0.7–12 cm long, 0.8–8 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, oblong or ovate, 0.8–4 cm long, 0.6–1.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5–8.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.33–0.5 of their length connate, similar, reaching apex of florets. Lower glume lanceolate, 5–8.5 mm long, 1 length of upper glume, membranous, 1-keeled, winged on keel, winged above, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pilose, hairy below. Lower glume apex acute. Upper glume lanceolate, 5–8.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, winged on keel, winged above, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pilose, hairy below. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 5–8.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below, with 0.5 of their length connate. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 6–15 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 3, 3.2–4.2 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 14$  (2 refs TROPICOS).

**Distribution (TDWG).** Continent. Europe, Africa, Temperate Asia.

**Region.** Northern Europe (\*), Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Greece. **Northern Africa.** Algeria, Libya. **Western Asia.** Iran, Iraq. New Caledonia.

**Alopecurus vaginatus** (Willd.) Kunth. *Enum. Pl.* 1:25 (1833).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. **Basionym or Replaced Name:** *Polypogon vaginatus* Willd., *Ges. Naturf. Fr. Neue Schr.* 3: 44 (1801). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Pallas s.n.*, May, Russia: Crimea, Sudagh, wächst in Taurien an trockenen Stellen und blüht im Mai (B-W-1556; IT: LE (3 sheets, probable), US-75444 (fragm. ex B-W)).

**Illustrations (Books):** N.L.Bor, *Gramineae in Flora of Iraq* (1968) (295, Pl. 105).

**Derivation** (Clifford & Bostock 2007): *L. vagina*, sheath; -ata, possessing. Leaf-sheaths conspicuous.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary or caespitose. Rhizomes elongated. Butt sheaths glabrous, persistent and investing base of culm, with compacted dead sheaths. Culms erect, 18–30 cm long. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–2 mm long, truncate. Leaf-blades filiform, flat or convolute, 1–15 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform or glomerate, oblong or ovate or globose, 1.4–2.5 cm long, 0.7–1.3 cm wide. Primary panicle branches accrescent to a central



axis, with evident branchlets on axis. Panicle axis with rounded ribs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–4.5 mm long, falling entire.

**Glumes.** Glumes connate along margins below, 0.1 of their length connate, similar, reaching apex of florets. Lower glume elliptic, 3–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pilose. Lower glume apex acute, mucronate or awned, 1 -awned, awn 0.6–1.8 mm long. Upper glume elliptic, 3–4.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pilose. Upper glume apex acute, mucronate or awned, 1 -awned, awn 0.6–1.8 mm long.

**Florets.** Fertile lemma oblong, 3–4.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 5–10.5 mm long overall, clearly exerted from spikelet, with twisted column. Palea 1 -veined, 1-keeled.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2.3–3.3 mm long. Stigmas terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Eastern Europe.

**Country /Province /State.** Krym. Caucasus, Western Asia. Iran, Iraq.

**TDWG4.**

### **Altoparadisium chapadense** Filg. et al. *Ann. Missouri Bot. Gard.*, 88(2): 363 (2001).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil, Alto Paraiso: *Filgueiras & Fonseca 2987* (IBGE holo, ICN, K, MO, SI, SP, US). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Filgueiras & Fonseca 2987*, 5 Sep 1994, Brazil (MO).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (138, Fig.47 as *Panicum*).

**Illustrations (Journals):** *Ann. Missouri Bot. Gard.* (88: 355, Fig.1 (2001)).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Serra da Chapada, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped moderately. Rhizomes short, knotty, scaly. Culms 75–80 cm long, 6–9 -noded. Culm-internodes thin-walled, distally glabrous. Culm-nodes flush with internodes, purple, glabrous. Lateral branches lacking or sparse, arising from mid culm. Leaves cauline. Leaf-sheaths without keel, striately veined, glabrous on surface, outer margin glabrous or hairy. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades linear or lanceolate, 6–10 cm long, 3–8 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate, mucous or pungent.

**Inflorescence.** Inflorescence a panicle, exerted or embraced at base by subtending leaf. Peduncle 2–4.5 cm long. Panicle contracted, lanceolate or oblong, 6.5–14.5 cm long, 1.5–3.5 cm wide. Primary panicle branches 2–8 -nate, whorled at most nodes. Panicle axis glabrous. Panicle branches glabrous, bearded in axils (1–3mm). Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, filiform, unequal, 1–3 mm long, ciliate, hairy at tip and at base, with 1–4 mm long hairs, tip discoid.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or oblong, dorsally compressed, 3–3.2 mm long, falling entire. Spikelet callus pilose. Spikelet callus hairs 1–1.5 mm long.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, firmer than fertile lemma. Upper glume oblong, 1 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume surface hispid, hairy on veins. Upper glume awned, 1 -awned, awn 18–26 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, membranous, much thinner on margins, 3 -veined, with conspicuous midvein, ribbed, pubescent, acute. Fertile lemma absent. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.8–2.1 mm long, purple. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, lanceolate or oblong, dorsally compressed, 1.8–1.9 mm long, light brown. Embryo 0.33 length of caryopsis. Hilum elliptic, 0.2 length of caryopsis.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil West Central.

**Altoparadisium scabrum** (Pilg. & Kuhlm.) T.S. Filgueiras, G. Davidse, F.O. Zuloaga & O. Mor. *Ann. Missouri Bot. Gard.* 88(2): 366 (2001).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arthropogon scaber* Pilg. & Kuhlm., *Comm. Lin. Teleg.*, *Bot.* 67(11): 37–38, t. 2 (1922)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.C. Hoehne 2015(48)*, Jun 1901, Brazil: Matto Grosso: Caceres, Agua Quente (R).

**Illustrations (Journals):** *Ann. Missouri Bot. Gard.* (88: 367, Fig.7 (2001) as var. *scabrum*).

**Derivation** (Clifford & Bostock 2007): L. rough or gritty to the touch. Plants with rough leaf-blades, spikelets or stems.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms 30–70 cm long. Culm-nodes glabrous. Ligule an eciliate membrane, 1 mm long. Leaf-blades linear or lanceolate, flat or conduplicate, 15–30 cm long, 10 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–18 cm long. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6 mm long, 1 mm wide, falling entire. Spikelet callus pubescent. Spikelet callus hairs 0.15 length of spikelet.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume subulate, 10–12 mm long. Upper glume oblong, 1 length of spikelet, coriaceous, without keels, 3 -veined. Upper glume surface scabrous. Upper glume awned, 1 -awned, awn 13–15 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, coriaceous, 3 -veined, scabrous, obtuse. Fertile lemma linear, membranous, without keel. Lemma apex obtuse. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America, Brazil. Bolivia. Brazil West Central.

**Alvimia auriculata** T.R. Soderstrom & X. Londono. *Amer. J. Bot.* 75(6): 834 (1988).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Olivenca: Calderon, dos Santos & Oliveira 2444 (CEPEC holo, K).

**Illustrations (Books):** E.J.Judziewicz et al, *American Bamboos* (1999) (152, Fig. 65 & 153, Fig. 66).

**Images:** Plant Image Collection Smithsonian Institution;.

**Derivation** (Clifford & Bostock 2007): L. auris, ear; -ula, diminutive; -ata, possessing. Leaf-blades rounded at the base or with auricles.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 2000–2500 cm long, 5–10 mm diam., woody. Culm-internodes terete, solid, 40–83 cm long, distally pubescent. Lateral branches dendroid. Bud complement 1. Branch complement many, in a clump, subtended by a bare patch above the node, with 1 branch dominant. Culm-sheaths present, deciduous but leaving a persistent girdle, glabrous or pubescent, auriculate, setose on shoulders. Culm-sheath ligule 0.5 mm high, ciliate. Culm-sheath blade lanceolate or ovate, erect, 7.5–19.2 cm long, pubescent. Leaves cauline, 16 per branch. Leaf-sheath oral hairs setose. Leaf-sheath auricles falcate. Ligule a ciliate membrane, 0.2–0.5 mm long, scarious. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, oblong, 16–21 cm long, 15–30 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence bractiferous, fasciculate, 10–20 cm long, with glumaceous subtending bracts, without axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–30 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile.

Spikelets linear, subterete, 9–29 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite, clavate.

**Glumes.** Glumes one the lower absent or obscure, persistent, shorter than spikelet, similar to fertile lemma in texture. Upper glume lanceolate, 5–7 mm long, 0.6–0.8 length of adjacent fertile lemma, chartaceous, without keels, 5 -veined. Upper glume surface hispidulous. Upper glume margins ciliate. Upper glume apex obtuse.

**Florets.** Fertile lemma lanceolate, 8–9 mm long, chartaceous, without keel, 5–6 -veined, more than 3-veined. Lemma surface puberulous. Lemma margins ciliolate. Lemma apex acuminate. Palea 1 length of lemma, chartaceous. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 2 mm long, veined, ciliate. Anthers 2, 5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with fleshy pericarp, obovoid, 2 mm long. Endosperm farinose.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast.

**Alvimia gracilis** T.R. Soderstrom & X. Londono. *Amer. J. Bot.*, 75(6): 835 (1988).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Olivenca: Calderon, dos Santos & Oliveira 2446* (CEPEC holo).

**Illustrations (Books):** No illustration found (BKS).

**Images:** Plant Image Collection Smithsonian Institution; E.J.Judziewicz, E.J., *American Bamboos* (1999);

**Derivation** (Clifford & Bostock 2007): L. slender. Culms or inflorescences slender.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 600–800 cm long, 3–5 mm diam., woody. Culm-internodes terete, solid, 20–47 cm long, distally pubescent. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement many, in a clump, subtended by a bare patch above the node, with 1 branch dominant. Culm-sheaths present, deciduous but leaving a persistent girdle, pubescent, without auricles. Culm-sheath ligule 0.5 mm high, brown, ciliate. Culm-sheath blade lanceolate or ovate, erect, 2.7 cm long, pubescent. Leaves cauline, 3–8 per branch. Leaf-sheath oral hairs scanty, 1 mm long. Ligule a ciliolate membrane, 0.5 mm long, scarious. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3 cm long, petiole glabrous. Leaf-blades deciduous at the ligule, linear or ovate, 4–8 cm long, 6–16 mm wide. Leaf-blade surface papillose, rough adaxially, glabrous. Leaf-blade margins ciliate. Leaf-blade apex acuminate, hairy.

**Inflorescence.** Synflorescence bractiferous, fasciculate, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 10–27 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 160–270 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite, clavate.

**Glumes.** Glumes several, 1–3 empty glumes, persistent, shorter than spikelet, similar to fertile lemma in texture. Upper glume lanceolate, 6 mm long, chartaceous, without keels.

**Florets.** Fertile lemma lanceolate or ovate, 5–6.5 mm long, chartaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface glabrous, inner surface pubescent. Lemma margins ciliolate. Lemma apex acuminate. Palea 1 length of lemma, chartaceous, 1 -veined, without keels. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1.3 mm long, membranous, ciliate. Anthers 2, 3.3 mm long. Stigmas 2. Ovary glabrous. Caryopsis with fleshy pericarp, obovoid, 16 mm long. Endosperm farinose.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast.

**Alvimia lancifolia** T.R. Soderstrom & X. Londono. *Amer. J. Bot.*, 75(6): 837 (1988).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Ilheus Mun.: Calderon 2456* (CEPEC holo, MO, US).

**Illustrations (Books):** No illustration found (BKS).

**Images:** Plant Image Collection Smithsonian Institution;.

**Derivation** (Clifford & Bostock 2007): *L. lanceus*, lance; folium, leaf. Leaf-blade lanceolate.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 600–800 cm long, 3–8 mm diam., woody. Culm-internodes terete, thick-walled, 30–55 cm long. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement many, in a clump, subtended by a bare patch above the node, with 1 branch dominant. Culm-sheaths present, deciduous but leaving a persistent girdle, pubescent, without auricles. Culm-sheath ligule 1 mm high. Culm-sheath blade lanceolate, erect, 5–8.4 cm long, pubescent. Leaves cauline, 5–9 per branch. Leaf-sheaths hirsute, outer margin hairy. Ligule a ciliolate membrane, 0.2 mm long, scarious. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole pilose. Leaf-blades deciduous at the ligule, linear, 5–8 cm long, 3–7 mm wide. Leaf-blade surface pubescent, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence bractiferous, fasciculate, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 6–30 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 150–370 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite, clavate.

**Glumes.** Glumes several, 1–3 empty glumes, persistent, shorter than spikelet, similar to fertile lemma in texture. Upper glume lanceolate, 5.5–8 mm long, chartaceous, without keels.

**Florets.** Fertile lemma lanceolate or ovate, 5.2–6.2 mm long, chartaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface puberulous. Lemma margins ciliolate. Lemma apex acuminate, mucronate. Palea 5.5–6 mm long, 1 length of lemma, chartaceous, without keels. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1.3–1.9 mm long, membranous, ciliate. Anthers 2, 3.5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with fleshy pericarp, obovoid, 20 mm long. Endosperm farinose.

**Distribution (TDWG), Continent.** South America.

**Country /Province /State.** Brazil. Brazil Northeast.

**Amelichloa ambigua** (Speg.) Arriaga & Barkworth. *Sida* 22 (1):147 (2006).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Stipa*).

**TYPE** from Argentina. **Basionym or Replaced Name:** *Stipa ambigua* Speg., *Revista Argent. Bot.* 1(1): 27 (1925). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Spegazzini s.n.*, 24 Nov 1905, Argentina: Prov. Buenos Aires, Pdo. Gral. Pinto: "in pratis circa Estación Iriarte" (LP ex LPS-2412; IT: BAA-2946, US-2947420).

**Illustrations (Books):** A.L. Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (262, Fig. 67 as *Stipa*).

**Derivation** (Clifford & Bostock 2007): *L. uncertain*. Species that may be readily confused with others.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.2 mm long. Leaf-blades filiform, convolute, 20–45 cm long, 0.6 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate. Leaf-blade apex attenuate, pungent.

**Inflorescence.** Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, 20–45 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 0.5–1 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–10 mm long, 1 length of upper glume, hyaline, yellow or purple, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 6–10 mm long, 1.5–2 length of adjacent fertile lemma, hyaline, yellow or purple, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 4–5.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, with conspicuous apical hairs. Lemma margins convolute, covering most of palea. Lemma hairs 2–4 mm long. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 25–30 mm long overall, with 14–24 mm long limb, with twisted column, deciduous. Column of lemma awn 3–7

mm long, glabrous. Palea 3–4 mm long, chartaceous, 2 -veined, without keels. Palea surface pilose (1–2mm), hairy on back.

**Flower and Fruit.** Lodicules 3. Anthers 3, 1.5–2.5 mm long, anther tip penicillate. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform, 2.5–3.5 mm long, dark brown. Hilum linear, 0.66–0.75 length of caryopsis.

Cleistogenes present, in lower sheaths.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina Northeast, Argentina South, Argentina Northwest, Uruguay.

San Luis. Buenos Aires, Cordoba, Entre Rios, La Pampa. Chubut, Neuquén, Río Negro, Santa Cruz.

**Amelichloa brachychaeta** (Godr.) Arriaga & Barkworth. *Sida* 22 (1):147(2006).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Acnatherum*).

**TYPE** from France. **Basionym or Replaced Name:** *Stipa brachychaeta* Godr., *Mem. Sect. Sci. Acad. Sci. Montpellier* 1: 450 (1853). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Anon.*, 22 May 1848, France: du Port Juvenal Cultivé au Jardin Botanique (MPU (fragm.); OM: BAA-2979, hojas a & b (fragm.) de un probable ejemplar tipo). HT (probable).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (116), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (183), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (150, Fig. 51).

**Derivation** (Clifford & Bostock 2007): Gk. *brachys*, short; *chaete*, bristle. Awn of lemma shorter than that of related species.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–90 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.2–0.5 mm long, pilose on abaxial surface, truncate. Leaf-blades filiform, flat or convolute, 8–35 cm long, 0.5–3 mm wide, stiff. Leaf-blade surface scaberulous, rough adaxially or on both sides, glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle open, equilateral, 10–25 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4–0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–8 mm long, 1 length of upper glume, hyaline, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex setaceously acuminate. Upper glume lanceolate, 6–8 mm long, 1.5–2 length of adjacent fertile lemma, hyaline, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 4–5.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy on back. Lemma margins convolute, covering most of palea. Lemma apex attenuate, awned, 1 -awned. Principal lemma awn geniculate or bigeniculate, 10–18 mm long overall, with 6–12 mm long limb, with a straight or slightly twisted column. Column of lemma awn 2–4 mm long, glabrous. Palea 3–3.5 mm long, 2 -veined, without keels. Palea surface pilose, hairy on back (extending beyond tip).

**Flower and Fruit.** Lodicules 3. Anthers 3, 2–2.4 mm long, anther tip penicillate. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, oblong, 2–3 mm long (x0.9–1mm). Hilum linear, 1 length of caryopsis.

Cleistogenes present, in upper sheaths and in lower sheaths.

**Distribution (TDWG). Continent.** Australasia, South America.

**Country /Province /State. Australia (\*).** New South Wales. **Southern South America.** Argentina Northeast, Argentina South, Argentina Northwest, Chile Central, Uruguay.

Catamarca, Mendoza, Salta, Santiago del Estero, San Luis. Buenos Aires, Cordoba, Distrito Federal, Entre Rios, La Pampa, Santa Fe. Río Negro.

**Amelichloa brevipes** (E. Desv.) Arriaga & Barkworth. *Sida* 22 (1):147 (2006).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*).

**TYPE** from Chile. **Basionym or Replaced Name:** *Stipa brevipes* E. Desv., *Fl. Chil.* 6: 282 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Gay 1106*, no date, Chile: en las provincias centrales de le República (P; IT: BAA (fragm.), US-866138 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. brevis*, short; *pes*, foot. Pedicels short.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Stolons present. Culms 50–100 cm long, 1–2 mm diam., 4–5 -noded. Culm-nodes swollen, pallid or brown or purple, glabrous. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.4–1 mm long. Leaf-blades filiform, conduplicate, 15–30 cm long, 0.4–1 mm wide, stiff or firm. Leaf-blade surface ribbed. Leaf-blade apex muticous or pungent.

**Inflorescence.** Inflorescence a panicle, comprising 15–30 fertile spikelets. Panicle open, linear. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–10 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 11–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 1 mm long, pilose, acute. Floret callus hairs 2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, much thinner on margins, without keels, 5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 11–15 mm long, membranous, with hyaline margins, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 7–9.8 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma hairs 1–1.3 mm long. Lemma apex dentate, 2 -fid, with lobes 1 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigenulate, 23–35 mm long overall, with twisted column. Middle segment of lemma awn 5–9 mm long. Column of lemma awn 4–10 mm long, pubescent, with 0.7–0.8 mm long hairs. Palea 5–7 mm long, without keels. Palea surface pilose. Palea apex ciliate.

**Flower and Fruit.** Lodicules 3. Anthers 3, yellow, anther tip penicillate. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform, 6–7 mm long. Hilum linear.

**Distribution (TDWG).** **Continent.** South America.

**Country /Province /State.** **Southern South America.** Argentina South, Chile Central, Chile South. Mendoza. Chubut, Neuquén, Río Negro, Santa Cruz. Santiago. Aisen, Magellanes.

**Amelichloa caudata** (Trin.) Arriaga & Barkworth. *Sida* 22 (1):148 (2006).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Achnatherum*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Achnatherum*).

**TYPE** from Chile. **Basionym or Replaced Name:** *Stipa caudata* Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 1(1): 75 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Lindley s.n.*, specimena Chilensia (LE-TRIN-1392.01 (& fig.) (photo, SGO-73107); IT: BAA-3001 (fragm.), US-2489479 (fragm. ex LE)).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (116), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (285, Fig. 73 as *Stipa*).

**Derivation** (Clifford & Bostock 2007): *L. cauda*, tail; *ata*, possessing.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 55–100 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.3–0.5 mm long, pilose on abaxial surface, truncate. Leaf-blades straight or curved, filiform or linear, flat or involute or convolute, 25–70 cm long, 2–7 mm wide, firm. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle open, equilateral, 14–45 cm long, bearing many spikelets or few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets lanceolate, subterete, 5–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–1 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–11 mm long, 1 length of upper glume, hyaline, without keels, 3 -veined. Lower glume surface scabrous, rough on veins, glabrous or pilose, hairy on veins. Lower glume margins eciliate or ciliate. Lower glume apex setaceously acuminate. Upper glume lanceolate, 5–11 mm long, 1.5–2 length of adjacent fertile lemma, hyaline, without keels, 3 -veined. Upper glume surface scabrous, rough on veins, glabrous or pilose, hairy on veins. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 4–6 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy between veins. Lemma margins convolute, covering most of palea. Lemma apex attenuate, surmounted by a ring of hairs, with this appendage 0.7–1 mm long, awned, 1 -awned. Principal lemma awn flexuous or bigeniculate, 12–25 mm long overall, with 6–15 mm long limb, with a straight or slightly twisted column. Column of lemma awn 2–4 mm long, glabrous. Palea 2 -veined, without keels. Palea surface pubescent, hairy on back (not exceeding tip).

**Flower and Fruit.** Lodicules 3. Anthers 3, 3–4 mm long, anther tip penicillate. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, obovoid, 3 mm long (x1–1.4mm). Hilum linear, 1 length of caryopsis.

Cleistogenes present, in lower sheaths.

**Distribution (TDWG). Continent.** Australasia, South America.

**Country /Province /State.** **Australia** and **New Zealand.** New South Wales, Victoria, Tasmania. New Zealand South I. **Southern South America.** Argentina Northwest, Argentina Northeast, Argentina South, Chile Central.

Western Slopes. Jujuy, Mendoza. Buenos Aires, La Pampa, Santa Fe. Río Negro. Valparaiso, Santiago, Biobio, La Araucania.

**Amelichloa clandestina** (Hack.) Arriaga & Barkworth. *Sida* 22 (1):148 (2006).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Stipa clandestina* Hack., *Repert. Spec. Nov. Regni Veg.* 8: 516 (1910). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Arsène 3441*, Mar 1908, Mexico: Coahuila: Saltillo (W; ILT: MO-845904, US-1030718, US-3168628 (fragm. ex W)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 24(7): 238 (1925). Although this number is attributed to Michoacán by Hackel in the protologue, the labels on the MO and US specimens indicate that the collection was made in Coahuila. A transcription error seems probable.-- *fide* G. Davidse, 1998.

ST: *E. Palmer 3*, Apr 1898, Mexico: Coahuila: prope Saltillo (MO, US).

**Recent Synonyms:** *Achnatherum clandestinum* (Hack.) M.E. Barkworth, *Phytologia*, 74(1): 6 (1993).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (183).

**Derivation** (Clifford & Bostock 2007): L. hidden. The inflorescence is enclosed or partially enclosed in the upper leaf-sheath.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 50–80 cm long, 1–2 -noded. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1 mm long, pilose on abaxial surface. Leaf-blades flat or conduplicate or involute, 10–20 cm long, 1–2 mm wide, light green. Leaf-blade apex hardened.

**Inflorescence.** Inflorescence a panicle, terminal or terminal and axillary, embraced at base by subtending leaf or enclosed. Axillary inflorescences different from terminal (cleistogamous), enclosed. Panicle open, lanceolate, 10–20 cm long. Primary panicle branches appressed or ascending. Panicle branches bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent (white), acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, chartaceous, without keels, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 8 mm long, chartaceous, without keels, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 6 mm long, coriaceous, pallid, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex surmounted by a ring of hairs, with this appendage 1 mm long, awned, 1 -awned. Principal

lemma awn bigeniculate, 11–18 mm long overall, with twisted column. Middle segment of lemma awn 3–5 mm long. Column of lemma awn 3–5 mm long. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG), Continent.** Africa, North America (\*).

**Country /Province /State. Southern Africa.** Gauteng, Northern Cape, Western Cape, Eastern Cape.

**South-central USA, Mexico.** Texas. Central Mexico, Northwest Mexico.

Mexico State, Puebla. Aguascalientes, Coahuila, Neuvo Leon, San Luis Potosi, Zacatecas. Michoacan.

### **Ammocalamagrostis baltica** (Flggi ex Schrad.) P. Fourn. *Monde Pl.* 35: 28 (1934).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *xAmmocalamagrostis*).

**TYPE** from Germany. **Basionym or Replaced Name:** *Arundo baltica* Fluegg. ex Schrad., *Fl. Germ.* 223. I. 5. f. 4 (1806). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Germany: litoribus maris baltici prope Svienemunde, *Fluegge*.

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (286).

**Derivation** (Clifford & Bostock 2007): From one of the countries bordering the Baltic sea.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect or geniculately ascending, robust, 70–150 cm long. Leaf-sheaths without keel, smooth. Ligule an eciliate membrane, 10–25 mm long, acute. Leaf-blades flat or involute, 50–100 cm long, 3–7 mm wide, stiff. Leaf-blade surface ribbed (above), scaberulous (above), glabrous or puberulous (above). Leaf-blade apex attenuate, pungent.

**Inflorescence.** Inflorescence a panicle. Peduncle distinct, smooth or scaberulous above. Panicle spiciform, lanceolate, tapering above, 13–25 cm long, 1.7–3 cm wide. Primary panicle branches 3–7 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 5–7 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets. Lower glume lanceolate, 9–12 mm long, chartaceous, 1-keeled, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 9–12 mm long, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 7–9 mm long, cartilaginous, keeled, 3–7 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex dentate, 2 -fid, awned. Principal lemma awn subapical, straight, 1–2 mm long overall. Palea 2–4 -veined. Palea keels scaberulous.

**Flower and Fruit.** Anthers 3, 4–4.5 mm long, indehiscent.

**Distribution (TDWG), Continent.** Europe.

**Region. Northern Europe, Middle Europe, Southwestern Europe, Eastern Europe.**

**Country /Province /State.** : Denmark, GB Aliens (Ryves et al), Norway, Sweden. : Germany, Netherlands, Poland. : France. Baltic States.

### **Ammochloa involucrata** Murb. *Act. Univ. Lund.* 6 Afd. II. no. 1. 11. (1900).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Morocco. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Larache: *Mellerio* (P holotype).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. involucrium*, cover; -ata, possessing. Inflorescence subtended by bracts.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 2–15 cm long. Leaf-sheaths inflated, reticulately veined. Ligule an eciliate membrane or absent, 0–0.3 mm long. Leaf-blades 3–8 cm long, 1–2 mm wide. Leaf-blade margins cartilaginous, scaberulous.

**Inflorescence.** Inflorescence a panicle, comprising 6–15 fertile spikelets, shorter than basal leaves, deciduous as a whole, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, herbaceous (reticulately veined). Peduncle disarticulating, disarticulating below uppermost sheaths. Panicle capitate, globose, 0.8–1 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.



**Fertile Spikelets.** Spikelets comprising 1–3 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–8 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes similar, shorter than spikelet. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, winged on keel, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, 0.5–0.9 length of adjacent fertile lemma, membranous, 1-keeled, winged on keel, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma elliptic, 5–7 mm long, membranous, without keel, 5(–7) -veined, more than 3-veined. Lemma apex entire or dentate, 2 -fid, obtuse, mucicous or mucronate.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2.7–4 mm long. Stigmas 2, terminally exerted, pubescent. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, 1.8–2 mm long, apex rostrate (0.25–0.33 length of grain). Hilum punctiform.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northern Africa. Morocco.

**Ammochloa palaestina** Boiss. *Diagn. Ser.* 1, 13: 52 [May] (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (& as *A. unispiculata*, *A. subacaulis*), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Palestine. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Boissier s.n.*, Palestine (G).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 339), L.Boulos, *Flora of Egypt* 4 (2005) (154, Fig. 43), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (53, Pl. 15).

**Images:** L.Boulos, *Flora of Egypt* 4 (2005);.

**Derivation** (Clifford & Bostock 2007): from Palestine.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms 0.5–4 cm long. Leaf-sheaths loose or inflated. Ligule an eciliate membrane, 1.5 mm long, lacerate. Leaf-blades 1.7–7(–9) cm long, 0.5–1.5 mm wide. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle, shorter than basal leaves. Panicle capitate, ovate or globose. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 4–14 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3–5 mm long, 1 length of upper glume, scarious, much thinner on margins, 1-keeled, winged on keel, winged narrowly, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–5 mm long, 0.75–1 length of adjacent fertile lemma, scarious, with hyaline margins, 1-keeled, winged on keel, 1 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Fertile florets recurved at tip. Fertile lemma ovate, 4–5 mm long, chartaceous or coriaceous, much thinner on margins, yellow, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or scabrous, glabrous or pilose. Lemma apex acute, mucronate. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Palea apex truncate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules absent. Anthers 3, 0.6–0.8 mm long. Ovary beaked. Caryopsis with adherent pericarp, ellipsoid, trigonous, 1.4 mm long, apex rostrate. Embryo 0.33 length of caryopsis. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Southwestern Europe.

**Country /Province /State.** : Spain. Northern Africa. Algeria, Egypt, Libya, Morocco, Tunisia. Caucasus, Western Asia, Arabian Peninsula. Iran, Iraq, Palestine, Israel & Jordan, Turkey. Kuwait, Saudi Arabia.

**TDWG4.**

**Ammochloa pungens** (Schreb.) Boiss. *Diagn. Ser.* 1, 13: 52. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Algeria. **Basionym or Replaced Name:** *Dactylis pungens* Schreb., *Beschreibung der Graser* 2: 42, t. 27, f. 1. (1772). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Algeria: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pungo*, prick. Leaf-blades sharp-pointed.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending or decumbent, 1–25 cm long. Leaf-sheaths loose or inflated. Ligule an eciliate membrane, 1–3 mm long, entire or lacerate. Leaf-blades 1–5 cm long, 1–5 mm wide. Leaf-blade margins scaberulous. Leaf-blade apex obtuse, apiculate.

**Inflorescence.** Inflorescence a panicle, aerial. Panicle capitate, globose, 0.5–1.5 cm long. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 1–2 in number, barren, ovate, 4 mm long, smaller than fertile. Basal sterile spikelet glumes membranous.

**Fertile Spikelets.** Spikelets comprising 7–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating above glumes but not between florets.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 4 mm long, 1 length of upper glume, scarious, much thinner on margins, without keels, 5 -veined. Lower glume apex obtuse or acute. Upper glume ovate, 4 mm long, 0.9 length of adjacent fertile lemma, scarious, with hyaline margins, without keels, 5 -veined. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma ovate, 4.5 mm long, chartaceous, much thinner on margins, without keel, 5–9 -veined, more than 3-veined. Lemma surface pubescent, with capitate hairs. Lemma apex emarginate, awned, 1 -awned. Principal lemma awn from a sinus, 0.5–1 mm long overall. Palea 0.9 length of lemma, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules absent. Anthers 3, 2.5–4 mm long. Ovary beaked. Caryopsis with adherent pericarp, oblong, plano-convex, 1.3–1.4 mm long, apex rostrate. Embryo 0.4 length of caryopsis, projecting below grain. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe (\*), Africa.

**Region. Northern Europe (\*).**

**Country /Province /State.** : GB Aliens (Ryves et al). **Northern Africa, Macaronesia.** Algeria, Libya, Morocco. Canary Is.

## ***Ammophila arenaria* (L.) Link. Hort. Berol. 1: 105 (1827).**

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Europe. **Basionym or Replaced Name:** *Arundo arenaria* L. *Species Plantarum* 1: 82. 1753. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: (LINN-97.17). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 247 (2000).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (288), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (95, Fig. 65), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (38, Fig. 15), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 270), L.Boulos, *Flora of Egypt* 4 (2005) (173, Pl. 48), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (194, Fig 143), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (157, Pl. 47), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (117), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (236, Fig. 33), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (779 as ssp. *arenaria*), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (186, Fig. 51), M.N.Correa, *Flora Patagonica* Parte III, *Gramineae* (1978) (365, Fig. 243).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;, G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): L. arena, sandy place; -aria, pertaining to. Of sandy habitats.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect or geniculately ascending, 50–120 cm long. Ligule an eciliate membrane, 10–30 mm long. Leaf-blades convolute, 20–60 cm long, 2–6 mm wide, stiff. Leaf-blade surface ribbed, pubescent, hairy adaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or oblong, tapering above, 7–22 cm long, 1–2.5 cm wide. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.25–0.33 length of lemma (3–5mm).

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–15 mm long, 0.9–1 length of upper glume, chartaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 10–16 mm long, 1.2–1.3 length of adjacent fertile lemma, chartaceous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 8–12 mm long, coriaceous, keeled, 5–7 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex dentate, 2 -fid, mucronate. Principal lemma awn subapical. Palea 0.9 length of lemma, 2–4 -veined. Palea keels approximate, scaberulous, adorned above.

**Flower and Fruit.** Anthers 3, 4–7 mm long. Ovary glabrous. Caryopsis with adherent pericarp, obovoid. Hilum linear, 0.8 length of caryopsis.

$2n = 28$  (2 refs TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Africa, Temperate Asia, Australasia (\*), North America, South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Great Britain, Ireland, Sweden. : Belgium, Germany, Netherlands, Switzerland. : Balears, Corsica, France, Portugal, Sardinia, Spain. : Albania, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Estonia, Latvia, Lithuania, Baltic States, Central European Russia, Northwest European Russia. **Northern Africa, Southern Africa** (\*). Algeria, Egypt, Libya, Morocco. Western Cape, Eastern Cape. **Western Asia, Arabian Peninsula.** Kuwait. **Australia, New Zealand.** New South Wales (\*), South Australia (\*), Tasmania (\*), Victoria (\*), Western Australia (\*), Lord Howe-Norfolk Is (\*). Chatham Is, New Zealand North I, New Zealand South I, Stewart Is. Fiji (\*, not persisting). Hawaii (\*). **Western Canada, Northwest USA, Southwestern USA.** British Columbia. Oregon, Washington. California. **Southern South America.** Argentina South, Chile Central, Chile South. **Subantarctic islands.** Falkland Is (Malvinas).

**TDWG4.** South-West. Southern. Coast. Buenos Aires. Santa Cruz, Tierra del Fuego. Coquimbo, Valparaiso. Los Lagos, Magallanes.

**Ammophila breviligulata** Fernald. *Rhodora* 22: 71. (1920).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Milford: Bissel .

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (779 as ssp. *breviligulata* & ssp. *champlainensis*).

**Images:** R.Darke, *Ornamental Grasses* (2004);.

**Derivation** (Clifford & Bostock 2007): L. brevis, short; ligula, little tongue; -ata, possessing. Ligule short.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect or geniculately ascending, 70–100 cm long. Ligule an eciliate membrane, 1–3 mm long, scarious. Leaf-blades convolute, 20–60 cm long, 2–6 mm wide, stiff. Leaf-blade surface ribbed, scaberulous. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, tapering above, 15–30 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.2 length of lemma (2mm).

**Glumes.** Glumes persistent, similar, exceeding apex of florets or reaching apex of florets. Lower glume lanceolate, 10–15 mm long, 1 length of upper glume, chartaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 10–15 mm long, 1–1.3 length of adjacent fertile lemma, chartaceous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 10–12 mm long, chartaceous, keeled, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute. Palea 0.9 length of lemma, 2–4 -veined. Palea keels approximate. Rhachilla extension 0.25–0.33 length of fertile floret, pilose, hairy throughout but longer above.

**Flower and Fruit.** Anthers 3. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Europe, North America.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Eastern Canada, North-central USA, Northeast USA, Southeastern USA.** New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Illinois, Minnesota. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, Pennsylvania, Rhode Island, Vermont. Delaware, North Carolina, Virginia.

### ***Ammophila champlainensis*** Seymour. *Sida*, 2: 349 (1966).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA: New York: on Lake Champlain, Au Sable Point, in sand: 3 Jul 1902, *Nellie F. Flynn* (HT: VT).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Champlain, New York State, USA.

**Classification.** Subfamily Pooideae. Tribe: Poaeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect or geniculately ascending, 70–100 cm long. Ligule an eciliate membrane, 1–3 mm long, scarious. Leaf-blades convolute, 20–60 cm long, 2–6 mm wide. Leaf-blade surface ribbed, scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, tapering above and tapering below, 13–16 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–11.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded.

**Glumes.** Glumes persistent, similar, exceeding apex of florets. Lower glume lanceolate, 9–10.5 mm long, 0.9 length of upper glume, chartaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 10–11.5 mm long, 1.1 length of adjacent fertile lemma, chartaceous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 9–10.5 mm long, chartaceous, keeled, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute. Palea 1 length of lemma, 2–4 -veined. Palea keels approximate. Rhachilla extension 0.25–0.33 length of fertile floret, pilose, hairy throughout but longer above.

**Flower and Fruit.** Anthers 3. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** **Northeast USA.** Vermont.

### ***Ampelocalamus actinotrichus*** (Merr. & Chun) S.L. Chen T.H. Wen & G.Y. Sheng. *Acta Phytotax. Sin.*, 19(3): 334 (1981).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Arundinaria actinotricha* Merrill & Chun, *Sunyatsenia*, 2: 206 (1935). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *F.C. How & N.K. Chun* 70138, 21 August 1933, China: Kwangtung (US-1611894, US-3168191, US-82816, US-2012148).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 130).

**Derivation** (Clifford & Bostock 2007): Gk. aktinos, ray; thrix, hair. With hairs radiating from the orifice of the leaf-sheath.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheath oral hairs setose, spreading, 10–15 mm long. Leaf-sheath auricles erect, 1 mm long, obtuse. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 10–18 cm long, 10–25 mm wide, light green. Leaf-blade surface pilose, sparsely hairy, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 5–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile.

Spikelets lanceolate, laterally compressed, 40–60 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 5–7 mm long, eventually visible between lemmas.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, 5 mm long, chartaceous, without keels. Lower glume apex acuminate. Upper glume lanceolate, 7 mm long, chartaceous, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 11 mm long, 2.5 mm wide, chartaceous, keeled, lightly keeled, 7 -veined, more than 3-veined. Lemma midvein scaberulous. Lemma apex acuminate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 6 mm long. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Hainan.

### **Ampelocalamus anhispidis** Wen. *J. Bamboo Res.* 4(2): 11 (1985).

More checking of status required.

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Lanshan, 600m., S.C. Chen CX84686 (HT: ZJFI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *an-*, without; L. *hispidus*, rough. Culm leaf-sheaths glabrous at the base.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China North-Central.

Shandong.

### **Ampelocalamus breviligulatus** (T.P.Yi) Stapleton. *Novon* 15:599 (2005).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Drepanostachyum breviligulatum* T.P Yi, *J. Bamboo Res.*, 12(4): 42 (1993). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Guizhou: Guiyang, Bamboo Garden of G.Z.F.I., May 1992, Y.C. Zhong et al. 9203 (HT: GZFI).

**Illustrations (Books):** No illustration found (BKS).

**Images:** R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007); (as *A. breviligulata*).

**Derivation** (Clifford & Bostock 2007): L. *brevis*, short; *ligula*, little tongue; *-atus*, possessing. Ligule short.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 300–600 cm long, 5–20 mm diam., woody, 25–34 -noded. Culm-internodes terete, thick-walled, 18–20 cm long, striate, distally glabrous. Lateral branches dendroid. Bud complement 3. Branch complement several, in an irregular line, with subequal branches or 1 branch dominant or 2 branches dominant. Culm-sheaths present, tardily deciduous, 12–27 cm long, 5 times as long as wide, coriaceous, glabrous or hispid, with grey hairs or yellow hairs, without auricles, glabrous on shoulders. Culm-sheath ligule 1–2 mm high, ciliolate. Culm-sheath blade linear or lanceolate, reflexed, 0.8–9 cm long, 1–7 mm wide, glabrous on surface. Leaves 2–9 per branch. Leaf-sheaths 2.2–3.8 cm long, pilose, outer margin hairy. Leaf-sheath oral hairs setose, 2.5–6 mm long. Ligule a ciliolate membrane, 1 mm long, purple. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long. Leaf-blades deciduous at the ligule, lanceolate, 4–10.5 cm long, 6.5–10 mm wide, fleshy. Leaf-blade venation with 4–8 secondary veins, with obscure cross veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade margins scaberulous. Leaf-blade apex attenuate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, China North-Central.

**TDWG4.** Gansu. Guizhou, Sichuan.

### **Ampelocalamus calcareus** C.D.Chu & C.S.Chao. *Acta Phytotax. Sin.*, 21(2): 204 (1983).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Libo, Gaowang, 500 m, *C.D. Chu et al. 81018* (HT: NFU; IT: GFI, GZAC).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. calx, lime; -arius, pertaining to. Growing on limestone soils.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, inclined at the tip, 100–150 cm long, 4–5 mm diam., woody. Culm-internodes terete, 8–18 cm long, distally pubescent. Lateral branches dendroid. Bud complement 1. Branch complement several. Culm-sheaths present, persistent, pubescent, with white hairs, hairy on margins, auriculate, setose on shoulders, shoulders with straight hairs, shoulders with 10 mm long hairs. Culm-sheath ligule 7–10 mm high, ciliate. Culm-sheath blade lanceolate, reflexed. Leaves 2–3 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, spreading and deciduous, 5–7 mm long. Leaf-sheath auricles falcate. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate or oblong, 7–20 cm long, 12–30 mm wide, indurate, mid-green and glaucous, discolourous with last colour beneath. Leaf-blade venation with 8–14 secondary veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Guizhou.

### **Ampelocalamus hirsutissimus** (W. D. Li & Y. C. Zhong) Stapleton & Li. *Novon* 15:599 (2005).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Drepanostachyum hirsutissimum* W.D. Li & Yuan C. Zhong, *J. Bamboo Res.*, 16(1): 52 (1997). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Guiyang, Bamboo Garden of G.Z.F.I., May 1992, *Y.C. Zhong et al. 9203* (HT: GZFI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *hirsutus*, hairy; -issima, most. Plant in whole or in part very hairy.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, inclined at the tip, 300–500 cm long, 5–15 mm diam., woody. Culm-internodes terete, thick-walled, 12–18 cm long. Culm-nodes flush with internodes. Lateral branches dendroid. Bud complement 3. Branch complement several, in an irregular line. Culm-sheaths present, 22 cm long, 5–6 times as long as wide, coriaceous, hispid, with dark brown hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 1 mm high, ciliate. Culm-sheath blade linear, deciduous, erect, 1.5–2 cm long. Leaves 5–11 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, erect, dark. Leaf-sheath auricles falcate. Ligule a ciliolate membrane, purple. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 11–17 cm long, 7–31 mm wide, fleshy. Leaf-blade venation with 6–8 secondary veins, with obscure cross veins. Leaf-blade surface pubescent. Leaf-blade margins scaberulous. Leaf-blade apex attenuate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Guizhou.

### **Ampelocalamus luodianensis** T.P. Yi & R.S. Wang. *J. Bamboo Res.*, 4(2): 3 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Chishui, steep slopes, 600–1000 m, *J.R. Xue et al. 7706* (HT: YNFC; IT: GFI).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 128).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Luodian Xian, Guizhou Province, China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms scandent, 500–1000 cm long, 4–10 mm diam., woody. Culm-internodes terete, thin-walled, 8–20 cm long, distally mealy. Culm-nodes pubescent. Lateral branches dendroid. Bud complement 3. Branch

complement several (4–11). Culm-sheaths present, deciduous, 12–17 cm long, 6–8 times as long as wide, green and purple, distinctly mottled with last colour, pilose. Culm-sheath ligule ciliolate. Culm-sheath blade lanceolate, erect, 3–7 cm long. Leaf-sheath oral hairs setose, spreading. Ligule a ciliolate membrane, 5 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 5–12 cm long, 7–17 mm wide. Leaf-blade venation with 6–8 secondary veins. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 12–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, chartaceous, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, chartaceous, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 8–9 mm long, chartaceous, 7 -veined, more than 3-veined. Lemma apex acuminate. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 1. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central. Guizhou.

### **Ampelocalamus melicoideus** (P.C.Keng) Li & Stapleton. *Novon* 15:599 (2005).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Drepanostachyum melicoideum* P.C. Keng, *J. Bamboo Res.*, 5(2): 35 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Nanchuan Xian, Da He Ba, 4 May 1957, *G.F. Li 60336* (HT: NJU; IT: SZ).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 131).

**Derivation** (Clifford & Bostock 2007): Gk *-oideum*, resembling. Similar to *Melica*.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–300 cm long, woody. Culm-internodes terete. Lateral branches suffrutescent. Ligule an eciliate membrane.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, subtended by bracts. Spatheole glumaceous, 1.5 cm long. Racemes 1, single, 3–4 cm long, bearing 3–4 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 12–15 mm long, 8–10 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, 1–1.5 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 5–7 mm long, herbaceous, without keels. Lower glume apex acuminate. Upper glume lanceolate, 5–7 mm long, herbaceous, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 9–11 mm long, herbaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute. Palea 10–12 mm long, 10 -veined. Palea apex truncate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 2 mm long, membranous. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central. TDWG4. Chongqing.

### **Ampelocalamus mianningensis** (Q. Li & X. Jiang) D.Z. Li & Stapleton. *Kew Bull.* 51(4): 811 (1996).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Dendrocalamus mianningensis* Q. Li & Xin Jiang, *J. South-West. Forest. Coll.*, 1984(1): 134 (1984). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy

Database: China: Sichuan: Mian'ning Xian, 1600–1700 m, 13 Aug. 1977, *Li 1128* (HT: Herb. Ya'an School, Ya'an City, SC; IT: SWFC).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 129).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Mainning Xian, Sichuan Province, China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 400–800 cm long, 15 mm diam., woody. Culm-internodes terete, thick-walled, 22.5–27 cm long. Lateral branches dendroid. Bud complement 1. Branch complement several, with 1 branch dominant. Culm-sheaths present, persistent, coriaceous, yellow and brown, distinctly mottled with last colour, hispid, hairy on margins, without auricles. Culm-sheath ligule 1 mm high, fimbriate. Culm-sheath blade lanceolate, erect or reflexed. Leaf-sheaths 7–8 cm long, glabrous on surface. Ligule a ciliolate membrane, 1–2 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 15–21 cm long, 30–35 mm wide. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Sichuan, Yunnan.

### **Ampelocalamus microphyllus** (Hsueh & Yi) C.J.Hsueh & T.P.Yi. *J. Bamboo Res.*, 4(2): 7 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Sinocalamus microphyllus* J.R. Xue & T.P. Yi, *J. Yunnan Forest. Coll.*, 1982(1): 71 (1982). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST?: *T.P. Yi 77181*, 15 Aug. 1977, China: Xizang: Medog (SFS).

ST?: *C.J. Wang 1285*, 4 June 1981, (YNFC).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 131).

**Derivation** (Clifford & Bostock 2007): GK, *micros*, small; *phyllon*, leaf. Leaf-blades short.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200–600 cm long, 5–15 mm diam., woody, 15–30 -noded. Culm-internodes terete, thin-walled, 5–35 cm long, light green, smooth, distally mealy or glabrous. Culm-nodes swollen. Lateral branches dendroid, ascending. Bud complement 1. Branch complement several, with 1 branch dominant. Culm-sheaths present, tardily deciduous, 9–14 cm long, 4–5 times as long as wide, chartaceous, puberulous, with grey hairs, without auricles. Culm-sheath ligule entire. Culm-sheath blade linear or lanceolate, reflexed, 0.8–6 cm long, 2–6 mm wide, glabrous on surface, acuminate. Leaves 4–10 per branch. Leaf-sheaths 2–4 cm long, glabrous on surface. Leaf-sheath oral hairs setose, spreading. Leaf-sheath auricles absent. Ligule a ciliolate membrane, 1 mm long, lacerate, truncate. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades deciduous at the ligule, lanceolate, 3–9 cm long, 4–11 mm wide, fleshy. Leaf-blade venation with 4 secondary veins, without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

Sichuan.

### **Ampelocalamus naibunensis** (Hayata) P.C. Keng. *J. Bamboo Res.*, 5(2): 32 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Arundinaria naibunensis* Hayata, *Journ. Coll. Sc. Tokyo*, 30 Art. 1, 408 (1911). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Taiwan: Koshun: Naibun, ca. 1000 m, *G. Nakahara*.

**Illustrations (Books):** C-C Hsu, *Taiwan Grasses* (1975) (743, Pl. 1500 as *Chimonobambusa* & *Arthrostylidium*).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Naibun Taiwan.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning, drooping at the tip, 300–600 cm long, 5–10 mm diam., woody. Culm-internodes terete, thick-walled, 12–18 cm long, smooth, distally glabrous. Culm-nodes swollen. Lateral branches fastigiate. Branch complement many, in a clump. Culm-sheaths present, deciduous, chartaceous, puberulous, truncate at



apex, ciliate on shoulders. Culm-sheath blade linear, deciduous, glabrous on surface. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate, 3–6 mm long. Ligule a ciliate membrane, obtuse. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.6 cm long. Leaf-blades deciduous at the ligule, linear or lanceolate, 6–14 cm long, 5–12 mm wide. Leaf-blade venation with 4–6 secondary veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets, terminal and axillary, subtended by bracts (and clustered at nodes). Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1–6 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 20–40 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 3–5 mm long, chartaceous, without keels. Lower glume apex acute. Upper glume oblong, 3–5 mm long. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 10–12 mm long, 3–4 mm wide, chartaceous, without keel, 7–11 -veined, more than 3-veined. Lemma apex acute. Palea 7–11 mm long, 11 -veined. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 3, 4 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Taiwan.

**Ampelocalamus patellaris** (Gamble) C.M.A. Stapleton. *Edinburgh J. Bot.* 51(3): 321 (1994).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from India. **Basionym or Replaced Name:** *Bambusa patellaris* Kurz ex Gamble, in syn, *Hook. f. Fl. Brit. Ind.* vii. 406 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Gamble 10045*, Nov 1881, India: Sikkim: Jungat, 1200 m (K). LT designated by Stapleton, *Edinburgh J. Bot.* 51: 321 (1994).

**Recent Synonyms:** *Chimonobambusa jainiana* Das.& Pal., *J. Econ. Tax. Bot.* 4:1023 (1983).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (512, Fig. 7), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 129).

**Derivation** (Clifford & Bostock 2007): *L. patella*, smallish; *-aris*, pertaining to. Small dishes are made from the culm internodes.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 700–1000 cm long, 25–40 mm diam., woody. Culm-internodes terete, thin-walled, 30–45 cm long, dark green. Culm-nodes pubescent. Lateral branches dendroid. Culm-sheaths present, persistent, 25–30 cm long, 3–4 times as long as wide, hispid, with appressed hairs, with dark brown hairs, truncate at apex. Culm-sheath ligule fimbriate. Culm-sheath blade lanceolate, reflexed, 15 cm long. Leaf-sheaths keeled, striately veined, outer margin hairy. Ligule a ciliate membrane. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades lanceolate, 20–40 cm long, 25–100 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 16–20 secondary veins. Leaf-blade surface scaberulous, rough abaxially, glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence bractiferous, clustered at the nodes, in globose clusters, 1–2.5 cm long, dense, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters.

Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes suppressed between florets.

**Glumes.** Glumes several, 1–2 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, chartaceous, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma orbicular, 7 mm long, chartaceous, without keel, 9–11 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins ciliate. Lemma apex acute. Palea chartaceous, 4 -veined, 2-keeled but the uppermost without keels. Palea keels ciliate. Palea surface pubescent.

**Flower and Fruit.** Lodicules absent or 1 or 2, ciliate. Anthers 6, purple, anther tip with extended connective and pubescent. Filaments united in a tube. Stigmas 3, plumose. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China. China South Central. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya, India, Nepal. Laos, Myanmar, Vietnam.

**TDWG4.** Yunnan. Darjeeling, Sikkim. Nagaland. West Bengal.

**Ampelocalamus saxatilis** (Hsueh & Yi) C.J.Hsueh & T.P.Yi. *J. Bamboo Res.*, 4(2): 7 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Sinocalamus saxatilis* J.R. Xue & T.P. Yi, *J. Yunnan Forest. Coll.*, 1982(1): 69 (1982). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Ebian, 2 Sept. 1974, T.P. Yi 74227 (HT: SFS).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 132).

**Derivation** (Clifford & Bostock 2007): *L. saxum*, rock; *-atile*, place of growth. Dwelling among rocks.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, inclined at the tip or nodding at the tip, 300–600 cm long, 5–15 mm diam., woody, 22–30-noded. Culm-internodes terete, thin-walled, 22–55 cm long, dark green, striate, antrorsely scabrous. Culm-nodes swollen, glabrous. Lateral branches dendroid. Bud complement 1. Branch complement several, with 1 branch dominant. Culm-sheaths present, tardily deciduous, 10–18 cm long, 3–4 times as long as wide, chartaceous, green or purple, concolorous or distinctly mottled with last colour, glabrous or puberulous, hairy on margins, truncate at apex, without auricles. Culm-sheath ligule 1 mm high, entire or ciliolate. Culm-sheath blade linear or lanceolate, narrower than sheath, reflexed, 0.4–4.5 cm long, 2–10 mm wide, glabrous on surface, acuminate. Leaves 4–10 per branch. Leaf-sheaths 3–8 cm long, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, spreading. Leaf-sheath auricles falcate. Ligule a ciliolate membrane. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.3–0.4 cm long. Leaf-blades deciduous at the ligule, lanceolate, 8–18 cm long, 10–22 mm wide, fleshy. Leaf-blade venation with 8–12 secondary veins, without cross veins. Leaf-blade margins scaberulous. Leaf-blade apex acuminate, pungent. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central. Sichuan, Yunnan.

**Ampelocalamus scandens** C.J.Hsueh & W.D.Li. *J. Bamboo Res.*, 4(2): 5 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Chishui Xian, 265 m, J.R. Xue et al. 7706 (HT: Herb. Southwest Forestry College; IT: Forestry Institute of Guizhou Prov.).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 128).

**Derivation** (Clifford & Bostock 2007): *L. scando*, climb up, scrambling habit.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 600–1000 cm long, 4–8 mm diam., woody. Culm-internodes terete, solid, 15–30 cm long, distally pubescent. Culm-nodes swollen. Lateral branches dendroid. Bud complement 1. Branch complement several. Culm-sheaths present, persistent or tardily deciduous, 12–18 cm long, coriaceous, purple, pubescent, with white hairs, hairy on margins, without auricles. Culm-sheath ligule ciliate. Culm-sheath blade lanceolate, deciduous, reflexed. Leaves 3–4 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, spreading. Leaf-sheath auricles falcate. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 3–10 cm long, 7–18 mm wide, fleshy. Leaf-blade apex acuminate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central. Guizhou.

**Ampelocalamus yongshanensis** J.R. Xue & D.Z. Li. *J. Bamboo Res.*, 6(2): 10 (1987).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Yongshan, 600 m, 17 Apr 1985, *SWFC Bamboo Exped. J85063* (HT: SWFC).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Yongsang, Yunnan Province, China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, drooping at the tip, 200–300 cm long, 5–10 mm diam., woody. Culm-internodes terete, thin-walled, 15–19 cm long, striate. Culm-nodes swollen. Lateral branches dendroid. Branch complement several or many. Culm-sheaths present, deciduous, chartaceous, pilose, with tawny hairs, without auricles. Culm-sheath ligule 1 mm high. Culm-sheath blade linear, reflexed, 0.5–3 cm long, pubescent. Leaves 2–10 per branch. Leaf-sheaths pilose. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, oblong, 9–17 cm long, 10–25 mm wide, fleshy. Leaf-blade venation with 6–12 secondary veins. Leaf-blade surface pilose, sparsely hairy. Flowering specimens unknown.

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** China. China South Central. Sichuan, Yunnan.

**Ampelodesmos mauritanicus** (Poir.) Th. Dur. et Schinz. *Consp. Fl. Afr.* 5 : 874 (1895).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Deyeuxia arundinacea*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Festuca elatior*).

**Basionym or Replaced Name:** *Arundo mauritanica* Poir, *Voy. Barb.* 2: 104 (1789).

**Recent Synonyms:** *Deyeuxia arundinacea* P. Beauv., in syn, *Ess. Agrostogr.*: 160, t.15, f.11a-d (1812).

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (as *Festuca elatior*), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (as *Deyeuxia arundinacea*), C-C Hsu, *Taiwan Grasses* (1975) (268 as *Deyeuxia arundinacea*), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (113), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003).

**Images:** R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);

**Derivation** (Clifford & Bostock 2007): *L. -ica*, belonging to. From Mauritania.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms 100–200 cm long. Culm-internodes solid. Ligule an eciliate membrane, 8–20 mm long, lacerate. Leaf-blades flat or convolute, 30–100 cm long, 4–7 mm wide, coriaceous, stiff. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 25–50 cm long. Primary panicle branches 5–10 cm long. Panicle branches scabrous, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite, villous, hairy above, with 2 mm long hairs. Floret callus bearded. Floret callus hairs 0.2 length of lemma.

**Glumes.** Glumes persistent, similar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 6–9 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex attenuate. Upper glume lanceolate, 10–12 mm long, 0.8–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume apex attenuate.

**Florets.** Fertile lemma lanceolate, 9–15 mm long, coriaceous, keeled, 5 -veined, more than 3-veined. Lemma midvein ciliate, hairy below. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 1–2 mm long overall. Palea linear, 0.75 length of lemma, coriaceous, 2 -veined. Palea keels scaberulous. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, lanceolate, 2–3 mm long, membranous, ciliate, acute. Anthers 3, 5 mm long. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, linear, sulcate on hilar side, 5–6 mm long, hairy at apex. Embryo 0.25 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG).** Continent. Europe, Africa, Temperate Asia, North America.

**Region.** Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Baleares, Corsica, France, Portugal, Sardinia, Spain. : Greece, Italy, Sicily. **Northern Africa.** Algeria, Libya, Morocco, Tunisia. **Western Asia, Eastern Asia.** Iran. Japan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Southwestern USA.** California. **TDWG4.** Uttah Pradesh. Jammu Kashmir.

**Amphibromus archeri** (Hook.f.) P. F. Morris. *Vict. Nat.* 51: 146 (1934).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Danthonia archeri* Hook. f. *Flora Tasmaniae* 2: 122, t. 163B. 1858. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Archer* 28, Australia: Tasmania: Cheshunt (K(central culm only); ILT: NSW). LT designated by Jacobs & Lapinuro, *Telopea* 2: 726 (1986).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dasher & F.M.James, *Grasses of South Australia* (2006) (196, Fig. 144), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (447, Fig. 87), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor of William Archer (1820–74), English-born Tasmanian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 60–120 cm long, 1–3 mm diam., 2–4 -noded, not swollen at the base or swollen at the base, forming an ovoid corm. Culm-internodes terete, ridged, smooth or scaberulous. Culm-nodes glabrous. Leaf-sheaths ribbed, smooth. Ligule an eciliate membrane, 4.5–12.5 mm long, acute. Leaf-blades flat or involute, 15–32 cm long, 2.5–4 mm wide. Leaf-blade surface ribbed, grooved adaxially or abaxially, smooth or scaberulous, rough abaxially, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, 15–35 cm long. Primary panicle branches 2–3 -nate, 7–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–7 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 12–18 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5.1–6.8 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume apex acute or acuminate. Upper glume elliptic, 6.4–9.2 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 5–7 -veined. Upper glume apex acute, mucous or mucronate.

**Florets.** Fertile lemma elliptic, 6–7.8 mm long, cartilaginous, without keel, 7 -veined, more than 3-veined. Lemma surface smooth or scabrous. Lemma apex dentate, 4 -fid, with lobes 2–3 mm long, awned, 5 -awned. Principal lemma awn dorsal, arising 0.55–0.6 way up back of lemma, geniculate, flat below, 14.5–17.5 mm long overall, with 9–12 mm long limb, with twisted column. Column of lemma awn 5–7.5 mm long, scabrous. Lateral lemma awns present, arising on apex of lobes, 0.5–0.8 mm long, shorter than principal. Palea 0.65–0.7 length of lemma. Palea keels ciliate. Palea surface smooth or papillose. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1.4–1.9 mm long, membranous, glabrous, acute. Anthers 3, 2.3–2.4 mm long, eventually exerted or retained within floret. Ovary glabrous. Caryopsis with adherent pericarp, 1.7–2.2 mm long, light brown, glabrous. Embryo 0.2–0.3 length of caryopsis. Hilum linear, 0.3–0.35 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia, Tasmania, Victoria.

**TDWG4.** Southern.

**Amphibromus fluitans** T. Kirk. *Trans. N. Zeal. Inst.* 16: 374. t. 28. (1884).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: T. Kirk s.n., New Zealand: Waihi Lake, Waikato (WELT-68389). LT designated by Edgar & Connor, *Fl. New Zealand* 5: 298 (2000).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (447, Fig. 87), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (118), A.Wilson

(ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. fluito, float. Leaves or rhizomes floating.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms decumbent, 40–75 cm long, 0.5–1.5 mm diam., 3–5 -noded. Culm-internodes terete, ridged, smooth or scaberulous. Culm-nodes glabrous. Leaf-sheaths ribbed, antrorsely scabrous. Ligule an eciliate membrane, 6.5–12 mm long, acute. Leaf-blades flat or involute, 10–25 cm long, 2–4.5 mm wide. Leaf-blade surface ribbed, grooved adaxially or abaxially, scabrous.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, 15–35 cm long. Primary panicle branches 2–3 -nate, 4–8.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–20 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 6–10 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 9–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2.7–3.7 mm long, 0.8 length of upper glume, chartaceous, much thinner on margins, 1-keeled, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume lanceolate, 3.5–4.5 mm long, 0.9 length of adjacent fertile lemma, chartaceous, with membranous margins, 1-keeled, 3–5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 3.7–5 mm long, cartilaginous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous, glabrous or hispidulous. Lemma apex dentate, 2 -fid, with lobes 0.3–0.6 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.45–0.6 way up back of lemma, straight, flat below, 11–17 mm long overall, without a column. Palea 0.3–0.75 length of lemma. Palea keels ciliate. Palea surface smooth. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 0.9–1.23 mm long, membranous, glabrous, acute. Anthers 3, 1.5–1.7 mm long, eventually exerted or retained within floret. Ovary glabrous. Caryopsis with adherent pericarp, 1.3–1.7 mm long, light brown, glabrous. Embryo 0.1–0.2 length of caryopsis. Hilum linear, 0.25–0.3 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. New South Wales, Victoria. New Zealand North I, New Zealand South I.

**TDWG4.** Western Slopes, Western Plains.

### **Amphibromus macrorhinus** S.W.L. Jacobs & L. Lapinuro. *Telopea* 2(6): 723 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Victoria: on the Wangaratta road, 6 mi [10 km] from Whitfield, 1 Nov 1960, small tussocks beside road in open position in flat farmland, *T. B. Muir 1682* (HT: NSW; IT: AD-96734057, MEL-100562).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dasher & F.M.James, *Grasses of South Australia* (2006) (197, Fig 145), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (447, Fig 87), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (118), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): Gk. makros, large; rhis, nose. Lemma apex drawn out.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths distinctly ribbed, glabrous. Culms erect, 50–100 cm long, 1–2.5 mm diam., 2–4 -noded. Culm-internodes terete or elliptical in section, ridged, smooth or scaberulous. Culm-nodes glabrous. Leaf-sheaths ribbed, smooth or scaberulous. Ligule an eciliate membrane, 6–17 mm long, acute. Leaf-blades flat or involute, 15–25 cm long, 1.5–4 mm wide. Leaf-blade surface ribbed, grooved adaxially or abaxially, smooth to scabrous, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, 20–40 cm long. Primary panicle branches 1–3 -nate, 4–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–20 mm long.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–17 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.9–6.3 mm long, 0.9 length of upper glume, membranous, much thinner on margins, 1-keeled, 3–4 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 4.2–7 mm long, 0.9–1.2 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 5 -veined. Upper glume surface smooth or papillose. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 3.5–7.9 mm long, cartilaginous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface papillose, rough below. Lemma apex dentate, 4 -fid, with outer lobes shorter, with lobes 0.5–1.15 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, geniculate, 10–19 mm long overall, with 6.5–13.5 mm long limb, with a straight or slightly twisted column. Column of lemma awn 3.5–6.8 mm long, scabrous. Palea 0.66–0.95 length of lemma. Palea keels ciliate. Palea surface papillose. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1–2.2 mm long, membranous, glabrous, acute. Anthers 3, 2.7–3 mm long, eventually exerted or retained within floret. Ovary glabrous. Caryopsis with adherent pericarp, 1.5–1.95 mm long, light brown, glabrous. Embryo 0.15–0.2 length of caryopsis. Hilum linear, 0.3–0.4 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** New South Wales, South Australia, Tasmania, Victoria, Western Australia.

**TDWG4.** Southern. Western Slopes, Western Plains.

### **Amphibromus neesii** Steud. Syn. Pl. Gram. 328. (1854).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Gunn 995, second sheet, left-hand specimen*, Van Diemen Land (K). LT designated by Jacobs & Lapinpuro, *Telopea* 2: 718 (1986).

**Recent Synonyms:** *Helictotrichon neesii* (Steud.) Stace, *Watsonia* 18: 413 (1991).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (198, Fig. 146), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (35, Pl. 7), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (447, Fig. 87), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (118), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (705).

**Derivation** (Clifford & Bostock 2007): in honor of Christian Gottfried Daniel Nees von Esenbeck (1766–1858) German botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or elongated. Butt sheaths distinctly ribbed, glabrous. Culms erect, 80–150 cm long, 1–2.5 mm diam., 2–4 -noded. Culm-internodes terete or elliptical in section, ridged. Culm-nodes glabrous. Leaf-sheaths ribbed, smooth or scaberulous. Ligule an eciliate membrane, 6.5–8 mm long, acute. Leaf-blades flat or involute, 15–37 cm long, 2–4 mm wide. Leaf-blade surface ribbed, grooved adaxially or abaxially, smooth to scabrous, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–37 cm long. Primary panicle branches 1–3 -nate, 7–14 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–20 mm long.

**Fertile Spikelets.** Spikelets comprising 2–5 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–14 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.8–6.3 mm long, 0.6–0.8 length of upper glume, membranous, much thinner on margins, 1-keeled, 3–5 -veined. Lower glume apex acute. Upper glume lanceolate, 6.4–7.5 mm long, 1.1 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 5–7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 5.9–8.4 mm long, cartilaginous, without keel, 5–7 -veined, more than 3-veined. Lemma midvein ciliolate. Lemma surface scabrous or papillose. Lemma apex dentate, 2(–4) -fid, with outer lobes shorter, with lobes 0.26–0.36 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, geniculate, 13.8–25.5 mm long overall, with 9–17.5 mm long limb, with twisted column. Column of lemma awn 4.8–6.5 mm long, scabrous, hirtellous. Palea 0.8–0.9 length of lemma. Palea keels ciliate. Palea surface papillose. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1.3–2.3 mm long, membranous, glabrous, acute. Anthers 3, 1.3–2.3 mm long, eventually exerted or retained within floret. Ovary glabrous. Caryopsis with adherent pericarp, 2–3 mm long, light brown, glabrous. Embryo 0.1–0.2 length of caryopsis. Hilum linear, 0.35–0.45 length of caryopsis.

**Distribution (TDWG). Continent.** Europe (\*), Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia.** New South Wales, A.C.T., South Australia, Tasmania, Victoria.

**TDWG4.** Southern. Coast, Tablelands, Western Slopes, Western Plains.

### **Amphibromus nervosus** (Hook. f.) H.E. Baillon. *Hist. Pl.*, 12: 203 (1893).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Danthonia nervosa* Hook. f. *Flora Tasmaniae* 2: 121, t. 163A (1858). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *R. Brown* 6622, Australia (BM, sheet with the original label; ILT: BM). LT designated by Jacobs & Lapinpuro, *Telopea* 2: 721 (1986).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (198, Fig. 147), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (442, Fig. 86), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (119), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (705).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. nervus*, nerve; -osa, abundance. With conspicuous nerves in the glumes or lemmas.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths distinctly ribbed, glabrous. Culms erect, 60–125 cm long, 1–3 mm diam., 2–5 -noded, without nodal roots or rooting from lower nodes. Culm-internodes terete or elliptical in section, ridged, smooth or scaberulous. Culm-nodes glabrous. Leaf-sheaths ribbed, smooth or scaberulous. Ligule an eciliate membrane, 10–20 mm long, acute. Leaf-blades flat or involute, 15–30 cm long, 1.5–3.5 mm wide. Leaf-blade surface ribbed, grooved adaxially or abaxially, scabrous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, 20–40 cm long. Primary panicle branches 2–4 -nate, 7–14 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–20 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–16 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.4–5 mm long, 0.8–1 length of upper glume, membranous, 1-keeled, 1–3(–5) -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume lanceolate, 4.5–6.2 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 5–7.2 mm long, cartilaginous, without keel, 5–7 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 2–4 -fid, with outer lobes shorter, with lobes 0.3–0.65 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.45–0.6 way up back of lemma, geniculate, 12–22 mm long overall, with 7–15 mm long limb, with twisted column. Column of lemma awn 4–8.5 mm long, scabrous. Palea 0.75–0.95 length of lemma. Palea keels ciliate. Palea surface smooth or papillose. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 0.95–1.3 mm long, membranous, glabrous, obtuse or acute. Anthers 3, 2.2–3 mm long, eventually exerted or retained within floret. Ovary glabrous. Caryopsis with adherent pericarp, 1.36–2.15 mm long, light brown, glabrous. Embryo 0.16–0.3 length of caryopsis. Hilum linear, 0.25–0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** New South Wales, A.C.T., South Australia, Victoria, Western Australia.

**TDWG4.** Ereman, South-West. Southern. Coast, Tablelands, Western Slopes, Western Plains.

**Amphibromus pithogastrus** S.W.L. Jacobs & L. Lapinuro. *Telopea* 2(6): 724 (1986).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), D. Sharp, D. & B.K. Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: New South Wales: Norway, via Oberon, 26 Jan 1953, moist situation, near swamp, *J. Vickery s.n.* (NSW-149945).

**Illustrations (Books):** N. Walsh & T. Entwistle, *Flora of Victoria* Vol 2 (1994) (447, Fig. 87), S.W.L. Jacobs, R.D.B. Whalley & D.J.B. Wheeler., *Grasses of New South Wales*, 4th edn (2008) (119), A. Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig. 20), D. Sharp & B.K. Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): Gk *pithos*, large earthenware winw-jar; *gaster*, belly. At maturity the lemma is completely swollen.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths distinctly ribbed, glabrous. Culms erect, 50–100 cm long, 1–2 mm diam., 2–3 -noded, not swollen at the base or swollen at the base, forming an ovoid corm. Culm-internodes terete or elliptical in section, ridged. Culm-nodes glabrous. Leaf-sheaths ribbed, smooth. Ligule an eciliate membrane, 2–5 mm long, acute. Leaf-blades flat or involute, 10–20 cm long, 1.5–5 mm wide. Leaf-blade surface ribbed, grooved adaxially, scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, 10–25 cm long. Primary panicle branches 2 -nate, 4–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–30 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 2–6 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.6–5.3 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume apex acute. Upper glume elliptic, 4.7–7.3 mm long, 0.8–1 length of adjacent fertile lemma, membranous, 1-keeled, 5–7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 5.6–7.5 mm long, cartilaginous, without keel, 7 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, with outer lobes shorter, with lobes 0.3–0.65 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, geniculate, flat below, 9–16 mm long overall, with 6–11 mm long limb, with twisted column. Column of lemma awn 3–5 mm long, scabrous. Palea 0.55–0.7 length of lemma. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1.3–1.75 mm long, membranous, glabrous, acute. Anthers 3, 0.6–1.5 mm long, retained within floret. Ovary glabrous. Caryopsis with adherent pericarp, 1.6–2.1 mm long, light brown, glabrous. Embryo 0.25–0.3 length of caryopsis. Hilum linear, 0.4–0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Victoria.

**TDWG4.** Tablelands, Western Slopes.

**Amphibromus quadridentulus** (Doell) Swallen. *Am. Journ. Bot.* 18: 414 (1931).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Avena quadridentula* Doell, *Mart. Fl. Bras.* 2 (3): 100 (1878). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *A.F. Regnell 1410*, no date, Brazil: Minas Gerais (IT: S, US-75448 (fragm.)).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (454 & 471, Fig. 97 & 101a), A. Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (91, Fig. 28), B. Rosengurt, *Gramineas Uruguayas I* (1970) (38, Fig. 10).

**Derivation** (Clifford & Bostock 2007): L. quatuor, four; dens, tooth; -ulus, diminutive. The lemma is bilobed and each lobe two-toothed.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms erect, 40–135 cm long. Leaf-sheaths longer than adjacent culm internode, smooth or scaberulous. Ligule an eciliate membrane, 4–12 mm long. Leaf-blades 8–30 cm long, 1–5 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or oblong, 10–35 cm long. Primary panicle branches ascending or spreading, 3–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.



**Fertile Spikelets.** Spikelets comprising 2–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic, 2–4 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 3–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 3–5 mm long, cartilaginous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid, with lateral lobes bidentate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.75–0.85 way up back of lemma, geniculate, 2–6 mm long overall, with twisted column. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil, Southern South America.** Brazil South. Argentina Northeast, Uruguay. TDWG4. Entre Rios, Misiones.

### **Amphibromus recurvatus** Swallen. *Am. Journ. Bot.* 18: 415 (1931).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: collected in Broad River Valley National Park, Tasmania, Feb 1919, *L. Rodway 1225* (HT: US-1447361) Swallen erroneously cited the collector as R.A. Black and the year as 1929, *fide*: Jacobs & Lapinpuro, *Telopea* 2: 719 (1986).

**Recent Synonyms:** *Helictotrichon recurvatum* (Swallen) T.A. Cope & T.B. Ryves, *Watsonia* 21(1): 135 (1996).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (199, Fig. 148), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (447, Fig. 87), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): L. reflexed. Spikelets with spreading or reflexed awns.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths distinctly ribbed, glabrous or sparsely hairy. Culms erect, 80–150 cm long, 1–1.5 mm diam., 3–5 -noded. Culm-internodes terete or elliptical in section, ridged, smooth or scaberulous. Culm-nodes glabrous. Leaf-sheaths ribbed, smooth or scaberulous. Ligule an eciliate membrane, 7–11 mm long, acute. Leaf-blades flat or involute, 15–30 cm long, 2–3 mm wide. Leaf-blade surface ribbed, grooved adaxially or abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, 10–30 cm long. Primary panicle branches 2–3 -nate, 3–6 cm long. Panicle axis scabrous. Panicle branches hispid. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–10 mm long, glabrous or pubescent.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–11 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.3–5.5 mm long, 0.8–1 length of upper glume, membranous, much thinner above, much thinner on margins, 1-keeled, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or distinct. Lower glume apex acute or acuminate. Upper glume elliptic, 4–5.4 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, 3–5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 4–5.2 mm long, cartilaginous, without keel, 5–7 -veined, more than 3-veined. Lemma surface hispid. Lemma apex dentate, 4 -fid, with simple equal lobes or with outer lobes shorter, with lobes 0.43–1 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.66 way up back of lemma, geniculate, 9–18 mm long overall, with 5–13 mm long limb, with a straight or slightly twisted column. Column of lemma awn 3.3–3.5 mm long, hirtellous. Palea 0.7–0.95 length of lemma. Palea keels eciliate or ciliate, adorned above. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 0.8–1.3 mm long, membranous, glabrous or ciliate, acute. Anthers 3, 1.2–2 mm long, eventually exerted. Ovary glabrous. Caryopsis with adherent pericarp, 1.8–2.3 mm long, light brown, glabrous. Embryo 0.1–0.3 length of caryopsis. Hilum linear, 0.2–0.35 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia, Tasmania, Victoria.

**TDWG4.** Southern.

### **Amphibromus scabrivalvis** (Trin.) Swallen. *Am. Journ. Bot.* 18 :413 (1931).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. **Basionym or Replaced Name:** *Avena scabrivalvis* Trin., *Mem. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 2(1): 28 (1836)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.D. Hooker*, Hooker mis. 1835, Chile: Mendoza (LE-TRIN-1937.01; IT: US-869748 (fragm. ex LE)).

**Recent Synonyms:** *Helictotrichon scabrivalve* (Trin.) Govaerts, *World Checkl. Seed Pl.* 2(1): 14 (1996).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (705), S.A.Rennoize, *Gramineas de Bolivia* (1998) (Fig. 37 as *Helictotrichon*), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (239, Fig. 74), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (91, Fig. 28), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (160, Fig. 44), M.N.Correa, *Flora Patagonica Parte III, Gramineae* (1978) (262, Fig. 171 as *Amphibromus scabrivalvis* var. *indigestus*), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (38, Fig. 10).

**Illustrations (Journals):** *Ruizia* (13:150, Fig 16c-d (1993)).

**Derivation** (Clifford & Bostock 2007): *L. scaber*, rough; *valva*, leaf of a folding door. The lemmas and/or glumes are densely hispid.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Butt sheaths thickened and forming a bulb. Culms erect, 40–100 cm long. Ligule an eciliate membrane, 6–12 mm long, lacerate. Leaf-blades 2–5 mm wide. Leaf-blade surface smooth or scabrous.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, lanceolate, 10–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 14–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2 mm long, pilose. Floret callus pubescent, disarticulating obliquely.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3–5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume lanceolate, 4–7 mm long, 0.5–1 length of adjacent fertile lemma, membranous, 1-keeled, 5–7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 7 mm long, cartilaginous, without keel, 7–9 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 13–15 mm long overall, with twisted column. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 2–2.7 mm long, eventually exerted or retained within floret. Ovary pubescent on apex. Caryopsis with adherent pericarp, ellipsoid, 2.5–3.5 mm long, hairy at apex. Hilum linear.

Cleistogenes absent or present, in upper sheaths or in lower sheaths.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia, Peru. Brazil South. Argentina Northeast, Argentina South, Chile Central, Chile South, Uruguay.

**TDWG4.** Buenos Aires, Cordoba, Entre Rios, La Pampa, Santa Fe. Neuquén. Valparaiso, Maule, Biobio, La Araucania. Los Lagos.

### **Amphibromus sinuatus** S.W.L. Jacobs & L. Lapinpuro. *Telopea*, 2(6): 727 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: New South Wales: Northern Tablelands: northern end of Llangothlin Lagoon, c. 4.5 km E of highway, 30.02S 151.46E, *Lapinpuro*, *Jacobs & Wilson 17* (NSW).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (199, Fig. 149), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (447, Fig. 87), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (119), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. sinus*, curve; -ata, possessing. Lemma apex sinuate.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms decumbent, 40–70 cm long, 0.8–2 mm diam., 1–4 -noded. Culm-internodes terete or elliptical in section, ridged, smooth. Culm-nodes glabrous. Leaf-sheaths ribbed, smooth or scaberulous. Ligule an eciliate membrane, 5–11 mm long, acute or acuminate. Leaf-blades 8–17 cm long, 1–4 mm wide. Leaf-blade surface ribbed, grooved adaxially or abaxially, scabrous.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, 10–21 cm long. Primary panicle branches 2–3 -nate, 5–11 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–20 mm long.

**Fertile Spikelets.** Spikelets comprising 5–6 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 12–19 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.7–4.5 mm long, 0.75–0.9 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute or acuminate. Upper glume lanceolate, 4.3–5.8 mm long, 0.7 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 6.2–8.2 mm long, cartilaginous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 4 -fid, with outer lobes shorter, with lobes 0.5–1 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.6–0.66 way up back of lemma, straight, flat below, 14–26 mm long overall, without a column. Palea 0.75–0.9 length of lemma. Palea keels ciliate. Palea surface smooth. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1–1.6 mm long, membranous, glabrous, acute. Anthers 3, 2.2–3.3 mm long, eventually exerted or retained within floret. Ovary glabrous. Caryopsis with adherent pericarp, 2.3–2.7 mm long, light brown, glabrous. Embryo 0.25–0.35 length of caryopsis. Hilum linear, 0.3–0.4 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, South Australia, Tasmania, Victoria.

**TDWG4.** Southern. Tablelands.

**Amphibromus vickeryae** S.W.L. Jacobs & L. Lapinpuro. *Telopea* 2(6): 725 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Western Australia: Darling: Beechboro, 3 mi [5 km] N of Guildford, Dec 1901, *Fitzgerald s.n.* (NSW-117393).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (135, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor of Joyce Winifred Vickery (1908–1979) Australian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long, 1–3 mm diam., 4–5 -noded. Culm-internodes terete or elliptical in section, ridged, smooth. Culm-nodes glabrous. Leaf-sheaths ribbed, smooth or scaberulous. Ligule an eciliate membrane, 9–12 mm long, acute. Leaf-blades 15–35 cm long, 3–4 mm wide. Leaf-blade surface ribbed, grooved adaxially or abaxially, scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, 7–15 cm long. Primary panicle branches 2–3 -nate, 2–5 cm long. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–10 mm long.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.2–3.4 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 3.6–4 mm long, 0.7 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 5–5.5 mm long, cartilaginous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous, rough on veins. Lemma apex dentate, 4 -fid, with simple equal lobes or with outer lobes shorter, with lobes 0.5–1 mm long, awned, 5 -awned. Principal lemma awn dorsal, arising 0.5–0.55 way up back of lemma, geniculate, flat below, 10–12 mm long overall, with 6–7.5 mm long limb, with twisted column. Column of lemma awn 4–5 mm long, scabrous. Lateral lemma awns present, arising on apex of lobes, 0.5 mm long, shorter than principal. Palea 0.8 length of lemma. Palea keels ciliate. Palea surface papillose. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 0.98–1.12 mm long, membranous, glabrous, acute. Anthers 3, 1.7–1.8 mm long, eventually exerted. Ovary glabrous. Caryopsis with adherent pericarp, 1.9 mm long, dark brown, glabrous. Embryo 0.35 length of caryopsis. Hilum linear, 0.3–0.35 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Western Australia.

**TDWG4.** South-West.

**Amphibromus whitei** C. E. Hubbard. *Kew Bull.* 1941, 30 (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Helictotrichon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Maranoa District: Roma, on edge of large fresh-water swamp, 25 Oct 1933, *White 9580* (HT: K; IT: BRI).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (92), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor of Cyril Tenison White (1890–1950) Australian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect or geniculately ascending, 20–35 cm long, 3 -noded. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 5–8 mm long. Leaf-blades 7–15 cm long, 1–1.8 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 5–10 cm long, 1–1.5 cm wide. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose, hairy above. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2–2.3 mm long, 0.7–0.8 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2.5–3 mm long, 0.6–0.7 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 4–4.5 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface papillose or tuberculate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 8–12 mm long overall, with twisted column. Palea keels winged, narrowly winged, ciliate, adorned above. Rhachilla extension 0.75 length of fertile floret. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 1–3, 0.3–0.5 mm long. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Queensland.

**TDWG4.** Inland.

**Amphicarpum amphicarpon** (Pursh) Nash. *Mem. Torrey Bot. Club*, 5: 352 (1894).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Milium amphicarpon* Pursh, *Fl. Am. Sept.* 1: 62 (1814). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: USA: New Jersey: near Egg Harbour: light sandy fields,.

**Recent Synonyms:** *Amphicarpon purshii* Kunth, *Gram.* 1: 28. (1829).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (388).

**Derivation** (Clifford & Bostock 2007): Gk. amphi-, both; karpos, fruit. Inflorescences with both aerial and subterranean spikelets.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, 30–80 cm long. Leaf-sheaths hispid. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 10–15 cm long, 5–15 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 3–20 cm long, contracted about primary branches. Primary panicle branches 1.5–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acuminate, 7–8 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume lanceolate, 0.9 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma oblong, 7–8 mm long, indurate, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex apiculate. Palea indurate.

**Flower and Fruit.** Cleistogenes present, underground.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northeast USA and Southeastern USA. New Jersey. Florida, North Carolina, South Carolina.

### **Amphicarpum muhlenbergianum** (Schult.) Hitchcock. *Bartonia* 14, 34 (1932).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Milium muhlenbergianum* Schult., *Mant.* 2: 178 (1824). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: USA: South Carolina or Florida [no loc. cited],.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (388).

**Derivation** (Clifford & Bostock 2007): L. -anus, indicating connection. In honor of Gotthilf Heinrich Ernst Muhlenberg (1753–1815) a United States preacher, teacher and botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

**Habit, Vegetative Morphology.** Perennial. Cataphylls evident. Rhizomes elongated. Culms erect or geniculately ascending, 10–70 cm long, rooting from lower nodes. Lateral branches sparse. Leaves cauline. Leaf-sheaths ribbed, hispid. Ligule a fringe of hairs. Leaf-blade base simple or broadly rounded. Leaf-blades lanceolate, (0.5–)3–10 cm long, 5–10 mm wide, herbaceous to coriaceous. Leaf-blade surface smooth or scaberulous, glabrous. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle or composed of racemes. Panicle open, lanceolate, 10–25 cm long, contracted about primary branches. Primary panicle branches distant, 1 -nate, indistinct the panicle almost racemose or simple, 1.5–15 cm long. Panicle branches scaberulous. Racemes 1–4, single or borne along a central axis, 1.5–15 cm long. Central inflorescence axis 5–10 cm long. Spikelets ascending or appressed, solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1–8 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acuminate, 6–7 mm long, falling entire.

**Glumes.** Glumes dissimilar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1 mm long, 0.1–0.2 length of spikelet, membranous or scarious, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 0.9–1 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of spikelet, membranous, without keels, 5 -veined, acute. Fertile lemma elliptic, 5.5–6 mm long, coriaceous or indurate, without keel, 5 -veined, more than 3-veined. Lemma lateral veins transversely connected at apex. Lemma margins involute. Lemma apex apiculate. Palea elliptic, 1 length of lemma, indurate, 2 -veined. Palea surface papillose. Palea apex acuminate.

**Flower and Fruit.** Lodicules 2, cuneate, 0.5 mm long, fleshy. Anthers 3, 4 mm long. Stigmas 2. Ovary glabrous.

Cleistogenes present, underground.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southeastern USA.** Alabama, Florida, Georgia, South Carolina.

**Amphipogon amphipogonoides** (Steud.) Vickery. *Contrib. N. S. Wales Nat. Herb.* 1: 286 (1950).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Pentacraspedon amphipogonoides* Steud., *Syn. Pl. Glumac.* 1: 151 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: King George Sound, W.A., *ex herb. D'Urville*; holotype: P; isotype: K.

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (136, Pl. 41), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Gk. amphi-, double; pogon, beard. Both lemmas have several awns arising from incisions at their apices.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect or geniculately ascending, 20–40 cm long, 3–6 -noded. Culm-nodes glabrous. Ligule a fringe of hairs. Leaf-blades filiform, involute, 5–15 cm long, 1–2 mm wide, stiff. Leaf-blade surface scaberulous, rough abaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle capitate, ovate, 1–1.5 cm long. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface villous. Lower glume apex acuminate. Upper glume lanceolate, 5–7 mm long, 1.4–1.8 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface villous. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 3.5–4 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface pilose. Lemma margins involute. Lemma apex lobed, 3 -fid (or the laterals with a subsidiary outer lobe), incised 0.4–0.5 of lemma length, acuminate. Palea oblong, 1 length of lemma, coriaceous, 2 -veined, without keels. Palea surface pilose. Palea apex lobed, 4 -fid, acuminate.

**Flower and Fruit.** Anthers 3, 2–2.5 mm long. Caryopsis with free soft pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Western Australia.

**TDWG4.** South-West.

**Amphipogon avenaceus** R. Br. *Prod.* 175 (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6229*, no date, Australia: Western Australia, New Holland (BM; IT: US-75457 (fragm. ex BM)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. -acea, resembling. With inflorescences and/or spikelets similar to those of *Avena*.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short, scaly. Culms erect or geniculately ascending, 20–35 cm long, 3–5 -noded. Ligule a fringe of hairs. Leaf-blades filiform, involute, 5–15 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, 4 cm long, 1 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, 1–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 12–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2.5 mm long, pubescent, acute. Floret callus hairs 0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 12–13 mm long, 1.2 length of upper glume, scarious, much thinner on margins, without keels, 3 -veined. Lower glume apex setaceously acuminate. Upper glume lanceolate, 10–12 mm long, 1.2 length of adjacent fertile lemma, scarious, with membranous margins, without keels, 3 -veined. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma oblong, 8–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface pubescent, hairy all along. Lemma margins involute. Lemma apex lobed, 3 -fid, with margins splitting into evanescent supplementary lobes, incised 0.5–0.6 of lemma length, awned, 3 -awned. Principal lemma awn 4 mm long overall. Lateral lemma awns present, arising on apex of lobes, 4 mm long, subequal to principal. Palea oblong, 2 -veined, without keels. Palea surface pubescent, hairy on back, hairy above. Palea apex lobed, 2 -fid, acuminate, awned.

**Flower and Fruit.** Anthers 3, 5 mm long. Caryopsis with free soft pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** South-West.

## **Amphipogon caricinus** F. Muell. *Linnaea* 25: 445 (1852).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Mueller s.n.*, Nov. 1851, Australia: South Australia (MEL). LT designated by Vickery, *Contr. New South Wales Herb.* 1(5): 289 (1950).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (282, Fig. 218 as var. *caricinus*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (120), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (14, Fig. 2), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14d (1956) (125, Fig. 32).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. carex*, reed-grass; -inus, belonging to. Similar to *Carex*.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths pubescent. Culms erect, 20–50 cm long, 4 -noded. Ligule a fringe of hairs. Leaf-blades convolute, 10–15 cm long, 2–3 mm wide. Leaf-blade surface ribbed, scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, 2–4(–6) cm long. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Panicle axis glabrous or pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.5–2 mm long.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 4.5–6 mm long, 0.75–0.9 length of upper glume, chartaceous, without keels, 3 -veined. Lower glume surface scabrous. Lower glume apex acute. Upper glume ovate, 6–7 mm long, 1.2 length of adjacent fertile lemma, chartaceous, without keels, 3 -veined. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma oblong, gibbous, 5–6 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma midvein pubescent, hairy below (in 2 lines). Lemma surface glabrous or pubescent. Lemma margins involute. Lemma apex lobed, 3 -fid, with margins splitting into evanescent supplementary lobes, incised 0.5 of lemma length, awned, 3 -awned. Principal lemma awn 2.5–3 mm long overall, limb glabrous or ciliate. Lateral lemma awns present, arising on apex of lobes, 2.5–3 mm long, subequal

to principal, glabrous or ciliolate. Palea oblong, 2 -veined, without keels. Palea apex lobed, 2 -fid, acuminate, awned, awns glabrous or hairy.

**Flower and Fruit.** Anthers 3, 3 mm long. Caryopsis with free soft pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Lord Howe-Norfolk Is, New South Wales, Northern Territory, Queensland, South Australia, Victoria, Western Australia.

**TDWG4.** Kimberley, Ereman, South-West. Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Western Slopes, Western Plains.

### **Amphipogon debilis** R. Br. *Prod.* 1: 175. (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown* 6228, no date, Australia: Western Australia: New Holland (BM; IT: K, US-75456 (fragm. ex BM)).

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (135, Pl. 40), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. weak. Culms decumbent often much branched at the base.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial. Culms geniculately ascending or decumbent, 10–20 cm long, 3–5 -noded. Culm-nodes glabrous. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades filiform, involute, 1–12 cm long, 1–2 mm wide, stiff. Leaf-blade surface smooth or scaberulous, rough abaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Peduncle pubescent above. Panicle capitate, oblong, 1–2 cm long. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 4.5 mm long, 1.3 length of upper glume, membranous, much thinner on margins, without keels, 3 -veined. Lower glume margins ciliolate. Lower glume apex dentate, 3 -fid. Upper glume ovate, 3.5 mm long, 0.3–0.5 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 3 -veined. Upper glume margins ciliolate. Upper glume apex dentate, 3 -fid.

**Florets.** Fertile lemma lanceolate, 7–10 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface scabrous. Lemma margins involute. Lemma apex lobed, 3 -fid, incised 0.6–0.7 of lemma length, setaceously acuminate. Palea linear, 0.9 length of lemma, cartilaginous, 2 -veined. Palea keels scaberulous. Palea apex lobed, 2 -fid, acuminate, awned.

**Flower and Fruit.** Anthers 3. Caryopsis with free soft pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Western Australia.

**TDWG4.** South-West.

### **Amphipogon laguroides** R. Br. *Prod.* 1: 175. (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown* 6225, no date, Australia: Western Australia: New Holland (BM; IT: K, US-75455 (fragm. ex BM)).

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (135, Pl. 40), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling Lagurus in respect of the inflorescence.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or short. Butt sheaths glabrous or sparsely hairy. Culms erect, 25–30 cm long, 4–5 -noded. Ligule a fringe of hairs, 0.5–2 mm long. Leaf-blades flexuous, convolute, 10–20 cm long, 2–3 mm wide, stiff. Leaf-blade surface ribbed, scaberulous, rough abaxially, pubescent, hairy adaxially. Leaf-blade apex pungent.



**Inflorescence.** Inflorescence a panicle. Panicle capitate, ovate or globose, 1–1.5 cm long. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets sessile.

**Sterile Spikelets.** Basal sterile spikelets rudimentary.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–6 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface pilose, with tubercle-based hairs. Lower glume apex setaceously acuminate. Upper glume lanceolate, 5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface pilose, with tubercle-based hairs. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma oblong, 4–5 mm long, coriaceous, without keel, 7 -veined, 0–3 -veined. Lemma surface pubescent, hairy below, hairy between veins. Lemma margins involute. Lemma apex lobed, 3 -fid, incised 0.5 of lemma length, awned, 3 -awned. Principal lemma awn 5–6 mm long overall. Lateral lemma awns present, arising on apex of lobes, 5–6 mm long, shorter than principal. Palea oblong, 2 -veined, without keels. Palea surface pubescent, hairy on flanks. Palea apex lobed, 2 -fid, acuminate, awned.

**Flower and Fruit.** Anthers 3. Caryopsis with free soft pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** South-West.

**Amphipogon sericeus** (Vickery) T. Macfarlane. *Fl. Australia* 43: 375 (2002).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Australia. **Basionym or Replaced Name:** *Amphipogon caricinus* var. *sericeus* Vickery, *Contr. New South Wales Natl. Herb.* 1: 290 (1950). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Mt. Howitt Station, about eighty miles W. of Eromanga on drifted sand, *S.T. Blake 4/7/1936* (HT: STB-12064; IT: NSW-2708).

**Derivation** (Clifford & Bostock 2007): *L. sericeus*, silken; *-eaI*, indicating resemblance. Densely invested in part or totally with long hairs.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Basal innovations intravaginal. Culms erect, 30–60 cm long. Ligule a fringe of hairs. Leaf-blades flat, 8–15 cm long, 2–2.5 mm wide. Leaf-blade surface pubescent to hirsute, sparsely hairy.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 3.5–6 cm long, 0.7–2 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Sterile Spikelets.** Basal sterile spikelets absent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.6–0.7 mm long, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 6.5 mm long, 1 length of upper glume, chartaceous, without keels, 3 -veined. Lower glume surface scabrous, glabrous or hirsute, hairy above. Lower glume apex obtuse. Upper glume ovate, 6.5 mm long, chartaceous, without keels. Upper glume surface scabrous, glabrous or hirsute, hairy above. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, 6–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface pubescent (body) or plumose (lobes). Lemma margins involute. Lemma apex lobed, 3 -fid, incised 0.5 of lemma length, awned, 3 -awned. Principal lemma awn 2.5–4.5 mm long overall. Lateral lemma awns present, arising on apex of lobes, 2.5–4.5 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3, 4.5 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, Northern Territory, Queensland. Ereman. Victoria R & Barkly Tableland, Central Australia. Central, Inland.

**Amphipogon setaceus** (R.Br.)T.Macfarlane. *Fl. Australia* 43: 374 (2002).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Diplopogon*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Diplopogon*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Diplopogon*).

**TYPE** from Australia. **Basionym or Replaced Name:** *Diplopogon setaceus* R.Br., *Prodromus Florae Novae Hollandiae* 176 (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia, King George's Sound: Brown (BM holo, K).

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (as *Diplopogon*), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (14, Fig. 2), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002) (as *Diplopogon*).

**Derivation** (Clifford & Bostock 2007): L. seta, bristle; -acea, indicating resemblance. With bristle-like leaf-blades.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial. Culms 30–60 cm long. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 15–25 cm long, 1 mm wide. Leaf-blade surface ribbed.

**Inflorescence.** Inflorescence a panicle. Panicle capitate, globose, 1–2.5 cm long. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels absent.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary, 0–3 in number.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 2.5–3 mm long. Upper glume elliptic, 7 mm long, 1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, awned, 1 -awned, awn 3–5 mm long.

**Florets.** Fertile lemma elliptic, 5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn geniculate, 4–5 mm long overall, with twisted column. Lateral lemma awns present, 2–2.5 mm long, shorter than principal. Palea 1 length of lemma, 2 -veined, without keels. Palea apex dentate, 2 -fid, awned, awns 2 mm long.

**Flower and Fruit.** Anthers 3, 2–3.5 mm long. Caryopsis with tardily free pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** South-West.

**Amphipogon strictus** R. Br. *Prod.* 1: 175 (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: R. Brown 6227, no date, Australia: New South Wales (BM; IT: K, US-75453 (fragm. ex BM)).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (283, Fig. 219 as var. *setifer*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (135, Pl. 40), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (as var. *setifer*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (547, Fig. 108), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (120 as var. *strictus*), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (94), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (145, Fig. 22), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (14, Fig. 2), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. erect. Inflorescence branches erect.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect or geniculately ascending, 25–35 cm long, 3 -noded. Culm-nodes glabrous. Leaves basal and cauline. Ligule a fringe of hairs. Leaf-blades convolute, 1–15 cm long, 2 mm wide, stiff. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform or capitate, oblong, 1–2 cm long, 0.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary, 0–3 in number.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent, disarticulating obliquely.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 4–6 mm long, 0.8 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 5–7 mm long, 0.8 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 6–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein pubescent, hairy below (in 2 lines). Lemma surface pubescent, hairy below, hairy on veins. Lemma margins involute. Lemma apex lobed, 3 -fid, with lanceolate lobes, incised 0.66 of lemma length, acute, awned, 3 -awned. Principal lemma awn 2–3.5 mm long overall, limb ciliate, glabrescent towards tip. Lateral lemma awns present, arising on apex of lobes, 2–3.5 mm long, subequal to principal, ciliate. Palea oblong, 0.9 length of lemma, 2 -veined, without keels. Palea apex dentate, 2 -fid, acuminate, awned, awns 2 mm long, awns hairy.

**Flower and Fruit.** Anthers 3, 3.5–4 mm long. Caryopsis with free soft pericarp.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State. Australia.** New South Wales, Northern Territory, Queensland, South Australia, Victoria, Western Australia.

**TDWG4.** South-West. Southern. South East. Coast, Tablelands.

## **Amphipogon turbinatus** R. Br. Prod. 1: 175 (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6226*, no date, Australia: Western Australia: New Holland (BM; IT: US-75452 (fragm. ex BM)).

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (136, Pl. 41), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (14, Fig. 2), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. turbo*, a top; -ata, possessing. Spikelets top-shaped.

**Classification.** Subfamily Arundinoideae. Tribe: Amphipogoneae.

**Habit, Vegetative Morphology.** Perennial. Cataphylls evident. Rhizomes short. Butt sheaths glabrous or woolly. Culms erect or geniculately ascending, 30–50 cm long. Culm-nodes glabrous. Ligule a fringe of hairs. Leaf-blades curved, filiform, involute, 10–15 cm long, 2–3 mm wide. Leaf-blade surface ribbed, pubescent, hairy adaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle capitate, obovate, 1.5 cm long, 1.5 cm wide. Primary panicle branches ascending to a central axis, with evident branchlets on axis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.5 mm long.

**Sterile Spikelets.** Basal sterile spikelets rudimentary.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–3 mm long, pubescent, pungent. Floret callus hairs 0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–10 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface pilose, hairy above. Lower glume apex acuminate, awned, 1 -awned, awn 4–6 mm long. Upper glume lanceolate, 8–10 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface pilose, hairy above. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma oblong, 6–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface pubescent, hairy all along. Lemma margins involute. Lemma apex lobed, 3 -fid, with margins splitting into evanescent supplementary lobes, incised 0.3–0.6 of lemma length, awned, 3 -awned. Principal lemma awn 6–8 mm long overall. Lateral lemma awns present, arising on apex of lobes, 6–8 mm long, subequal to principal. Palea oblong, 2 -veined, without keels. Palea surface pubescent, hairy on flanks. Palea apex lobed, 2 -fid, acuminate, awned, awns 6–8 mm long.

**Flower and Fruit.** Anthers 3. Caryopsis with free soft pericarp, obovoid, 2.5 mm long.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State. Australia.** Western Australia.

**TDWG4.** South-West.

**Anadelphia afzeliana** (Rendle) Stapf. Prain, *Fl. Trop. Afr.* 9 : 397 (1919).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Sierra Leone. **Basionym or Replaced Name:** *Andropogon afzelianus* Rendle, *J. Bot.* 31: 357 (1893). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: In Sierra Leone, and designated *Andropogon* 2 in 1792–1794, *Afzelius s.n.*.

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (307, Fig. 245 as *Pobeguinea arrecta*).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.3090 (1922) as *A. arrecta*).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Adam Afzelius (1750–1837) Swedish botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 100–200 cm long. Ligule a ciliate membrane. Leaf-blades 10–25 cm long, 2–4 mm wide.

**Inflorescence.** Synflorescence compound, paniculate, 25–45 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole linear, 2–3.5 cm long, scarious. Peduncle pubescent above. Racemes 1, single, 1.5–2 cm long, bearing few fertile spikelets, bearing 2 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Spikelet packing lax. Rhachis internodes filiform, 4–5 mm long. Rhachis internode tip oblique. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, linear to lanceolate, 6–9 mm long, longer than fertile, separately deciduous. Companion sterile spikelet callus oblong, 2-toothed. Companion sterile spikelet glumes coriaceous, 7–9 -veined, glabrous, acuminate, mucous or mucronate. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 1.5–2.5 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs white.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume oblong, 1 length of spikelet, coriaceous, dark brown, without keels, keel-less except near apex, 6–7 -veined. Lower glume lateral veins obscure. Lower glume apex entire, truncate. Upper glume oblong, without keels, 1–3 -veined. Upper glume margins ciliate. Upper glume apex entire, obtuse, awned, 1 -awned, awn 8–15 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma linear, 4–6 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.3–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 25–40 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** *N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa. Benin, Burkina, Ghana, Guinea-Bissau, Guinea, Ivory Coast, Mali, Nigeria, Senegal, Sierre Leone, Togo. Congo, DRC.

**Anadelphia bigeniculata** W. D. Clayton. *Kew Bull.* 20: 283 (1966).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Dalaba: *Adames 390* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. bis, twice; geniculata, kneed. Awn of lemma bent in two places.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms 30–60 cm long. Ligule a ciliate membrane, 1–2 mm long, truncate or acute. Leaf-blades 8–30 cm long, 1–2 mm wide. Leaf-blade surface scaberulous. Leaf-blade margins scaberulous.

**Inflorescence.** Synflorescence compound, paniculate, 15–25 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, exserted. Spatheole linear, 1.5–2.5 cm long, scarious. Peduncle 2–3 cm long, scaberulous above. Racemes 1, single, 1 cm long, bearing few fertile spikelets, bearing 2–4 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Spikelet packing lax. Rhachis internodes filiform, 2 mm long. Rhachis internode tip oblique. Spikelets

in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or well-developed, male, lanceolate, 5 mm long, as long as fertile, separately deciduous. Companion sterile spikelet callus cuneate, 0.5 mm long, obtuse. Companion sterile spikelet glumes coriaceous, glabrous, setaceously acuminate, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes, 3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square or oblong, 0.2 mm long, pilose, base obtuse, attached obliquely. Spikelet callus hairs dark brown.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume oblong, 1 length of spikelet, coriaceous, dark brown, without keels, 7 -veined. Lower glume lateral veins obscure. Lower glume surface asperulous, rough above. Lower glume apex dentate, 2 -fid. Upper glume oblong, without keels, 3 -veined. Upper glume apex entire, awned, 1 -awned, awn 3.5–6 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 2 -veined, ciliate on margins. Fertile lemma linear, 3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 14–22 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, cuneate, 0.2 mm long, fleshy, truncate. Anthers 3, 1.5–1.8 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Guinea, Sierre Leone.

**Anadelphia chevalieri** Reznik. *Rev. Bot. Appliq.* 14: 199. (1934).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kindia: *Jacques-Felix 351d*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Jean Baptiste Auguste Chevalier (1873–1956) French botanist and collector in tropical Africa, SE Asia and Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms 100 cm long. Ligule a ciliolate membrane.

**Inflorescence.** Synflorescence compound, scanty, 10–30 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 4.5–5.5 cm long, scarious, purple. Racemes 1, single, 3 cm long, bearing few fertile spikelets, bearing 2 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Spikelet packing lax. Rhachis internodes filiform. Rhachis internode tip oblique. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 5 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 15–25 mm long, longer than fertile, separately deciduous. Companion sterile spikelet callus oblong, 1 mm long, 2-toothed or emarginate. Companion sterile spikelet glumes coriaceous, glabrous, setaceously acuminate, awned, one glume awned, with 1–3 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 10–13 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, curved, 3–4 mm long, pubescent, base pungent, attached obliquely. Spikelet callus hairs white.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, dark brown, without keels, 6–7 -veined. Lower glume lateral veins obscure. Lower glume apex entire, truncate. Upper glume oblong, coriaceous, without keels. Upper glume apex entire, awned, 1 -awned, awn 7–14 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma oblong, 4.5 mm long, membranous, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.4–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 50–70 mm long overall, with twisted column. Column of lemma awn 20–22 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.  
**Country /Province /State.** West tropical Africa. Guinea.

**Anadelphia funerea** (Jacques-Felix) W. D. Clayton. *Kew Bull.* 20: 281 (1966).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. relating to a funeral. Lemma-awn black.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 60–100 cm long. Ligule an eciliate membrane, 1–1.3 mm long. Leaf-blades 4–10 cm long, 1–3 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, linear, 10–40 cm long.

Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, terminal and axillary, subtended by a spatheole, enclosed. Spatheole linear, 2–3 cm long, scarious. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, 2.5 mm long, ciliate, with red hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, subterete, 10–11 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 2 mm long, pubescent, base pungent, attached obliquely. Spikelet callus hairs red.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 0.9 length of spikelet, coriaceous, dark brown, without keels, 6–7 -veined. Lower glume lateral veins obscure. Lower glume surface puberulous, hairy above. Lower glume apex entire, emarginate. Upper glume oblong, coriaceous, without keels. Upper glume apex entire, acute, mucicous or mucronate, 1 -awned, awn 8–15 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma linear, 4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 100–120 mm long overall, with twisted column (black). Column of lemma awn 75–90 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Guinea.

**Anadelphia hamata** Stapf. Prain, *Fl. Trop. Afr.* 9: 395 (1919).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Guinea. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Coll? (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. hamus, hook; -ata, possessing. Lemma awn slender with an abruptly deflexed bristle.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms 60–90 cm long. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades 6–15 cm long, 2–4 mm wide, flaccid. Leaf-blade surface pubescent.

**Inflorescence.** Synflorescence compound, scanty, 10–30 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, exserted. Spatheole linear, 2–3 cm long, scarious. Peduncle 3–5 cm long, pubescent above. Racemes 1, single, 1.8–2 cm long, bearing few fertile spikelets, bearing 2–4 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Spikelet packing lax. Rhachis internodes filiform, 4–5 mm long. Rhachis internode tip oblique. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 4–5 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 5–6.5 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet callus oblong or cuneate, 0.7–1 mm long, 2-toothed or emarginate. Companion sterile spikelet glumes chartaceous, 9 -veined, glabrous, acuminate, mucronate or awned, with 0.5–1.5 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 6–7.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.5–2.5 mm long, pubescent, base acute, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, without keels, 6–7 -veined. Lower glume lateral veins distinct. Lower glume apex dentate, 2 -fid. Upper glume oblong, without keels. Upper glume margins ciliate. Upper glume apex entire, emarginate, awned, 1 -awned, awn 2–3 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of fertile lemma, hyaline, 2 -veined, ciliate on margins, obtuse. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 12–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 3 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa. Congo, Gabon, DRC.

**Anadelphia leptocoma** (Trin.) Pilger. *Bot. Jahrb.* 54:284 (1917).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Sierra Leone. **Basionym or Replaced Name:** *Andropogon leptocomus* Trin., *Mem. Acad. Petersb. Ser.* 6(2): 264. (1832).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (309, Fig. 247 as *A. longifolia*).

**Derivation** (Clifford & Bostock 2007): Gk. leptos, narrow; kome, hair of the head. Pedicels of stalked spikelets hairy.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 100–150 cm long. Ligule a ciliolate membrane. Leaf-blades 15–30 cm long, 2–6 mm wide.

**Inflorescence.** Synflorescence compound, paniculate, 30–60 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 1.5–2 cm long, scarious. Racemes 1, single, 0.8–1.2 cm long, bearing few fertile spikelets, bearing 3–5 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Spikelet packing lax. Rhachis internodes filiform, 2–6 mm long. Rhachis internode tip oblique. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or well-developed, containing empty lemmas or male, linear to lanceolate, as long as fertile, separately deciduous. Companion sterile spikelet callus cuneate, obtuse. Companion sterile spikelet glumes chartaceous, 7–9 -veined, glabrous, acuminate. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, without keels, keel-less except near apex, 4–9 -veined. Lower glume lateral veins distinct. Lower glume apex dentate, 2 -fid. Upper glume oblong, without keels, 1–3 -veined. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 2–5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma linear, 4–6 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.3–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Ghana, Guinea, Ivory Coast, Liberia, Mali, Nigeria, Sierra Leone.

**Anadelphia liebiana** H. Scholz. *Willdenowia* 7 (3): 583 (1975).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Togo. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Aledjo: Mathey & Scholz 390 (B holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Manfred Liebig (fl. 1912–74) German cleric and plant collector in Togo.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 80–100 cm long. Leaf-sheaths longer than adjacent culm internode, striately veined, glabrous on surface. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades straight or curved, conduplicate, 1–2 mm wide. Leaf-blade surface scabrous, glabrous, hairless except near base. Leaf-blade margins scaberulous. Leaf-blade apex filiform.

**Inflorescence.** Synflorescence compound, paniculate, 25–30 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 2.5–4 cm long, scarious. Peduncle pilose above. Racemes 1, single, 2–3 cm long, bearing few fertile spikelets, bearing 6–10 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Spikelet packing lax. Rhachis internodes filiform. Rhachis internode tip oblique. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or well-developed (2 spikelets per raceme), male, linear, 8–9.2 mm long, longer than fertile, separately deciduous. Companion sterile spikelet callus cuneate, obtuse. Companion sterile spikelet glumes coriaceous, 9 -veined, pilose, acuminate. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus 0.8 mm long, pilose, base obtuse, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, light brown, without keels, keel-less except near apex, 6–8 -veined. Lower glume surface pilose. Lower glume apex obtuse. Upper glume oblong, without keels. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 5 mm long.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 3.8–4.5 mm long, hyaline, 2 -veined, obscurely veined, ciliolate on margins. Fertile lemma linear, 3.5–3.8 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, oblong, 0.5 mm long, truncate.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Togo.

**Anadelphia macrochaeta** (Stapf) W. D. Clayton. *Kew Bull.* 20: 281 (1966).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Basionym or Replaced Name:** *Monium macrochaetum* Stapf, Prain, *Fl. Trop. Afr.* 9: 400 (1919).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.3091 (1922) as *Monium*).

**Derivation** (Clifford & Bostock 2007): Gk. makros, large; chaete, bristle. Lemmas long-awned.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, 30–60 cm long. Ligule a ciliolate membrane. Leaf-blades 2.5–5 cm long, 0.5–1 mm wide.

**Inflorescence.** Synflorescence compound, linear, 10–20 cm long.

Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, terminal and axillary, subtended by a spatheole, enclosed. Spatheole linear, 1.8–2.5 cm long, scarious. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, 0.2–0.4 mm long, glabrous.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 1.5 mm long, bearded, base pungent, attached obliquely. Spikelet callus hairs red.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume oblong, 1 length of spikelet, coriaceous, without keels, keel-less except near apex, 6–7 -veined. Lower glume



lateral veins obscure. Lower glume apex dentate, 2 -fid. Upper glume oblong, without keels, 1–3 -veined. Upper glume apex dentate, 2 -fid, muticous or mucronate, 1 -awned, awn 2–5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2–3 mm long, hyaline, 0 -veined, without midvein, without lateral veins, ciliate on margins. Fertile lemma linear, 3–3.5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, with linear lobes, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 45–60 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West tropical Africa. Guinea.

### **Anadelphia polychaeta** W. D. Clayton. *Kew Bull.* 20: 281 (1966).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Senegal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Diouloubou: *Adam 18222* (K holo).

**Illustrations (Books):** F.N.Hepper, *F.W.T.A.* 3(2) (1972) (500, Fig.458).

**Derivation** (Clifford & Bostock 2007): ultimate spikelet of inflorescence with several awns or awn-like structures.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms 80 cm long. Ligule a ciliate membrane, 2 mm long, truncate. Leaf-blades 10–20 cm long, 1–2 mm wide. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Synflorescence compound, scanty, 20–25 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, exerted. Spatheole linear, 3.5–4 cm long, scarious, glabrous. Peduncle 4–4.5 cm long, antrorsely scabrous above. Racemes 1, single, 1.5–2 cm long, bearing few fertile spikelets, bearing 2 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Spikelet packing lax. Rhachis internodes filiform. Rhachis internode tip oblique. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or well-developed, male, linear, 6 mm long, as long as fertile, separately deciduous. Companion sterile spikelet callus cuneate, 1 mm long, truncate. Companion sterile spikelet glumes coriaceous, glabrous, acuminate, awned, both glumes awned, with 1–2 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes, 4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 6.5–7.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.8 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs red.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume oblong, 1 length of spikelet, coriaceous, dark brown, without keels, 7 -veined. Lower glume lateral veins obscure. Lower glume surface asperulous, rough above. Lower glume apex dentate, 2 -fid, awned, 2 -awned, awn 4–5.5 mm long. Upper glume oblong, without keels, 3 -veined. Upper glume apex entire, awned, 1 -awned, awn 8–12 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 4 mm long, hyaline, 2 -veined, ciliate on margins. Fertile lemma linear, 3.5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–40 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, oblong, 0.5 mm long, fleshy, truncate. Anthers 3.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West tropical Africa. Guinea, Senegal.

### **Anadelphia pumila** Jacques-Felix. *Rev. Bot. Appliq.* . 178 (1950).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mont Gagan, aretes humides des pentes greseuses, *Jacquesj-Felix 2075*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. dwarf, low growing. Habit typically depauperate.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms 15–60 cm long. Ligule a ciliolate membrane. Leaf-blades 2–8 cm long, 1–2 mm wide.

**Inflorescence.** Synflorescence compound, scanty, 4–20 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, exerted. Spatheole linear, 2–3 cm long, scarious. Racemes 1, single, 1.5–2.5 cm long, bearing few fertile spikelets, bearing 4–6 fertile spikelets on each. Rhachis fragile at the nodes, glabrous on margins. Spikelet packing lax. Rhachis internodes filiform. Rhachis internode tip oblique. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 1–2 mm long, glabrous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 7–8 mm long, longer than fertile, separately deciduous. Companion sterile spikelet callus linear, 1–1.5 mm long, truncate or obtuse. Companion sterile spikelet glumes coriaceous, 3 -veined, glabrous, acuminate, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, subterete, 3.5–4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–1.5 mm long, pubescent, base truncate, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, without keels, 6–7 -veined. Lower glume lateral veins obscure. Lower glume surface asperulous, rough above. Lower glume apex dentate, 2 -fid. Upper glume oblong, without keels. Upper glume apex entire, awned, 1 -awned, awn 5–7 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline, 1 -veined, without lateral veins, eciliate on margins. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.7–0.8 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG), Continent.** Africa.

**Country /Province /State.** West tropical Africa. Ghana, Guinea.

**Anadelphia scyphofera** W. D. Clayton. *Kew Bull.* 20: 278 (1966).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Zambia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Luwingu District: Chishinga Ranch, 17 May 1961, *Astle 647* (HT: K).

**Illustrations (Books):** G.V.Pope et al., *Flora Zambesiaca* 10 (4(2002):142, t. 45).

**Derivation** (Clifford & Bostock 2007): Gk. skyphos, cup; L. fero, bear. There is a trumpet-shaped appendage at the apex of the peduncle.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms erect, 10–40 cm long. Leaf-sheath auricles erect, 2–3 mm long. Ligule a ciliolate membrane. Leaf-blades filiform, 10–20 cm long, 0.5 mm wide.

**Inflorescence.** Synflorescence compound, fastigate, 20–30 cm long.

Inflorescence comprising only a few spikelets, comprising 2 fertile spikelets, terminal and axillary, subtended by a spatheole, enclosed. Spatheole linear, 2.5–3.5 cm long, scarious. Peduncle expanded into a conical flask at apex (2 mm long). Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, 2 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, 2–4 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet callus linear, 0.25 mm long, truncate. Companion sterile spikelet glumes chartaceous, glabrous, acuminate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.5 mm long, pilose, base pungent, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, without keels, keel-less except near apex, 6 -veined. Lower glume lateral veins distinct. Lower glume surface with a longitudinal median groove. Lower glume apex dentate, 2 -fid. Upper glume oblong, without keels, 3 -veined. Upper glume apex acute, awned, 1 -awned, awn 12–14 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma oblong, 3 mm long, hyaline, without keel. Lemma margins ciliate. Lemma apex lobed, 2 -fid, incised 0.2 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, bigenulate, 45–50 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, South tropical Africa. DRC. Zambia.

**Anadelphia trepidaria** (Stapf) Stapf. Prain, *Fl. Trop. Afr.* 9: 390 (1919).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guinea-Bissau. **Basionym or Replaced Name:** *Andropogon trepidarius* Stapf, *Journ. de Bot.* 19: 100. (1905). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *C.H.O. Pobeguïn 524*, no date, Guinea-Bissau: Koroussa (US-1038047 (ex K)).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (310, Fig. 248 as *Monium congestum*).

**Derivation** (Clifford & Bostock 2007): *L. trepidus*, restless; -aria, pertaining to. The inflorescence is lax and mobile in light winds.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms 30–60 cm long. Ligule a ciliolate membrane. Leaf-blades flat or involute, 3–8 cm long, 1 mm wide, flaccid. Leaf-blade surface glabrous.

**Inflorescence.** Synflorescence compound, paniculate, 15–30 cm long, lax.

Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, terminal and axillary, subtended by a spatheole, enclosed. Spatheole linear, 1.2–2 cm long, scarious, glabrous or pilose. Peduncle 0.4–0.8 cm long. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, 1.5 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or well-developed, containing empty lemmas or male, lanceolate, 4.5–6 mm long, longer than fertile, separately deciduous. Companion sterile spikelet callus linear, 1.5–2 mm long, truncate. Companion sterile spikelet glumes coriaceous, 7–9 -veined, glabrous, acuminate, mucous. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 3.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, pubescent, base obtuse or acute, attached obliquely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, without keels, 5–7 -veined. Lower glume lateral veins distinct. Lower glume apex dentate, 2 -fid, mucronate. Upper glume lanceolate, without keels, 1–3 -veined. Upper glume apex entire, truncate, awned, 1 -awned, awn 6 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 0–2 -veined, ciliate on margins, obtuse. Fertile lemma lanceolate, 2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–30 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 3 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Guinea, Sierre Leone.

**Anadelphia trichaeta** (Reznik) W. D. Clayton. *Kew Bull.* 20 :281 (1966).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guinea. **Basionym or Replaced Name:** *Monium trichaetum* Reznik, *Bull. Mus. Hist. Nat. Paris, Ser. 2*(4) : 1046. (1932). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *lix, H. Jacques-F 184, 1929*, Guinea: Kindia (L).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. *treis*, three; *chaete*, bristle. Lemma bifid with a dorsal awn.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 30–60 cm long, 3–6-noded. Leaf-sheaths pilose. Ligule an eciliate membrane, 3 mm long. Leaf-blades involute, 7–25 cm long, 0.5–3 mm wide. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, linear, 10–25 cm long.

Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, terminal and axillary, subtended by a spatheole, enclosed. Spatheole linear, 1.5–3 cm long, scarious. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, 1–1.5 mm long, ciliate, with red hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, subterete, 5.5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.5 mm long, pubescent, base pungent, attached obliquely. Spikelet callus hairs red.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, dark brown, without keels, 6–7-veined. Lower glume lateral veins obscure. Lower glume apex dentate, 2-fid, awned, 2-awned, awn 3–5 mm long. Upper glume oblong, without keels, 1-veined. Upper glume lateral veins absent. Upper glume apex entire, awned, 1-awned, awn 7–8 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 0-veined, without midvein, without lateral veins, ciliate on margins. Fertile lemma linear, 3–3.5 mm long, hyaline, without keel, 1-veined, 0–3-veined, one-veined. Lemma apex dentate, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 20–30 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 1.5–2 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Guinea, Sierre Leone.

**Anadelphia trispiculata** Stapf. Prain, *Fl. Trop. Afr.* 9: 398 (1919).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Guinea. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Guinea, Baffing valley: *Pobeguin 1787* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. tria, three, spicula, small-spike; -ata, possessing. The upper glume of the sessile spikelet is three-dentate.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 100–120 cm long. Ligule a ciliate membrane. Leaf-blades 10–20 cm long, 2–5 mm wide. Leaf-blade margins ciliate.

**Inflorescence.** Synflorescence compound, linear, 20–40 cm long.

Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, terminal and axillary, subtended by a spatheole, enclosed. Spatheole linear, 2–3 cm long, scarious. Peduncle 1.2 cm long. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, 5 mm long, ciliate, with dark brown hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, linear, 8–10 mm long, as long as fertile, separately deciduous. Companion sterile spikelet callus oblong, 1 mm long, 2-toothed or emarginate. Companion sterile spikelet glumes chartaceous, 11–13-veined, glabrous, setaceously acuminate, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or oblong, dorsally compressed, 8–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 3–3.5 mm long, bearded, base pungent, attached obliquely. Spikelet callus hairs dark brown.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume oblong, 1 length of spikelet, coriaceous, dark brown, without keels, 7-veined. Lower glume lateral veins obscure. Lower glume surface pubescent, hairy below. Lower glume apex entire, truncate or obtuse. Upper glume oblong, coriaceous, without keels, 3-veined. Upper glume margins ciliate. Upper glume apex dentate, 3-fid, muticous or awned, 1-awned, awn 2–5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2-veined, ciliate on margins. Fertile lemma linear, hyaline, without keel, 1-veined, 0–3-veined, one-

veined. Lemma apex dentate, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 35–70 mm long overall, with twisted column. Column of lemma awn 22–45 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 3.5–4 mm long. Caryopsis 4 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Ghana, Guinea, Ivory Coast, Liberia, Mali, Nigeria, Sierra Leone.

**Anatherostipa bomanii** (Hauman) P. Penailillo B. *Gayana, Bot.*, 53(2): 279 (1996).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. **Basionym or Replaced Name:** *Stipa bomanii* Hauman *An. Mus. Nac. Buenos Aires*, 29: 397 (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Boman s.n.*, 2 Jun 1903, Argentina: Prov. Jujuy: Dep. Susques: Susque, 3700 m alt. (?; IT: BAA-2977).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of E. Bowman (fl.1903) who collected in Argentina.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 20–40 cm long. Leaf-sheaths 7–10 cm long. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades filiform, convolute, 10–17 cm long, 0.5 mm wide. Leaf-blade surface ribbed.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 15–20 cm long, 0.2–0.3 cm wide, bearing few spikelets. Primary panicle branches 2–4-nate, 4–6 cm long. Panicle axis 4–5 noded. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4 mm long, 0.9 length of upper glume, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, 4.5 mm long, membranous, without keels, 3-veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, subterete, 3 mm long, coriaceous, without keel, 5-veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1-awned. Principal lemma awn flexuous, 45–60 mm long overall. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia. Argentina Northwest, Chile North.

**TDWG4.** Jujuy. Tarapaca, Antofagasta.

**Anatherostipa brevis** (Torres) Peqailillo. *Contr. U.S. Natl. Herb.* 48: 109. 2003.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. **Basionym or Replaced Name:** *Nicoraella brevis* Torres, *Monogr. Comis. Invest. Ci. Prov. Buenos Aires*, 13: 73 (1997). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Prov. Jujuy: Dept. Tilcara: Falda Grande, Cerro de Guarahuasi, 3400 m, 4 Mar 1961, A. L. Cabrera & P. Hernandez 14047 (HT: BAA. IT: LP).

*Stipa saltensis* Kuntze, *Rev. Gen. Pl.* 3(2): 372 (1898).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. short. Culms short.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal or intravaginal. Culms erect, 10–20 cm long. Culm-nodes pubescent. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface or puberulous. Ligule an eciliate membrane, obtuse. Collar glabrous. Leaf-blades straight or curved, filiform, convolute, 2–8 cm long, 0.3–0.4 mm wide. Leaf-blade surface scaberulous, rough abaxially, puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle, comprising 8–15 fertile spikelets. Panicle contracted, linear, 3–5 cm long, bearing few spikelets. Panicle axis pilose. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 3.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.5 mm long, pubescent, hairy in a ring below, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–5 mm long, 1 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acuminate. Upper glume lanceolate, 3.5–5 mm long, membranous, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 2.5–3.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, with conspicuous apical hairs. Lemma margins convolute, covering most of palea. Lemma hairs 1–1.5 mm long. Lemma apex awned, 1 -awned. Principal lemma awn curved, 9–14 mm long overall, persistent. Palea 2–2.5 mm long. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Lodicules 2. Caryopsis with adherent pericarp, ellipsoid, 1.8 mm long. Hilum linear, 0.66 length of caryopsis.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northwest.

**TDWG4.** Jujuy.

**Anatherostipa coroi** F. Rojas. *Gayana, Bot.* 54(2): 170–171, f. 2. 1997.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. **Basionym or Replaced Name:** *Stipa coroi* FORSAN. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Depto: Cochabamba: Prov. Quillacollo, Cuenca Taquiqa, 3500 m, 3 Mar 1993, Aleman & Fernandez 2471 (HT: LPB; IT: HRF-HRG-La Violeta).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of M. coro (fl. 1982) Bolivian ecologist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–60 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades filiform, involute, 3–25 cm long, 1 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 7–20 cm long. Primary panicle branches appressed, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5.3–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or sparsely hairy, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.3–7.5 mm long, 1 length of upper glume, hyaline, without keels. Lower glume apex acuminate. Upper glume lanceolate, 5.3–7.5 mm long, hyaline, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 3–4.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn flexuous, 40–80 mm long overall. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

**Anatherostipa hans-meyeri** (Pilg.) Peqailillo. *Gayana, Bot.* 53(2): 279. 1996.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. **Basionym or Replaced Name:** *Stipa hans-meyeri* Pilg., *Engl. Jahrb.* 56. *Beibl.* 123, 24, (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Hans Meyer* 139, Jun 1903, Ecuador: Chimborazo: paramo region, 4500 m (B; ILT: US-866110 (fragm.)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 24(7): 272 (1925).

**Illustrations (Books):** S.A.Renouze, *Gramineas de Bolivia* (1998) (76, Fig. 15 as *Stipa*).

**Derivation** (Clifford & Bostock 2007): in honor of Hans Meyer (fl. 1907) who collected in Ecuador.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 20–35 cm long, 0.5 mm diam. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves 2–4 per branch. Leaf-sheaths

glabrous on surface. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades involute, 1 mm wide, stiff. Leaf-blade surface ribbed, scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle pubescent above, cylindrical at apex or tipped by a glumaceous appendage. Panicle open, linear, 3–10 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–9.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3–0.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–9.5 mm long, 1 length of upper glume, hyaline, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acuminate. Upper glume lanceolate, 7–9.5 mm long, 2–3 length of adjacent fertile lemma, hyaline, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 3.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma midvein pubescent. Lemma lateral veins obscure. Lemma surface glabrous, with conspicuous apical hairs. Lemma margins convolute, covering most of palea, pubescent. Lemma hairs 2.4–4 mm long. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 9–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong, chartaceous, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 2. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Western South America. Costa Rica. Bolivia, Ecuador, Peru.

### **Anatherostipa henrardiana** (Parodi) Peqailillo. *Gayana, Bot.* 53(2): 279. 1996.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. **Basionym or Replaced Name:** *Stipa henrardiana* L. Parodi, *Blumea*, Suppl. 3, 68 (1946). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.L. Cabrera 9105*, 13 Feb 1946, Argentina: Jujuy: Dept. Susques: Cerro Tuzgle, 4900 m (BAA-3069; IT: LIL, LP, US-1962698).

**Illustrations (Books):** No illustration found (BKS).

**Illustrations (Journals):** *Blumea* (*Blumea Supp.*3: 68 (1946)).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Jan Theodor Henrard (1881–1974) Dutch botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Culms erect, 15–20 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 5–7 mm long, acuminate. Leaf-blades filiform, involute, 5–10 cm long, 0.3–0.4 mm wide. Leaf-blade surface ribbed. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle, comprising 8–15 fertile spikelets. Panicle open, 3–5 cm long, bearing few spikelets. Primary panicle branches 2 -nate, bearing 1–3 fertile spikelets on each lower branch. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, without keels, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 5.5 mm long, membranous, purple, without keels, 3 -veined. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 4 mm long, chartaceous, grey, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma hairs 1–1.5 mm long. Lemma apex awned, 1 -awned. Principal lemma awn curved, 3–3.5 mm long overall, deciduous, limb puberulous, glabrescent towards tip. Palea 1 length of lemma, 2 -veined, without keels. Palea surface pilose.

**Flower and Fruit.** Anthers 3, 1.5–2 mm long, anther tip smooth. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northwest.

**TDWG4.** Jujuy.

**Anatherostipa mucronata** (Griseb.) F. Rojas. *Gayana Bot.* 54(2): 170. 1997.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. **Basionym or Replaced Name:** *Piptochaetium mucronatum* Griseb., *Goett. Abh.* 24: 296. (1879). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P.G. Lorentz s.n.*, 19–23 Mar 1873, Argentina: Salta: alrededores del Nevado del Castillo (GOET; IT: CORD).

**Recent Synonyms:** *Stipa mucronata* H. B. & K., *Nov. Gen. et Sp.* 1: 125 (1815).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. mucro, sharp point; -ata, possessing. With glumes or lemmas contracted into a short hard point or bifid and shortly awned from between the teeth.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect or geniculately ascending, 60–100 cm long. Culm-nodes pubescent. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades flat or involute, 10–20 cm long, 1–3 mm wide. Leaf-blade surface pubescent, sparsely hairy, hairy on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, dense, nodding, 10–30 cm long. Primary panicle branches appressed or ascending, 1–2 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, pubescent (tawny), acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume oblong, 1 length of upper glume, membranous, purple, without keels, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acuminate. Upper glume oblong, 25–40 mm long, membranous, purple, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, subterete, 5–6 mm long, 1 mm wide, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface papillose, rough above, pubescent, hairy below. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck or surmounted by a ring of hairs, with this appendage 0.5 mm long, awned, 1 -awned. Principal lemma awn bigenulate, 35–50 mm long overall, with twisted column. Middle segment of lemma awn 8–9 mm long. Column of lemma awn 10 mm long, hispidulous. Palea 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America, Western South America, Southern South America. Bolivia. Argentina Northwest, Chile North.

**TDWG4.** Catamarca, Jujuy, Salta, Tucuman. Tarapaca, Antofagasta, Atacama.

**Anatherostipa obtusa** (Nees & Meyen) Peqailillo. *Gayana, Bot.* 53(2): 279. 1996.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Piptatherum obtusum* Nees & Meyen, *Meyen, Reise*, 2: 32 (1843). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Meyen s.n.*, Sep 1831, Peru: Arequipa: elev. 12000–13000 ft (B; IT: BAA-2375 (fragm. ex B), CGE, LE-TRIN-1470.01, U, US (fragm. ex CGE, fragm. ex LE-TRIN)).

**Recent Synonyms:** *Stipa obtusa* (Nees & Meyen) Hitchcock, *Contrib. U. S. Nat. Herb.* 24: 284 (1925).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (82, Fig. 17 as *Stipa*).

**Derivation** (Clifford & Bostock 2007): L. blunt. Glumes or lemmas apically rounded.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 30–60 cm long. Ligule an eciliate membrane, 3–7 mm long. Leaf-blades filiform, 10–25 cm long, 0.5–1 mm wide, stiff. Leaf-blade surface ribbed, scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, interrupted, 8–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile



or the upper sterile. Spikelets lanceolate, subterete, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, without keels. Lower glume apex obtuse. Upper glume lanceolate, 2.5–3 mm long, membranous, purple, without keels. Upper glume apex obtuse.

**Florets.** Fertile lemma lanceolate, subterete, 2.5–2.8 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn straight or flexuous, 8–10 mm long overall. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Anthers 3, 1 mm long, anther tip smooth. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia, Peru. Argentina Northwest.

**TDWG4.** Jujuy.

### **Anatherostipa orurensis** F. Rojas. *Gayana, Bot.* 54(2): 171–172, f. 3. 1997.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. **Basionym or Replaced Name:** *Stipa orurensis* (Rojas) FORSAN. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Peterson 12742*, 7 Mar 1993, Bolivia, Dpto. Oruro, Prov. S. Pagador. ca 20 mi SSE of Huari, 2 mi W of Urmiri, 3620 m (LPB; IT: US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Oruro Department, Bolivia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–60 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades aciculate, convolute, 15–30 cm long, 1–1.5 mm wide. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, oblong, loose, 5–15 cm long, bearing few spikelets. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate or ovate, 6–7.5 mm long, 1 length of upper glume, hyaline, without keels. Lower glume apex acuminate. Upper glume lanceolate or ovate, 6–7.5 mm long, hyaline, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, gibbous, 4.2–4.6 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma apex attenuate, awned, 1 -awned. Principal lemma awn straight, 3–5(–7) mm long overall, deciduous. Palea without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

### **Anatherostipa rigidiseta** (Pilg.) P. Penailillo. *Gayana, Bot.*, 53(2): 279 (1996).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Oryzopsis rigidiseta* Pilg., *Engl. Jahrb.* 56. *Beibl.* 123, 26 (1920). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Weberbauer 475*, Feb 1902, Peru: Puno: Azangaro, 4000 m (B; IT: BAA-1767 (fragm. ex B), US-81976, US-1645161).

**Recent Synonyms:** *Stipa rigidiseta* (Pilg.) Hitchcock, *Contrib. U. S. Nat. Herb.* 24: 285 (1925).

**Illustrations (Journals):** *Ruizia* (13:70, Fig 81-m (1993) as *Stipa*).

**Derivation** (Clifford & Bostock 2007): *L. rigidus*, stiff; seta, bristle. Lemma awn rigid.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long. Ligule an eciliate membrane, 4 mm long. Leaf-blades filiform, convolute, 25–45 cm long, 0.5 mm wide. Leaf-blade surface ribbed, scabrous, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 6–15 cm long. Panicle axis with lower internodes 2–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.3 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.2 mm long, 0.8 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 4 mm long, membranous, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3–4 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy all along. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn straight, 6–10 mm long overall, limb puberulous. Palea 2.5–2.9 mm long, 1 length of lemma, without keels.

**Flower and Fruit.** Lodicules 3, 0.6 mm long. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia, Peru. Chile North.

Tarapaca, Antofagasta, Atacama.

**Anatherostipa rosea** (Hitchc.) Peqailillo. *Contr. U.S. Natl. Herb.* 48: 110. 2003.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. **Basionym or Replaced Name:** *Stipa rosea* Hitchc., *Contrib. U. S. Nat. Herb.* 24: 272 (1925). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Hitchcock 21523*, 7 Sep 1923, Ecuador: Loja: 2200–3100 m (US-1197850; IT: S (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. rosea*, pink.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–60 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades involute, 12–20 cm long, 1 mm wide. Leaf-blade surface ribbed, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 12–20 cm long. Primary panicle branches ascending. Panicle branches terete, smooth, with scattered hairs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, red, without keels. Lower glume lateral veins obscure. Lower glume apex acuminate. Upper glume lanceolate, 7 mm long, membranous, red, without keels. Upper glume primary vein obscure. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface with conspicuous apical hairs. Lemma margins convolute, covering most of palea. Lemma hairs 3 mm long. Lemma apex awned, 1 -awned. Principal lemma awn flexuose or bigenulate, 10 mm long overall, with a straight or slightly twisted column. Palea without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Ecuador, Peru.

**Anatherostipa venusta** (Phil.) P. Penailillo B. *Gayana, Bot.*, 53(2): 279 (1996).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. **Basionym or Replaced Name:** *Stipa venusta* Phil., *Anal. Mus. nac. Chile* 81. (1891). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Philippi 105*, Chile: Tarapaca (SGO-PHIL-151; IT: BAA (fragm.), SGO-37389, SGO-63171, US-81901 (fragm. ex SGO), US-81902 (fragm. ex W), US-825162 (fragm.), US- (photo SGO-37389)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. beautiful, graceful. Mostly a reference to habit.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 15–30 cm long. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades filiform, convolute, 10–15 cm long, 0.3–0.4 mm wide. Leaf-blade surface ribbed, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–20 cm long. Panicle axis with lower internodes 1–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.3 mm long, pubescent, hairy in a ring above, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5 mm long, 0.9 length of upper glume, membranous, purple, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 4 mm long, membranous, purple, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, pubescent, awned, 1 -awned. Principal lemma awn flexuous, 45–65 mm long overall, with twisted column. Palea 2.5 mm long, 1 length of lemma, without keels.

**Flower and Fruit.** Lodicules 3, 0.6 mm long. Anthers 3, 1–1.2 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform, 2 mm long. Hilum linear.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Southern South America. Chile North.

Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca, Antofagasta.

**Ancistrachne ancylotricha** (Quisumb. & Merrill) S. T. Blake. *Univ. Queensl. Papers, Dept. Biol.*, 1, No. 19, 6 (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Philippines. **Basionym or Replaced Name:** *Panicum ancylotrichum* Quisumb. & Merr., *Philipp. Journ. Sc.* 37: 135. (1928). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Mindanao, Davao Province, Mati Bur. Sci. 49069 Hamos and Edaqa, April 9, 1927 along Dawan River, in thickets and forests and in the open, at low altitudes.",.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. agkylos, curved; thrix, hair.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe NEURACHNINAE.

**Habit, Vegetative Morphology.** Perennial. Culms rambling, 100–150 cm long, 2.5–3 mm diam., wiry. Culm-internodes distally glabrous. Lateral branches sparse. Leaf-sheaths smooth, glabrous on surface, inner surface glabrous. Ligule a fringe of hairs. Leaf-blade base broadly rounded. Leaf-blades reflexed, deciduous at the ligule, 1–13.5 cm long, 2.5–7 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 7.5–17.5 cm long. Primary panicle branches ascending, simple, 2–4 cm long. Panicle axis glabrous. Spikelets in pairs. Fertile spikelets sessile and pedicelled. Pedicels present, 2–4 mm long, scaberulous.

**Fertile Spikelets.** Spikelets without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, tilted on the pedicel, dorsally compressed, 3.75 mm long, falling entire. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–0.6 length of spikelet, chartaceous, without keels, 3 -veined. Lower glume surface pilose, hairy above, with tubercle-based hairs or hooked hairs. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, with

hyaline margins, without keels, 9 -veined. Upper glume surface pilose, with tubercle-based hairs or hooked hairs. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, coriaceous, much thinner on margins, 7–9 -veined, pilose, with tubercle-based hairs or hooked hairs, obtuse. Fertile lemma elliptic, 3.5 mm long, cartilaginous, much thinner on margins, without keel. Lemma surface punctate. Lemma margins flat. Lemma apex acute, laterally pinched.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia. Philippines.

**Ancistrachne maidenii** (A. A. Hamilton) Vickery. *Contrib. N. S. Wales Nat. Herb.* 3: 83 (1961).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Eriochloa maidenii* A.A. Ham., *Proc. Linn. Soc. N. S. Wales*, 37: 709 (1913). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: New South Wales: Hawkesbury River, 3–5–1912, *Hamilton s.n.* (HT: NSW-52514)

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (121).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph Henry Maiden (1859–1925) English-born Australian botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe NEURACHNINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 30–100 cm long, wiry, 8–20 -noded. Culm-nodes glabrous. Ligule a fringe of hairs, 0.4–0.6 mm long. Leaf-blades linear or lanceolate, flat or involute, 1–4 cm long, 1–4 mm wide. Leaf-blade margins cartilaginous, scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, paucilateral, 3–10 cm long. Spikelet packing abaxial. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1–2 in the cluster. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse, 2.5–3 mm long, falling entire. Spikelet callus attached transversely.

**Glumes.** Glumes one the lower absent or obscure or two, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume oblong, clasping, 0–0.25 mm long, 0–0.1 length of spikelet, hyaline, without keels, 0–3 -veined. Lower glume surface glabrous or pubescent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, 1 length of spikelet, scarios, without keels, 5 -veined. Upper glume lateral veins ribbed. Upper glume surface hispidulous, with tubercle-based hairs (significant). Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, lanceolate, 1 length of spikelet, membranous, 7–9 -veined, ribbed, hispidulous, with tubercle-based hairs (curved), acute. Fertile lemma elliptic, 2.2–2.7 mm long, coriaceous, without keel. Lemma margins flat. Lemma apex acute, mucronate. Palea coriaceous.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales.

**Ancistrachne numaeensis** (Balansa) S.T. Blake. *Proc. Roy. Soc. Queensland* 81: 1. 1969.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Neew Caledonia. **Basionym or Replaced Name:** *Panicum numaeense* Balansa, *Bull. Soc. Bot. Fr.* 19 :325. (1872). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Presqu'île de Noumea, dans les bosquets ...", *Balansa 1736; Pancher*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Noumea, New Caledonia.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe NEURACHNINAE.

**Habit, Vegetative Morphology.** Perennial. Culms rambling, 50–100 cm long, wiry. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades 3–13 cm long, 2–8 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 1–6 cm long. Primary panicle branches appressed, indistinct the panicle almost racemose, 0.2–1 cm long, bearing 1–3 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1 mm long, tip cupuliform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets elliptic, tilted on the pedicel, dorsally compressed, compressed slightly, 3 mm long, falling entire. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–1 mm long, 0.15–0.33 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume surface puberulous. Lower glume apex acute. Upper glume oblong, 1 length of spikelet, chartaceous, without keels, 7–9 -veined. Upper glume lateral veins ribbed. Upper glume surface pilose, with hooked hairs. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, chartaceous, 7 -veined, ribbed, pilose, with hooked hairs, acute. Fertile lemma oblong, 3 mm long, coriaceous, without keel. Lemma margins flat. Lemma apex acute, pubescent. Palea coriaceous.

**Distribution (TDWG). Continent.** Pacific.

**Country /Province /State. Southwestern Pacific.** New Caledonia.

Pilger Panicoids (as *Panicum*).

**Ancistrachne uncinulata** (R. Br.) S. T. Blake. *Univ. Queensl. Papers, Dept. Biol.* 1, No. 19, 5 (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Australia. **Basionym or Replaced Name:** *Panicum uncinulatum* R. Br., *Prodromus Florae Novae Hollandiae* 191. 1810. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Brown.

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (121), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (96), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (205, Fig. 32), D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002).

**Illustrations (Journals):** *Univ. Queensland Dept. Biol. Pap.* (1(19); 12, Pl.2 (1941)).

**Derivation** (Clifford & Bostock 2007): *L. uncinulus*, small hook; -ata, possessing. With hooked hairs on the glumes and sterile lemma.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe NEURACHNINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 150–200 cm long, wiry. Ligule a fringe of hairs. Leaf-blade base broadly rounded. Leaf-blades reflexed, deciduous at the ligule, 1–6 cm long, 1.5–4 mm wide. Leaf-blade surface pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or pyramidal, 2–14 cm long. Primary panicle branches simple, 2–3.5 cm long, bearing 1–8 fertile spikelets on each lower branch. Panicle branches angular, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 0.8–2.7 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, tilted on the pedicel, dorsally compressed, 4.3–5 mm long, falling entire. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 1–2.5 mm long, 0.25–0.5 length of spikelet, chartaceous, without keels, 3–5 -veined. Lower glume apex obtuse. Upper glume ovate, chartaceous, with hyaline margins, without keels, 9–11 -veined. Upper glume surface pilose, with hooked hairs. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, coriaceous, much thinner on margins, 7–9 -veined, pilose, with hooked hairs, obtuse. Fertile lemma orbicular, 3.5–4 mm long, coriaceous, much thinner on margins, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute, laterally pinched. Palea coriaceous.

**Distribution (TDWG). Continent.** Australasia, Pacific.

**Country /Province /State. Australia.** New South Wales, Queensland. **Southwestern Pacific.** Fiji.

Pilger Panicoids (as *Panicum*).

**Ancistragrostis uncinoides** S. T. Blake. *Blumea, Suppl.* 3, 56 (1946).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)* (as *Deyeuxia*).

**TYPE** from Papua New Guinea. **Basionym or Replaced Name:** *Deyeuxia uncinoides* (S.T. Blake) P. van Royen & J.F.Veldkamp, P. van Royen, *Alp. Fl. New Guinea*, 2: 1140 (1979). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: New Guinea, Mt. Victoria: *McGregor*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling *Uncinia* because of its hooked lemma.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

From *Deyeuxia uncinoides*.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 6–10 cm long, 2-noded. Ligule an eciliate membrane, 1.1–1.5 mm long, lacerate. Leaf-blades filiform, convolute, 3–5 cm long, 0.8–1.3 mm wide. Leaf-blade surface scaberulous, rough abaxially. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 2.5–3 cm long, 0.4–0.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–1.8 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.8–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume ovate, 1.9–2.1 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2–2.3 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2.8–3 mm long, cartilaginous, keeled, 5-veined, more than 3-veined. Lemma apex emarginate, awned, 1-awned. Principal lemma awn subapical, hooked, 0.7–1.2 mm long overall. Palea 0.6 length of lemma. Rhachilla extension 0.2 length of fertile floret, pilose, with 0.5–0.7 mm long hairs.

**Flower and Fruit.** Anthers 3, 0.7–1.2 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Papuasia.** New Guinea PNG, or West Papua (Irian Jaya). New Guinea.

### **Andropogon abyssinicus** R. Br. ex Fresen. *Mus. Senkenb.* 2: 146. (1837).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Abyssinia: Simen, *Rueppell s.n.* (HT: FR).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (323, Fig. 130).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Abyssinia, now Ethiopia.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Butt sheaths glabrous. Culms geniculately ascending, 10–80 cm long. Ligule an eciliate membrane. Leaf-blades 5–25 cm long, 2–7 mm wide. Leaf-blade midrib evident.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2, paired, 1–15 cm long. Rhachis fragile at the nodes, ciliate on margins or villous on margins. Rhachis hairs white. Rhachis internodes linear. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate or villous, with white hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate or ovate, dorsally compressed, 4–9 mm long, shorter than fertile, persistent. Companion sterile spikelet glumes chartaceous, wingless or winged on keels, acute, awned, both glumes awned, with 2–8 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or ovate, dorsally compressed, 5–11 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1–3 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate or ovate, 1 length of spikelet, chartaceous or coriaceous, 2-keeled, keeled laterally, wingless or winged on keel. Lower glume intercarinal veins distinct, 7 in number. Lower glume surface convex or flat or concave, glabrous to villous. Lower glume apex dentate, 2-fid. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume awned, 1-awned, awn 3–9 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–25 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** *N* = 16 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa, South tropical Africa. Eritrea, Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Angola.

**Andropogon aequatoriensis** Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 499 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Collected on grassy slopes, between Loja and San Lucas, Ecuador alt. about 2500 meters, Sept. 6, 1923, A.S. Hitchcock 21481 (HT: US-1163457; IT: S (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. aequator*, equator; -ensis, denoting origin. Growing near the equator in Ecuador.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100 cm long. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades 15–30 cm long, 3–8 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Peduncle 5–10 cm long, glabrous. Racemes 2–3, paired or digitate, 2–3 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 3.5 mm long, villous.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, 1 mm long, shorter than fertile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume primary vein scabrous. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 6 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia, Ecuador.

**Andropogon africanus** Franch. *Bull. Soc. hist. nat. Autun*, 8: 325. (1895).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Congo. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Congo Francais: Sables humides dans la plaine de Mpila, pres de Brazzaville, *Brazza & Thollon* 55

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating location. From Africa.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–250 cm long. Ligule a ciliate membrane. Leaf-blades flat or conduplicate, 10–40 cm long, 2–7 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Synflorescence compound, paniculate, open.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 7–10 cm long. Racemes 2, paired, sinuous, 3–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis

hairs 1–2 mm long. Spikelet packing lax. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets ascending, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, ciliate, with 1–2 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4–7 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute, awned, one glume awned, with 6 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, dorsally compressed, 4–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 5 mm long, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–25 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** *N* = 20 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Burkina, Ghana, Guinea, Ivory Coast, Mali, Mauritania, Senegal, Sierre Leone, Niger. Central African Republic, Congo, DRC. Sudan. Kenya, Tanzania. Angola, Zambia, Zimbabwe.

**Andropogon alopecurus** (Desv.) Hack. DC. *Monog. Phan.* 6: 381. (1889).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Reunion. **Basionym or Replaced Name:** *Heterochloa alopecurus* Desv., *Opusc.* 66 (1831). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Crescit in insula Borboniae,.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. alopec, fox; oura, tail. The spicate inflorescence resembling a fox tail.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms rambling, slender, 30–40 cm long. Lateral branches sparse. Ligule an eciliate membrane, 2–3 mm long, obtuse. Leaf-blades 10–20 cm long, 1.5–2 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes 1, single, 4–6.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs on 2 margins. Rhachis internodes clavate, 4 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets squeezed between internode and pedicel, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, 4 mm long, ciliate, hairy on margins.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas, linear, dorsally compressed, 3 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally, keeled obtusely. Lower glume surface deeply depressed, glabrous. Upper glume linear, chartaceous, 1-keeled.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 6–8 mm long overall, with twisted column. Column of lemma awn puberulous. Palea absent or minute.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Mauritius, Madagascar, Reunion.



**Andropogon amethystinus** Steud. *Syn. Pl. Gram.* 371. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A. longipes*).

**TYPE** from Ethiopia. **Basionym or Replaced Name:** *Andropogon pratensis* Hochst. ex Hack., *DC. Monog. Phan.6* : 463. (1889), *A. longipes* Hack., *Flora*, 58: 138. (1885). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Schimper* 88, Ethiopia (P).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (299, Fig. 237 as *A. pratensis*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (323, Fig. 130).

**Derivation** (Clifford & Bostock 2007): *L. amethysteus*, violet; -ina, belonging to. Spikelets dark purplish-red.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, culms solitary or caespitose. Rhizomes absent or elongated. Butt sheaths glabrous. Culms geniculately ascending or decumbent, 8–60 cm long. Ligule an eciliate membrane. Leaf-blades flat or convolute, 1–15 cm long, 1–4 mm wide. Leaf-blade midrib evident.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2, paired, 2–8 cm long. Rhachis fragile at the nodes, ciliate on margins or villous on margins. Rhachis hairs white. Rhachis internodes linear. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear or clavate, ciliate or villous, with white hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate or ovate, dorsally compressed, 4–8 mm long, as long as fertile, persistent. Companion sterile spikelet glumes chartaceous, wingless or winged on keels, acute, awned, one glume awned, with 1–3 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or elliptic, dorsally compressed, 5–8.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate or elliptic, 1 length of spikelet, chartaceous or coriaceous, 2-keeled, keeled laterally, wingless or winged on keel. Lower glume intercarinal veins distinct, 2–6 in number. Lower glume surface convex or flat or concave, glabrous to villous. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume awned, 1 -awned, awn 2–6 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.**  $N = 30$  (ca), or 40 (2 refs TROPICOS).  $2n = 20$  (1 ref TROPICOS as *A. longipes*).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Nigeria. Cameroon, Annobon, Principe & Sao Tome, Bioko, Rwanda. Eritrea, Ethiopia (inc. Eritrea), Somalia. Kenya, Tanzania, Uganda. Malawi, Zambia. Free State, Kwazulu-Natal, Lesotho, Eastern Cape. **Arabian Peninsula.** Yemen. **Indian Subcontinent.** India.

**TDWG4.** Tamilnadu.

**Andropogon angustatus** (Presl) Steud. *Syn.* 1: 370 (1854).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Diectomis angustata* J. Presl, *Rel. Haenk.*1: 333 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Haenke s.n.*, 1791, Mexico (PR; IT: LE-TRIN-156.01, MO-1837467, MO-5117489 (line drawing), US-75547 (fragm.)).

**Illustrations (Books):** R.McVaugh, *Flora Nova-Galiciana Vol.14 Gramineae* (1983) (as *Diectomis laxa*), J.A.Steyermark et al, *Flora of the Venezuelan Guayana Vol. 8* (2004) (21, Fig. 4), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (54, Fig. 6).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig.1 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. angusta*, narrow; -ata, possessing. Leaf-blades narrow.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–100 cm long, 1–1.5 mm diam. Culm-nodes glabrous. Lateral branches ample. Ligule an eciliate membrane, 1–2.5 mm long, brown. Leaf-blades flat or conduplicate, 15–30 cm long, 1.5–3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2, paired, 2–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 0.5–1 mm long. Rhachis internodes cuneate, 2–2.5 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets squeezed between internode and pedicel, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, 2–2.5 mm long, ciliate, with 0.5–1 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate or elliptic, dorsally compressed, 5.5–6 mm long, longer than fertile. Companion sterile spikelet glumes chartaceous, glabrous, ciliate on margins, acute, awned, one glume awned, with 5–18 mm long awn. Companion sterile spikelet lemmas 1–2.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus 1 mm long, pubescent, base acute, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface deeply depressed. Lower glume apex dentate, 2 -fid. Upper glume linear, membranous, 1-keeled, 3 -veined. Upper glume awned, 1 -awned, awn 10–15 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3–4.2 mm long, hyaline, 2 -veined, ciliate on margins. Fertile lemma lanceolate, 2.8–4 mm long, hyaline, without keel, 1 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 30–50 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 1.5–2 mm long, 0 -veined.

**Flower and Fruit.** Anthers 3, 1.7–2.1 mm long.

**Distribution (TDWG), Continent.** North America, South America.

**Country /Province /State.** Mexico. Central Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil.** Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Cuba. Guyana, Surinam, Venezuela. Bolivia, Colombia. Brazil West Central, Brazil North.

**TDWG4.** Roraima, Goias. Mexico State. Guerrero, Jalisco, Oaxaca, Chiapas.

Comments Recognised in *Diectomis* by Soreng et al (2012).

**Andropogon appendiculatus** Nees. Fl. Afr. Austr. 105. (1841).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: S. Africa.

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (500, Fig. 403).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): stalked male spikelets subtended by a conspicuous appendage.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations flabellate. Culms 30–130 cm long. Leaves mostly basal. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 15–50 cm long, 3–6 mm wide.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 4–20, digitate, (3–)6–15 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes clavate. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 5–7 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute, awned, one glume awned, with 1–2 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, purple, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 5 mm long, hyaline, 2 -veined. Fertile lemma oblong, 1.5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–15 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

*N* = 10, or 20, or 30 (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Zimbabwe. Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape.

**Andropogon arctatus** Chapm. Coult. *Bot. Gaz.* 3: 20. (1878).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Chapman s.n.*, USA: Florida (NY). LT designated by Campbell, J. *Arnold Arbor.* 64: 207 (1983).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (658).

**Derivation** (Clifford & Bostock 2007): *L. arcta*, narrow; -atus, possessing. Racemes of spikelets narrow.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 100–150 cm long. Lateral branches ample. Leaf-sheaths hirsute. Ligule an eciliate membrane. Leaf-blades erect, 15–30 cm long, 3–5 mm wide. Leaf-blade surface scabrous, rough adaxially, pubescent, hairy abaxially.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 3–5 cm long. Peduncle 3–5 cm long. Racemes 2, paired, 2.5–4 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 3 mm long. Rhachis internodes linear, 2–3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3–4 mm long, villous, with 3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 0.5–1.5 mm long, shorter than fertile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, inserted. Spikelet callus hairs 0.33 length of spikelet.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume primary vein ciliate. Lower glume intercarinal veins absent. Lower glume surface deeply depressed. Upper glume lanceolate, membranous, 1-keeled. Upper glume primary vein ciliate. Upper glume margins ciliate. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 7–12 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 1.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG).** Continent. North America.

**Country /Province /State.** Southeastern USA. Alabama, Florida.

**Andropogon arenarius** Hack. *Flora* 68: 134. (1885).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Arechavaleta 204*, no date, Uruguay: Montevideo (W; IT: US-75544 (fragm. ex W)).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1285, Fig. 251 & 254), B. Rosengurtt, *Gramineas Uruguayas I* (1970) (160, Fig. 62).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig. 2 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. arena*, sandy place; -aria, pertaining to. Of sandy habitats.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms 60–80 cm long. Culm-nodes glabrous. Leaf-sheaths 8–18 cm long, glabrous on surface. Ligule an eciliate membrane, 1–1.8 mm long, truncate. Leaf-blades 9–37 cm long, 2–3 mm wide, stiff. Leaf-blade surface glabrous.

**Inflorescence.** Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 6–8 cm long. Racemes 2–3, paired or digitate, 3–6 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 10–16 mm long. Rhachis internodes filiform, 0.66 length of fertile spikelet. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, villous, with 10–16 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 5–7 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 3.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 2–5.5 mm long overall, with a straight or slightly twisted column. Column of lemma awn 0.5–0.8 mm long, glabrous.

**Flower and Fruit.** Anthers 3, 0.8 mm long. Caryopsis 1.2–2.4 mm long, dark brown.

*N* = 30 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil South. Uruguay.

Catarina, Rio Grande do Sul.

**Andropogon aridus** W.D. Clayton. *Kew Bull.* 32(1): 1 (1977).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Somalia, Hubera: *McKinnon S251* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. dry*. Growing in arid places.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, cushion forming. Culms 20–25 cm long. Ligule an eciliate membrane. Leaf-blades filiform, terete, 3–5 cm long, 1 mm wide.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 1–2, single or paired, 1–3 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 5 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate, hairy all along but hairs longer above, with 5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 5 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, acute, muticous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 6–6.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1 mm long, bearded, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally, winged on keel, winged near apex. Lower glume

intercarinal veins distinct, 4 in number. Lower glume surface convex, pilose, hairy below. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume apex acute, muticous.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret lanceolate, 3 mm long, hyaline, 2 -veined. Palea of lower sterile floret 0.5 length of lemma. Fertile lemma lanceolate, 4.5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 0.75 length of lemma.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** Northeast tropical Africa. Somalia.

**Andropogon auriculatus** Stapf. Prain, *Fl. Trop. Afr.* 9: 258 (1918).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cameroun, Nigeria. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cameroun, Batanga: Bates 336 (K syn);.

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962).

**Derivation** (Clifford & Bostock 2007): L. auris, ear; -ula, diminutive; -ata, possessing. Leaf-blades rounded at the base or with auricles.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms 100–150 cm long. Leaf-sheaths keeled. Leaf-sheath auricles erect, 4–10 mm long. Ligule an eciliate membrane, 4–10 mm long. Leaf-blade base tapering to the midrib. Leaf-blades 15–30 cm long, 4–8 mm wide. Leaf-blade surface glabrous or pubescent, hairy abaxially. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence compound, paniculate, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 6–10 cm long. Racemes 2, paired, 4–7 cm long. Rhachis fragile at the nodes, glabrous on surface or pubescent on surface, ciliate on margins. Rhachis internodes clavate, 3 mm long. Rhachis internode tip oblique, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, 3 mm long, ciliate, tip lobed (bilobed).

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, oblong, dorsally compressed, 4 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, acute, awned, one glume awned. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5.5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct. Lower glume surface flat or with a longitudinal median groove, pubescent, hairy in lines (along midline). Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled, 3 -veined. Upper glume surface glabrous or puberulous. Upper glume margins ciliate. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 5 mm long, hyaline, 3 -veined, ciliate on margins. Fertile lemma oblong, 4 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–17 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong, 0.25 length of lemma, 0 -veined, without keels.

**Flower and Fruit.** Anthers 3, 3 mm long.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa. Gambia, Guinea-Bissau, Ivory Coast, Nigeria, Senegal, Sierre Leone.

**Andropogon barretoii** Norrmann, Quarin. *Darwiniana* 39(1–2): 171 (2001).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Santa Maria: Norrmann, Keeler & Barreto 146 (ICN holo, BAA, CORD, CITES, K, MBM, SI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Ismar L. Barreto, Argentinian agronomist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect, robust, 150–200 cm long. Culm-nodes glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–3 mm long, truncate. Leaf-blade base tapering to the midrib. Leaf-blades 10–15 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 5–16, digitate, 7–12 cm long, bearing 12–25 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 4–7 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, acute, muticous. Companion sterile spikelet lemmas muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 3.5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct, 2 in number. Lower glume surface concave, asperulous, rough above. Upper glume lanceolate, coriaceous, 1-keeled.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma margins ciliate. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, curved, 4–8 mm long overall. Palea 1 length of lemma.

**Flower and Fruit.** Anthers 3, 3 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil South.

**Andropogon bentii** Stapf. *Kew Bull.* 1907, 224. (1907).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Socotra: *Balfour 764* (K syn); Socotra: *Bent* (K syn).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of James Theodore Bent (1852–1897) English traveller, archeologist and naturalist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms erect or geniculately ascending, 20–30 cm long. Lateral branches suffrutescent. Leaf-sheaths smooth. Ligule an eciliate membrane. Leaf-blades 1–2 cm long, 0.5–1.5 mm wide, glaucous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Peduncle 2–3 cm long, pilose above. Racemes 1–2, single or paired, 1–2 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs white, 2–3 mm long. Rhachis internodes filiform, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, dorsally compressed, 5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, 7–9 -veined, glabrous, acute. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled, 3 -veined. Upper glume margins ciliate. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 3 mm long, hyaline, 2 -veined, ciliolate on margins. Fertile lemma lanceolate, 2.5 mm long, hyaline, without keel.

Lemma apex lobed, 2-fid, incised 0.33 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 8 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong, 1.5 mm long.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Socotra.

### **Andropogon bicornis** L. Sp. Pl. 1046. (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Puerto Rico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: CT: *A. Chase in Amer. Gr. Natl. Herb. 247, 27 Oct 1913*, Puerto Rico: Mayagez, between Monte Mesa and the sea, 27 Oct 1913 (MO; ICT: BM, F, NY, US-732317). CT proposed by Davidse & Turland, *Taxon* 48: 573 (1999).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (656), S.A.Renvoize, *Gramineas de Bolivia* (1998) (590, Fig. 139), S.A.Renvoize, *The Grasses of Bahia*, 1984 (274, Fig. 103), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1285, Fig. 251 & 254), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (43, Fig. 9), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (51, Fig. 5), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:2(1980)).

**Illustrations (Journals):** *Ruizia* (13:442 Fig 59a-c (1993)), *Revista Brasil. Bot.* (29: 296, Fig.3 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. bi-*, two; *cornus*, horn. Spikelets paired.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 150–250 cm long, 4–6 mm diam. Culm-internodes thick-walled. Culm-nodes glabrous. Lateral branches ample. Leaf-sheaths keeled. Ligule a ciliolate membrane, 1–1.2 mm long. Leaf-blades 25–50 cm long, 2–6 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Synflorescence compound, paniculate (obovate), dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 3–4 cm long. Racemes 2, paired, 2.5–3.5 cm long. Rhachis fragile at the nodes, plumose on surface, plumose on margins. Rhachis hairs 6–8 mm long. Rhachis internodes filiform, 2.5–3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3–4 mm long, plumose, with 6–8 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or rudimentary (except terminal), 0–1 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3–3.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 0.2 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 2–2.4 mm long, hyaline, 0-veined, ciliate on margins. Fertile lemma lanceolate, 1.6–2.2 mm long, hyaline, without keel. Lemma apex entire, acute, muticous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.5–0.7 mm long, purple. Caryopsis with adherent pericarp, 1.6–2 mm long.

$N = 30$  (1 ref TROPICOS).  $2n = 60$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Southeastern USA, Mexico. Florida. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America. Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico, Trinidad-Tobago. French Guiana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Paraguay.

**TDWG4.** Roraima, Para, Amapa, Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Chaco, Corrientes, Misiones. Distrito Federal, Mexico State, Puebla. Hidalgo, Queretaro, Tamaulipas. Veracruz. Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Tabasco, Yucatan.

**Andropogon bogotensis** (Hack.) Zanin. *Novon* 13:372 (2003).

Regarded by K as a synonym (*A. multiflorus*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. **Basionym or Replaced Name:** *Andropogon incanus* var. *bogotensis* Hack., DC., *Monogr. Phan.* 6:433 (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia, Llano de S. Martin: Karsten (W holotype).

**Illustrations (Journals):** *Novon* (13: 374 Fig 4 (2003)).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Bogota, Colombia.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Andropogon bourgeaiei** Hack. *Flora*, 68: 134. (1885).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Bourgeau 2645*, Mexico: Veracruz: Orizaba (P; IST: MO, US-75537 (fragm. ex ST)). ST: *Liebmann 505*, Mexico: Mirador.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Eughne Bourgeau (1813–1877) French botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 100–150 cm long. Lateral branches sparse. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 10–30 cm long, 4–6 mm wide. Leaf-blade surface scabrous, glabrous or pubescent. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 5–6 cm long. Peduncle antrorsely scabrous above. Racemes 2–3, paired or digitate, 4–6 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis internodes filiform, 4–5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 4–5 mm long, plumose.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 5–5.5 mm long, longer than fertile. Companion sterile spikelet glumes chartaceous, 5 -veined, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled dorsally. Lower glume primary vein scabrous. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma lanceolate, hyaline, without keel, 1 -veined, 0–3 -veined. Lemma apex entire, muticous.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica.** Belize.

Veracruz. Oaxaca. Chiapas, Tabasco, Yucatan.

**Andropogon brachystachyus** Chapm. *Fl. S. Un. St. Suppl.* 668. (1883).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Florida: *Curtiss 3632* (US lecto, DUKE, FSU, GA, GH, MO, NCU, US).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (662).

**Derivation** (Clifford & Bostock 2007): Gk. brachys, short; stachys, ear of corn. Inflorescence comprised of short branches or spikelets short.



**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–150 cm long. Culm-internodes distally pilose. Lateral branches ample. Leaf-sheaths keeled, smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blades erect, conduplicate, 15–30 cm long, 3–4 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Synflorescence compound, linear or paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, exerted or embraced at base by subtending leaf. Spatheole linear, 3–3.5 cm long. Racemes 2, paired, 1–2 cm long, bearing 4–6 fertile spikelets on each. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 3 mm long. Rhachis internodes filiform, 1.5–2 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, 2.5–4 mm long, villous, with 3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3–4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface flat or concave, pubescent. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 6–9 mm long overall.

**Flower and Fruit.** Anthers 1.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southeastern USA.** Florida, Georgia.

**Andropogon brasiliensis** A.Zanin & Longhi-Wagner. *Novon* 13(3): 368 . (2003).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Minas Gerais, Congonhas do Norte, Serra da Carapina, Mar 1998, *R.C.Forza, J.R.Pirani, A.C.Maccato, M.C. Assis & A.Rapini* 694 (holo:SPF; iso FLOR, K).

**Illustrations (Journals):** *Novon* (13: 369 Fig 1 (2003)), *Revista Brasil. Bot.* (29: 296, Fig.4–5 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 34–64 cm long, 3–5 -noded. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches sparse. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Ligule a ciliolate membrane, 0.2–0.6 mm long. Leaf-blades flat or conduplicate, 3.5–17 cm long, 0.5–2 mm wide. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex abruptly acute or acute.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 5.5–11 cm long. Peduncle 8–19 cm long. Racemes 2–3(–5), paired or digitate, 2.5–6 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis internodes linear, 2–3(–4) mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2–3(–4) mm long, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, lanceolate, 2–5 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.5–6.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally, 4 -veined. Lower glume primary vein scaberulous. Lower glume intercarinal veins absent. Lower glume surface concave. Lower glume apex dentate, 2 -fid. Upper glume linear, 4.1–5 mm long, coriaceous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume margins ciliate. Upper glume apex acute or acuminate, muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3.9–4.5 mm long, hyaline, 2 -veined, ciliate on margins, fringed above. Fertile lemma lanceolate, 3–4 mm long, 0.4–0.9 mm wide, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma margins ciliate. Lemma apex lobed, 2 -fid, incised 0.25–0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 16–22 mm

long overall, with a straight or slightly twisted column. Column of lemma awn glabrous. Palea 1.2–2.8 mm long, hyaline, 0 -veined, without keels. Palea apex entire or erose, acute, glabrous or ciliate.

**Flower and Fruit.** Lodicules 2, 0.7 mm long. Anthers 3, 0.7–1.2 mm long, yellow. Caryopsis 1.5–1.8 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Southeast.

### **Andropogon brazzae** Franch. *Bull. Soc. hist. nat. Autun.* 8: 326. (1895).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Congo & Zaire. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Brazza & Thollon 234*, Congo Français: entre Mokeno et Mongo ST: *Fr. Hens 319*, Congo Belge: dans les sables secs a Staleypool.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Jacques de Brazza (1859–87) Belgian botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 100–200 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 10–15 cm long, 2–3 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence compound, paniculate, 40–60 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 3–5 cm long. Racemes 3–15, digitate, 2.5–6 cm long. Rhachis fragile at the nodes, glabrous on surface, glabrous on margins. Rhachis internodes filiform, 3–5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 2–3 mm long, bearing a few hairs or glabrous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, 3 -veined, glabrous, acute. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, acute, 4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear or lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Lower glume apex acuminate. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, muticous. Palea oblong, 1–1.5 mm long, 0 -veined.

**Flower and Fruit.** Anthers 3, 2 mm long.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, South tropical Africa, Southern Africa. Congo, DRC. Angola, Zambia, Zimbabwe. Namibia, Botswana.

### **Andropogon burmanicus** Bor. *Grasses Burma, Ceyl., Ind. / Pakist.* 688 (1960).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Burma. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma, Salu Reserve: *U Thein Lwin* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Burma, now Myanmar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 100 cm long. Ligule an eciliate membrane. Leaf-blades 20–40 cm long, 1–4 mm wide. Leaf-blade surface pilose.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 4–5, digitate, erect, 5–6 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs 1.5–2 mm long. Rhachis internodes cuneate, 3 mm long. Rhachis internode tip transverse, crateriform, with hairy rim. Spikelets squeezed between

internode and pedicel, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, 3 mm long, ciliate, hairy all along but hairs longer above (around rim), with 1.5–2 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 3.5 mm long, shorter than fertile, persistent. Companion sterile spikelet glumes chartaceous, keeled, concave, ciliate on margins, acute, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, dorsally compressed, 4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface deeply depressed. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume awned, 1 -awned, awn 3 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, 3.5–4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Anthers 3, 2.5 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Myanmar.

### **Andropogon cabanisii** Michx. *Fl. Bor. Am.* 1: 57 (1803).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Carolina: Coll? (P holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Jean Louis Cabanis (1816–1906) who collected in south-eastern USA.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms 60–100 cm long. Lateral branches ample. Leaf-sheaths smooth or scaberulous, glabrous on surface or hirsute. Ligule an eciliate membrane. Leaf-blades 12–25 cm long, 2–4 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 6–8 cm long. Peduncle 4–7 cm long, hirsute above. Racemes 2, paired, 4–7 cm long, bearing 15 fertile spikelets on each. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 5 mm long. Rhachis internodes linear, 4–6 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 3–5 mm long, plumose, with 5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 3–3.5 mm long, shorter than fertile. Companion sterile spikelet glumes pubescent.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume primary vein ciliate. Lower glume intercarinal veins distinct, 2–3 in number. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–20 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southeastern USA. Florida.

**Andropogon campestris** Trin. Mem. Acad. Petersb. Ser. 6, 2: 277. (1833).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Brazil, S da Lapa: Langsdorff (LE holo).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig.6 (2006)).

**Derivation** (Clifford & Bostock 2007): L. of the field. Uncultivated.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 70–80 cm long. Culm-internodes distally glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface or pubescent. Ligule a ciliolate membrane, truncate. Leaf-blade base tapering to the midrib. Leaf-blades convolute, 20–50 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface glabrous, hairless except near base. Leaf-blade margins scabrous.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 3–4, digitate, 6–8 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 3.5 mm long. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, plumose.

**Sterile Spikelets.** Companion sterile spikelets well-developed, comprising 2 unequal glumes without lemmas, lanceolate, 6–6.5 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, 9–11 -veined (lower) or 5–7 -veined (upper), acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally, 7 -veined. Lower glume primary vein scabrous. Lower glume surface concave, glabrous. Upper glume linear, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 3 -veined, ciliate on margins. Fertile lemma lanceolate, 4.5 mm long, hyaline, without keel. Lemma margins ciliate. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–6 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous. Palea 2 mm long.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast. Minas Gerais, Rio de Janeiro, Espirito Santo.

**Andropogon canaliculatus** Schum. *Beskriv. Guin. Pl.* 52. (1827).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ghana. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Ghana: Thonning.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): leaf-blades deeply channelled.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 25–200 cm long. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles absent or erect, 0–2 mm long. Ligule an eciliate membrane. Leaf-blades 10–40 cm long, 1–5 mm wide.

**Inflorescence.** Synflorescence simple or compound, linear.

Inflorescence composed of racemes, terminal or terminal and axillary, subtended by an unspecialized leaf-sheath or a spatheole. Racemes 2, paired, bilateral (as to sterile spikelets), 3–9 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes cuneate or inflated. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate or inflated, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 3.5–6 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, scaberulous, glabrous, acute, muticous or mucronate. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 4–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed. Upper glume linear, chartaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 7–15 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Burkina, Ghana, Guinea, Ivory Coast, Mali, Nigeria. Rwanda, DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Mozambique, Zimbabwe.

**Andropogon canaliglumis** Norrmann, Swenson & Caponio. *Darwiniana* 46: 333 (2008).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cuba: Pinar del Río, Remates, at Laguna Jobero, 19 Jun 1920, *Ekman 11362* HT:S; IT: K

**Illustrations (Journals):** *Darwiniana* (46: 332, Fig.4 (2008)).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Distribution (TDWG). Continent.** South America.

**Andropogon carinatus** Nees. *Agrost. Bras.* 2: 330. (1829).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, Brazil: southern Brazil (B; IT: LE-TRIN-0177.02, US-75532).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig.7 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. carina*, keel; -atus, possessing. Spikelets with keeled lemmas or glumes.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 50 cm long. Ligule an eciliate membrane. Leaf-blades 7–20 cm long, 2–3 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 2–4 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs evenly distributed, 4 mm long. Rhachis internodes linear, 4 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 4 mm long, villous, hairy all along, with 4 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 5 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface concave or deeply depressed. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Western South America, Brazil. Costa Rica. Bolivia. Brazil West Central, Brazil Southeast.

**TDWG4.** Mato Grosso, Goiás, Minas Gerais, Rio de Janeiro, Espírito Santo.

**Andropogon chevalieri** Reznik. *Bull. Mus. Hist. Nat. Paris* Ser. 2, 5: 497. (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Guinea, Mali: *Chevalier*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Jean Baptiste Auguste Chevalier (1873–1956) French botanist and collector in tropical Africa, SE Asia and Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 200–250 cm long. Leaf-sheath auricles erect, 3–10 mm long. Ligule an ciliate membrane, 3–10 mm long. Leaf-blade base tapering to the midrib. Leaf-blades 20–40 cm long, 2–8 mm wide.

**Inflorescence.** Synflorescence compound, paniculate, 6–20 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 5–8 cm long. Racemes 2, paired, 4–6 cm long. Rhachis fragile at the nodes, puberulous on surface, ciliate on margins. Rhachis internodes filiform, 4 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, 3 mm long, puberulous (on margins, pubescent on surface), tip lobed (bilobed).

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, elliptic, dorsally compressed, 5–10 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 12 -veined, glabrous or pubescent, acute, awned, one glume awned, with 5–10 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 5.5–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 1 mm long, pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume primary vein scabrous. Lower glume surface convex or with a longitudinal median groove, pubescent, hairy in lines (along midline). Lower glume apex acute. Upper glume elliptic, chartaceous, 1-keeled, 3 -veined. Upper glume surface pubescent. Upper glume apex truncate, mucronate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 6–7 mm long, hyaline, 2 -veined, ciliate on margins. Fertile lemma oblong, 5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 18–25 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 0.75 length of lemma.

**Flower and Fruit.** Anthers 3, 3 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Guinea-Bissau, Guinea, Mali.

**Andropogon chinensis** (Nees) Merrill. *Philipp. Journ. Sc., Bot.* 12: 101 (1917).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A. asconodis*).

**TYPE** from China. **Basionym or Replaced Name:** *Homoatherum chinense* Nees, Lindley, *Nat. Syst. Bot.*, ed. 2: 448 (1836). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Vachell* 52, China: Macao (CGE).

**Recent Synonyms:** *Andropogon asconodis* C.B.Clarke, *Journ. Linn. Soc.* 25: 87 [Feb.] (1889).

**Illustrations (Books):** R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):769, Fig. 180), G.V.Pope et al., *Flora Zambesiaca* 10, M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984) (as *A. schinzii*), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (39, Fig. 16), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (326, Fig. 131), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 874).

**Illustrations (Journals):** *Kew Bulletin* (50: 110, Fig.1 (1995)).

**Images:** G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From China.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–200 cm long. Leaf-sheath auricles absent or erect, 0–4 mm long. Ligule an eciliate membrane. Leaf-blades 10–40 cm long, 1–8 mm wide, glaucous. Leaf-blade surface glabrous or pubescent.

**Inflorescence.** Synflorescence compound.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2, paired, 3–7(–10) cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 1–3 mm long. Rhachis internodes cuneate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, ciliate, with 1–3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate or elliptic, dorsally compressed, 4–7 mm long, shorter than fertile. Companion sterile spikelet glumes membranous, glabrous to pilose, acute, awned, both glumes awned, with (2–)4–10 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed, glabrous. Upper glume linear, chartaceous, 1-keeled. Upper glume awned, 1 -awned, awn (1–)4–12 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–35 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong, 0 -veined, without keels.

**Flower and Fruit.** *N* = 10 (2 refs TROPICOS, 1 as *A. patris*), or 20 (2 refs TROPICOS, 1 as *A. ascinodis*).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Burkina, Ghana, Guinea, Ivory Coast, Nigeria, Senegal, Sierra Leone, Togo. Gabon, DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State. **Arabian Peninsula, China.** Saudi Arabia, Yemen. China South Central, Hainan, China Southeast. **Indian Subcontinent, Indo-China.** Assam, India. Cambodia, Laos, Myanmar, Thailand, Vietnam.

**TDWG4.** Guangdong, Guangxi. Sichuan, Yunnan. Manipur, Meghalaya, Nagaland. Bihar. Tamilnadu.

**Andropogon chrysostachyus** Steud. *Syn. Pl. Gram.* 377. (1854).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ethiopia, Debra Eski: *Schimper 1010* (K iso).

**Illustrations (Books):** S. Phillips, *Poaceae* (Gramineae) in I. Hedberg & S. Edwards, *Flora of Ethiopia and Eritrea* (1995) (326, Fig. 131).

**Derivation** (Clifford & Bostock 2007): Gk. chrysos, yellow; stachys, ear of corn. Panicle branches invested in golden-yellow hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths glabrous. Culms 10–100 cm long. Ligule an eciliate membrane. Leaf-blades flat, 2–40 cm long, 1–5 mm wide.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes (2–)3–9, digitate, 3–8 cm long. Central inflorescence axis 0–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs dark brown. Rhachis internodes filiform or linear. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform or linear, ciliate, with dark brown hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4–8 mm long, as long as fertile, persistent. Companion sterile spikelet glumes chartaceous, glabrous or pubescent, acute, mucous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, coriaceous, dark brown, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct, 4–7 in number. Lower glume surface flat, pubescent. Lower glume hairs dark brown. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea). Kenya, Tanzania.

**Andropogon coloratus** Hack. *Anales Mus. Nac. Buenos Aires* 21: 13 (1911).

Not on *GrassBase*.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *T.J.V. Stuckert 20275*, no date, Argentina (IT: US-75531 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. color*, color; -ata, *possessing*. Colored unusually, especially with reference to lemmas.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast. Chaco.

**Andropogon cordatus** Swallen. *Contrib. U. S. Nat. Herb.* 29: 274 (1948).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M. Cardenas 2083*, 2 Nov 1937, Bolivia: Cochabamba (US-1760631).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (595, Fig. 141).

**Derivation** (Clifford & Bostock 2007): *L. cordus*, heart; -ata, *possessing*. Bases of leaf-blades cordate.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, robust, 200–250 cm long. Ligule an eciliate membrane. Leaf-blade base amplexicaul. Leaf-blades 10–30 cm long, 15–22 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, linear, 30–90 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2–3, paired or digitate, 2–3.5 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, linear, 4–6 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, 4–5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–18 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous.



**Distribution (TDWG). Continent.** South America.  
**Country /Province /State.** Western South America. Bolivia.

**Andropogon crassus** Sohns. *Mem. N. Y. Bot. Gard.* 9: 405 (1957).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Chimanta massif: Steyermark 75515 (US holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. thick. Racemes thick.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–200 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5 mm long. Leaf-blades 20–45 cm long, 10–20 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole linear. Racemes 1, single, 1–4 cm long. Rhachis fragile at the nodes, with scattered hairs, ciliate on margins. Rhachis internodes clavate, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2.5 mm long, ciliate, hairy on margins.

**Sterile Spikelets.** Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, 3–4 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–4.2 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, 4 -veined. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret oblong, 2.8–4 mm long, hyaline, 3 -veined, ciliolate on margins. Palea of lower sterile floret 0–2 mm long. Fertile lemma lanceolate, 2–3.2 mm long, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–8 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous. Palea 2–2.5 mm long, hyaline.

**Flower and Fruit.** Lodicules 2, 0.5–0.7 mm long. Anthers 3, 1.5–1.8 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Andropogon crispifolius** G.F. Guala & T.S. Filgueiras. *Nordic J. Bot.* 15(1): 59 (1995).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Mineiros: *Filgueiras 2304* (IBGE holo, FLAS, K, ICN, ISC, MO, SI, SO, US).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig.8 (2006)).

**Derivation** (Clifford & Bostock 2007): L. crispus, coiled; folium, leaf. Leaf-blades coiled.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short, scaly. Culms erect, 100–170 cm long, 2.5–4 mm diam. Culm-internodes terete or channelled, solid, 2.5–18 cm long, distally pubescent. Culm-nodes swollen, glabrous. Lateral branches lacking or sparse. Leaves cauline, 17–50 per branch. Leaf-sheaths 2–9.2 cm long, longer than adjacent culm internode, outer margin glabrous or hairy. Leaf-sheath oral hairs scanty or ciliate. Leaf-sheath auricles erect. Ligule a ciliolate membrane, 0.4–0.6 mm long. Leaf-blades tortuous, lanceolate, 7.1–25 cm long, 9–20 mm wide, glaucous. Leaf-blade midrib conspicuous. Leaf-blade venation with 10–18 secondary veins. Leaf-blade surface glabrous.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Peduncle 11.1–18.3 cm long. Racemes 2, paired, 6–9.2 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes cuneate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets in pairs.

Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, 4–6 mm long, ciliate, with 3–4.5 mm long hairs, tip cupuliform.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 5.9–10 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, keeled, scabrous, glabrous, acute, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes, 4.7–5.6 mm long, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 6.2–9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed, scabrous. Lower glume apex dentate, 2 -fid. Upper glume linear, coriaceous, 1-keeled. Upper glume surface scabrous. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4.6–4.7 mm long, hyaline, 2 -veined. Fertile lemma lanceolate, 4–4.3 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–18 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 2.9–3.1 mm long. Palea keels scabrous.

**Flower and Fruit.** Lodicules 2, 0.4–0.7 mm long, truncate. Anthers 1 or 2, 0.6–0.7 mm long. Caryopsis 0.6 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil West Central.

**TDWG4.**

**Andropogon crossotos** T.A. Cope. *Kew Bull.* 39(4): 833 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Yemen. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Yemen, Sanaa: *Wood 2023* (K holo, BM).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. *krossos*, tassel.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 25–40 cm long. Ligule an eciliate membrane. Leaf-blades 3.5–7 cm long, 1.5–2 mm wide, glaucous. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2, paired, 2–3 cm long. Rhachis fragile at the nodes, pubescent on surface, ciliate on margins. Rhachis internodes clavate. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, lanceolate, 3.7–4.5 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, smooth, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, subterete, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic or oblong, 1 length of spikelet, membranous, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface deeply depressed. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 3.5 mm long, hyaline, 2 -veined. Fertile lemma lanceolate, 3.5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea ovate, 1 mm long. Palea apex obtuse.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State.** Northeast tropical Africa. Somalia. Arabian Peninsula. Yemen.

**Andropogon crucianus** S.A. Renvoize. *Gramineas de Bolivia*: 596 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Bolivia: Santa Cruz: Chavez, 15 km S de Concepcisn, *Killeen 2484* (HT: LPB: IT: F, MO).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (597, Fig. 142).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig.9–10 (2006)).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. From Santa Cruz, Bolivia.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths purple. Basal innovations flabellate. Culms erect, 150 cm long. Ligule an eciliate membrane. Leaf-blades flat or conduplicate, 25–45 cm long, 2–4 mm wide, firm, glaucous. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute, hooded.

**Inflorescence.** Synflorescence compound, linear, 25 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Peduncle tipped by a glumaceous appendage (5–10mm long). Racemes 1, paired or digitate, 2–2.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 3–4 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3–3.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface flat. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex muticous.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil. Bolivia.

**Andropogon curvifolius** W. D. Clayton. *Kew Bull.* 17: 465 (1964).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ghana. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Ghana, Krabo Hill: *Rose-Innes 30861* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *curvus*, bent; *folium*, leaf. The leaf-blades become spirally coiled in senescence, or on drying.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 70–100 cm long, 3–5 -noded. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades curved, filiform, involute, 30–60 cm long, 0.3–0.7 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence compound, scanty, 30 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 4–7 cm long. Racemes 2, paired, flexuous, 3–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 1–3 mm long. Spikelet packing lax. Rhachis internodes filiform, 4–5 mm long. Rhachis internode tip transverse, cupuliform, with lobed rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4–6 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, acute, awned, one glume awned, with 1–4.5 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, acuminate, 4.5–6.5 mm long, falling

entire, deciduous with accessory branch structures. Spikelet callus square, 0.5 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume primary vein scaberulous. Lower glume lateral veins several in each keel (2–3), intercarinal veins absent. Lower glume surface concave. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, membranous, 1-keeled, 3 -veined. Upper glume apex acute, mucronate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 5 mm long, hyaline, 2 -veined, ciliate on margins, acute. Fertile lemma oblong, 3–4 mm long, hyaline, without keel. Lemma margins ciliolate. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 16–22 mm long overall, with twisted column. Column of lemma awn 6–8 mm long, glabrous. Palea 0.1 length of lemma.

**Flower and Fruit.** Lodicules 2, oblong, 0.5 mm long, ciliate.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Ghana, Guinea, Ivory Coast, Liberia.

### **Andropogon distachyos** L. *Sp. Pl.* 1046. (1753).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Europe, Switzerland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: CT: Herb. Burser I: 120 (UPS). LT designated by Clayton & Renvoize, *Fl. Trop. E. Afr. Gramineae* (3): 770 (1982); CT proposed by Jarvis, *Taxon* 41: 556 (1992).

**Illustrations (Books):** R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):769, Fig. 180), G.V.Pope et al., *Flora Zambesiaca* 10, N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 430), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (323, Fig. 130), L.Boulos, *Flora of Egypt* 4 (2005) (335, Pl. 98).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): Gk. dis, twice; stachys, an ear of corn. Inflorescence two-branched inflorescence.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths pubescent. Culms 25–100 cm long. Ligule an ciliate membrane. Leaf-blades 7–20 cm long, 1–5 mm wide.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2, paired, 4–14 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear or clavate (slightly). Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear or clavate (slightly), ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 6–11 mm long, shorter than fertile, persistent. Companion sterile spikelet glumes herbaceous, dentate, 2 -fid, acuminate, awned, one glume awned, with 3–9 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 8–16 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1–2 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, asymmetrical, 1 length of spikelet, herbaceous or coriaceous, much thinner above, 2-keeled, keeled laterally, winged on keel, winged broadly, winged above (0.5–0.66 length). Lower glume intercarinal veins distinct, 7–11 in number. Lower glume surface convex or flat or concave, glabrous or pubescent. Lower glume apex dentate, 2 -fid, caudate. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume awned, 1 -awned, awn 4–10 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–30 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** *N* = 18 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*).

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Corsica, France, Sardinia, Spain. : Albania, Greece, Italy, Crete, Sicily, Yugoslavia. **Northern Africa, Macaronesia, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa.** Algeria, Egypt, Libya, Morocco, Tunisia. Canary Is. Cameroon. Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Zambia, Zimbabwe. Mpumalanga, Free State, Kwazulu-Natal. **Western Asia, Arabian Peninsula.** Sinai. Oman, Saudi Arabia. **Indo-China.** Thailand. **Australia.** Western Australia (\*).

**TDWG4.** South-West.

**Andropogon diuturnus** Sohns. *Mem. New York Bot. Gard.* 9(3): 406, f. 77. 1957.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: J.A. Steyermark & J.J. Wurdack 492, 5 Feb 1955, Venezuela: Bolivar: Chimanta Massif, Central Section, vicinity of Summit Camp along Rmo Tirica, in small clumps, spikelets white, leaves gray green, locally frequent, alt. 1925 m (US-2182125; IT: VEN-45172).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (22, Fig. 5).

**Derivation** (Clifford & Bostock 2007): L. long lasting. Densely tufted perennial.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE.**

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 20–65 cm long. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking or ciliate. Leaf-sheath auricles erect. Ligule a ciliate membrane, 1.5–1.7 mm long. Leaf-blades 5–15 cm long, 0.5–5 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade surface smooth or scaberulous, rough on both sides.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes (1–)2, paired, 4–5 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs evenly distributed. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3–5 mm long, villous, hairy all along.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 1.1–2.3 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.1–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 0.9–1.5 mm long, hyaline, 2 -veined, ciliolate on margins. Fertile lemma lanceolate, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 7.5–14 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 1–2 mm long.

**Flower and Fruit.** Lodicules 2, cuneate, 0.5–0.7 mm long, fleshy. Anthers 3, 1–1.5 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Andropogon durifolius** S.A. Renvoize. *Kew Bull.* 39(1): 181 (1984).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: R.M. Harley, S.J. Mayo et al. 19569, 17 Feb 1977, Brazil: Bahia: Serra das Almas, Lower NE slopes of pico das almas, -13.33 S Lat., -41.57 W Long., 1500 m. (CEPEC; IT: K, MO, U, UB, US-3260303).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (279, Fig. 106).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig.11 (2006)).

**Derivation** (Clifford & Bostock 2007): L. durus, hard; folium, leaf. Leaf-blades tough.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE.**

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 90–150 cm long, wiry. Lateral branches sparse. Ligule an eciliate membrane. Leaf-blades conduplicate or terete, 30–60 cm long, 1–4 mm wide, coriaceous, stiff. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2(–3), paired, 6–9 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes clavate. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas, lanceolate, 5–6 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous. Companion sterile spikelet lemmas 4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, incised 0.25 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 3–12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Northeast.

**TDWG4.** Bahia.

**Andropogon ekmanii** Norrmann, Swenson & Caponio. *Darwiniana* 46: 329 (2008).

**Illustrations (Journals):** *Darwiniana* (46: 330, Fig.1 (2008)).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Andropogon eucomus** Nees. *Fl. Afr. Austral.* 3: 104. 1841.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Ecklon s.n.*, [Africa]: "Circa Klein Drakenstein in pratis solo argillaceo ..." ST: *Drege s.n.*, [Africa]: "...in pratis humidiusculis ad flumen Bergrivier ..." ST: *C.W. Petersen s.n. in Herb. Lehm.*, [Africa ?] (K).

**Illustrations (Books):** R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):769, Fig. 180), G.V.Pope et al., *Flora Zambesiaca* 10 (65:4(2002), T. 23 as subsp. *huillensis*), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (501, Fig. 404), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (265, Fig. 96).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): Gk. eu-, well; kome, head of hair. Raceme joints silky with soft, long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–200 cm long. Ligule an eciliate membrane. Leaf-blades conduplicate, 4–30 cm long, 1–3 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Synflorescence simple or compound, scanty, open.

Inflorescence composed of racemes, terminal or terminal and axillary, subtended by a spatheole. Spatheole linear, 5–9 cm long. Racemes 2–6, paired or digitate, sinuous, 2–8 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 3–10 mm long. Rhachis internodes filiform, 4–5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets ascending, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, 4–5 mm long, plumose, with 3–10 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or rudimentary, linear or lanceolate, 0–2.5 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous or awned, one glume awned, with 0–3 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 2–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear or lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear or lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 0–2 -veined, without midvein, without lateral veins or without lateral veins, ciliate on margins. Fertile lemma lanceolate or oblong, hyaline, without keel. Lemma margins ciliolate. Lemma apex lobed, 2 -fid, incised 0.25–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, flexuous or geniculate, 8–20 mm long overall, without a column or with a straight or slightly twisted column. Column of lemma awn glabrous. Palea present or absent or minute, oblong.

**Flower and Fruit.** Anthers 3, 1.5 mm long.

$N = 10$  (2 refs TROPICOS).  $2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Africa, Australasia.

**Country /Province /State. Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean.** Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. Madagascar. New South Wales.

**Andropogon exaratus** Hack. *Flora*, 68: 135. (1885).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Paraguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *B. Balansa* 224, no date, Paraguay (US-75530 (fragm. ex hb. Henrard)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. exaro, plough up. With furrows between the nerves of the glumes.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms robust, 100–200 cm long. Ligule an eciliate membrane. Leaf-blades 5–8 mm wide.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Racemes 2–6, paired or digitate, 5–10 cm long. Rhachis fragile at the nodes, pubescent on margins. Rhachis hairs 0.5 mm long. Rhachis internodes cuneate, 3 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, 2.5 mm long, pubescent, with 0.5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 6 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, 5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–10 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

$2n = 60$  (also 60+2B, 1 ref TROPICOS).

**Distribution (TDWG).** Continent. South America.

**Country /Province /State. Southern South America.** Paraguay.

**TDWG4.** Corrientes, Misiones.

**Andropogon fastigiatus** Sw. *Prodr.* 26. 1788.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)* (as *Diectomis*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Diectomis*).

**TYPE** from Jamaica. **Basionym or Replaced Name:** *Diectomis fastigiata* Beauv., *sphalm, Agrost.* 133. t. 23 (1812). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O.P. Swartz s.n.*, no date, Jamaica (S; IT:K (photo), M, US-76465 (fragm. ex M)).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (298, Fig. 236 as *Diectomis*), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (505, Fig. 405 as *Diectomis*), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (263, Fig. 95), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (403, Fig. 357 as *Diectomis*), S.A.Rennoize, *Gramineas de Bolivia* (1998) (589, Fig. 138), S.A.Rennoize, *The Grasses of Bahia*, 1984 (280, Fig. 107 as *A. fastigiata*), J.A.Steyermark et al, *Flora of the Venezuelan Guayana Vol. 8* (2004) (21, Fig. 3), W.Burger, *Flora Costaricensis* 15, *Gramineae: Fieldiana Botany New Series* 4 (1980) (176, Fig. 57 as *Diectomis fastigiata*), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (54, Fig. 6).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig.12 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. fastigio*, sharpen to a point. Panicle branches or culms held erect.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 15–200 cm long. Ligule an eciliate membrane. Leaf-blades 5–30 cm long, 1–4 mm wide.

**Inflorescence.** Synflorescence compound.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Racemes 1, single, 2–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes clavate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas, elliptic or oblong, dorsally compressed, 5–9 mm long, longer than fertile. Companion sterile spikelet glumes membranous, glabrous, acute, awned, one glume awned, with 4–8 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed, glabrous. Upper glume linear, chartaceous, 1-keeled. Upper glume awned, 1 -awned, awn 10–20 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 25–40 mm long overall, with twisted column. Column of lemma awn glabrous. Palea lanceolate, 0 -veined, without keels.

**Distribution (TDWG).** **Continent.** Africa, Temperate Asia, Tropical Asia, Australasia, North America, South America.

**Country /Province /State.** **Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean.** Cape Verde. Benin, Burkina, Ghana, Guinea, Ivory Coast, Mali, Mauritania, Nigeria, Senegal, Sierre Leone, Togo, Niger. DRC. Ethiopia (inc. Eritrea), Sudan. Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Botswana, Limpopo. Madagascar. **Arabian Peninsula, Indian Subcontinent, Indo-China, Malesia.** Laos, Myanmar, Thailand, Vietnam. Java, Philippines, Sulawesi. **Australia.** Queensland. **Mexico.** Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil.** Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Cuba, Dominican Republic, Haiti, Jamaica, Windward Islands, Puerto Rico. Guyana, Venezuela. Bolivia, Colombia. Brazil Northeast, Brazil North.

**TDWG4.** Bihar. Madhya Pradesh, Orissa, Uttar Pradesh, West Bengal. Mexico State, Morelos, Puebla. Chihuahua, Tamaulipas. Sinaloa, Sonora. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Chiapas.

Comments Recognised in *Diectomis* by Soreng et al (2012).



**Andropogon festuciformis** Rendle. *Cat. Welw. Afr. Pl.* 2: 145. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Angola. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Angola, Humpata: *Welwitsch 7505* (K).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (517, Fig. 412, as *Hypogynium schlechteri*).

**Derivation** (Clifford & Bostock 2007): L. forma, appearance. Resembling *Festuca* in habit or inflorescence.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Basal innovations flabellate. Culms erect, 60–100 cm long. Ligule a ciliate membrane. Leaf-blades flat or conduplicate, 10–25 cm long, 2–4 mm wide, stiff.

**Inflorescence.** Synflorescence compound, paniculate, 15–30 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 1.5–2 cm long, herbaceous. Peduncle pubescent above. Racemes 1, single, 6–12 cm long. Rhachis fragile at the nodes, subterete, glabrous on margins. Rhachis internodes linear, 1–1.5 mm long. Rhachis internode tip transverse, flat, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 0.5–1 mm long, glabrous, tip rectangular.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 3–4 mm long, shorter than fertile, persistent. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.5–4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 0.8 mm long, glabrous, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled above. Lower glume primary vein scaberulous. Lower glume intercarinal veins absent. Lower glume surface flat. Lower glume apex acute. Upper glume lanceolate, coriaceous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 2 mm long, 0.5 length of spikelet, hyaline, 2 -veined. Fertile lemma linear, 2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, muticous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 1.6–2 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, South tropical Africa, Southern Africa. Guinea, Mali. DRC. Angola, Malawi, Zambia. Kwazulu-Natal.

**Andropogon floridanus** Scribn. *Bull. Torr. Bot. Club*, 1896, 145. (1896).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Florida. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Florida: *Nash 1572* (US holo, GH).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (658).

**Derivation** (Clifford & Bostock 2007): L.-ana, indicating location. From Florida State, USA.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–160 cm long. Lateral branches ample. Leaf-sheaths antorsely scabrous. Ligule an eciliate membrane. Leaf-blades 25–50 cm long, 2–6 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, exerted or embraced at base by subtending leaf. Spatheole linear or lanceolate, 4–5 cm long. Peduncle 1 cm long or 2 cm long, hirsute above. Racemes 2, paired, 3–4 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 5–8 mm long. Rhachis internodes clavate, 3–3.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, 4–5 mm long, plumose, with 5–8 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or represented by single glumes, linear, 1 mm long, shorter than fertile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.5–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume primary vein ciliate. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 8–12 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 1.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG).** **Continent.** North America.

**Country /Province /State.** **Southeastern USA.** Florida, Georgia.

### **Andropogon gabonensis** Stapf. *Journ. de Bot.* 22: 207 (1909).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Gabon. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Gabon, Cape Lopez: Chevalier 4336 (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Gabon.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms robust, 200–300 cm long. Ligule a ciliolate membrane, 2–3 mm long. Collar without external ligule. Leaf-blade base tapering to the midrib. Leaf-blades 30–60 cm long, 10–25 mm wide. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence compound, paniculate, 60–90 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole lanceolate or elliptic, 5–7 cm long, scarious or herbaceous. Racemes 2, paired, 3.5–5 cm long. Rhachis fragile at the nodes, glabrous on surface or pubescent on surface, pubescent on margins (sparsely). Rhachis internodes oblong. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, pubescent (sparsely), tip lobed (bilobed).

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4–4.5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, 7–11 -veined, glabrous or pubescent, acute, muticous or mucronate. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct. Lower glume surface flat or with a longitudinal median groove, glabrous or pubescent, hairy in lines (along midline). Upper glume lanceolate, chartaceous, 1-keeled, 3 -veined. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma oblong, hyaline, without keel, 1–3 -veined, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 9–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong.

**Flower and Fruit.** Anthers 3, 3 mm long.

**Distribution (TDWG).** **Continent.** Africa.

**Country /Province /State.** **West-central tropical Africa, South tropical Africa.** Cameroon, Congo, DRC. Angola.

**Andropogon gayanus** Kunth. *Rev. Gram.* 1: 163. (1829).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Senegal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Gay s.n.*, Senegal (K).

**Illustrations (Books):** R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):769, Fig. 180), G.V.Pope et al., *Flora Zambesiaca* 10, L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (499, Fig. 402 as var. *squamulatus*), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984) (as var. *polycladus*), S.A.Renvoize, *The Grasses of Bahia*, 1984 (280, Fig. 107), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14e (1940) (170, Fig. 89 & 90).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 296, Fig.13 (2006)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Claude Gay (1800–1873) French botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 150–250 cm long. Ligule an eciliate membrane. Collar without external ligule or with external ligule. Leaf-blade base tapering to the midrib, without a false petiole or with a false petiole. Leaf-blades 30–60 cm long, 4–20 mm wide.

**Inflorescence.** Synflorescence compound, paniculate, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole lanceolate, 6–8 cm long, herbaceous. Racemes 2, paired, 4–9 cm long. Rhachis fragile at the nodes, glabrous on surface, ciliate on margins. Rhachis internodes cuneate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, 4–5 mm long, ciliate, tip lobed.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, elliptic, dorsally compressed, 5–8 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous or pubescent or villous, acute, awned, one glume awned or both glumes awned, with 1–10 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct. Lower glume surface flat or with a longitudinal median groove, glabrous. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume muticous or mucronate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–30 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.**  $2n = 40$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Tropical Asia, Australasia (\*), North America, South America (\*).

**Country /Province /State.** Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Cape Verde. Benin, Burkina, Gambia, Ghana, Guinea, Liberia, Mali, Mauritania, Nigeria, Senegal, Sierre Leone, Togo, Niger. Congo, Gabon, DRC. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Botswana, Limpopo, Mpumalanga, Swaziland, Kwazulu-Natal. **Indian Subcontinent, Malesia.** Philippines. **Australia.** Northern Territory (\*), Queensland (\*), Western Australia (\*). New Caledonia. **Mexico.** Central Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America, Brazil.** Nicaragua. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Peru. Brazil Northeast.

**TDWG4.** Kimberley. Darwin & Gulf. North. Mexico State. Veracruz. Sinaloa. Colima, Guerrero, Jalisco, Michoacan, Nayarit. Campeche, Chiapas, Tabasco.

**Andropogon gerardii** Vitm. *Summa Pl.* 6: 16 (1792).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: Cultivated in France.

**Illustrations (Books):** K.F.Best, et al, *Prairie Grasses* (1971) (59), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (654), F.W.Gould, *The Grasses of Texas* (1975) (582, Fig. 304 & 583, Fig. 305 as var. *gerardii* & var. *chrysocomus*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:3(1980)).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): in honor of John Gerard (1545–1612) English botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or short. Culms 80–200 cm long. Lateral branches sparse. Ligule a ciliolate membrane. Leaf-blades 5–10 mm wide, mid-green or glaucous. Leaf-blade surface glabrous or hirsute. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2–7, paired or digitate, 4–11 cm long. Rhachis fragile at the nodes, glabrous on surface, pubescent on margins or ciliate on margins. Rhachis hairs 0.5–4 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, pubescent or ciliate, with 0.5–4 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, elliptic, 7–11 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 7–11 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins obscure. Lower glume surface concave. Upper glume lanceolate, coriaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 0–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

$2n = 60$ , or 70, or 80, or 90 (4 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Pacific, North America, South America.

**Region.** Southwestern Europe.

**Country /Province /State.** : France. **North-central Pacific.** Hawaii (\*). **Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Manitoba, Saskatchewan. Ontario. Montana, Washington. Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, Oklahoma, South Dakota, Wisconsin. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Arizona, Utah. New Mexico, Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Brazil.** Belize, Costa Rica, Honduras. Brazil South.

**TDWG4.** Mexico State. Coahuila, Durango, Guanajuato, Zacatecas. Sinaloa. Michoacan. Chiapas.

**Andropogon glaucescens** H. B. & K. *Nov. Gen. et Sp.* 1: 186. (1815).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland* 3020, Mar, Ecuador: Pichincha (P; IT: B-W-18661, US-75523 (fragm. ex P)).

**Illustrations (Journals):** *Ruizia* (13:442 Fig 59g (1993)).

**Derivation** (Clifford & Bostock 2007): L. glaucesco, become glaucous. Foliage and/or other parts bluish-green.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–70 cm long. Culm-nodes pubescent. Ligule an eciliate membrane. Leaf-blades 3–6 mm wide.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 4.5 cm long. Racemes 2–3, paired or digitate, 4–5.5 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 4 mm long. Rhachis internodes linear, 3.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 5 mm long, villous, with 4 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 5–6 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, 4.5–5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 12–15 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia, Ecuador, Peru.

**Andropogon glaucophyllus** Roseng. Arrill. de Maffei & Izag. de Artucio. *Gramin. Urug.* 165 (1970).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Rosengurt B-2634B*, 10 Apr 1966, Uruguay: Montevideo: cult. in Hort. Bot. Facultad de Agronomía, Apr 1966; orig. Arroyo Los Rios, Rocha (MVFA; IT: SI, US-2887391).

**Illustrations (Books):** B.Rosengurt, *Gramineas Uruguayas I* (1970) (166, Fig. 65).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 297, Fig.14–15 (2006)).

**Derivation** (Clifford & Bostock 2007): Gk. glaukos, bluish-green; phyllon, leaf. Leaf-blades glaucous.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms 100–200 cm long, 6–12 -noded. Culm-nodes glabrous. Leaf-sheaths 10–16.5 cm long, glabrous on surface. Ligule an eciliate membrane, 1.5–3 mm long, truncate. Leaf-blade base tapering to the midrib. Leaf-blades 17–40 cm long, 3–7 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, subtended by a spatheole. Spatheole lanceolate, 10–18 cm long. Racemes 2–6, digitate, 3–12 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 1.6–2.8 mm long. Rhachis internodes clavate, 0.8 length of fertile spikelet. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, 0.6 length of fertile spikelet, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 4.2–5.8 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.5–7.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted. Spikelet callus hairs 0.8–1.3 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume primary vein scaberulous. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, ciliate on margins. Fertile lemma lanceolate, 3.2–5 mm long, hyaline, without keel, 2–3 -veined, 0–3 -veined. Lemma margins ciliate. Lemma apex entire (when awnless) or dentate, 2 -fid, muticous or awned, 1 -

awned. Principal lemma awn from a sinus, geniculate, 0–5.5 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3, 2–3.5 mm long. Caryopsis 2.2–4 mm long, dark brown.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil, Southern South America.** Brazil Southeast. Uruguay.

### **Andropogon glaziovii** Hack. Mart. *Fl. Bras.* 2: 3: 286. (1883).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *A.F.M. Glaziou 11672*, no date, Brazil: Rio de Janeiro (US-75522 (fragm. ex B)).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 297, Fig.16–17 (2006)).

**Derivation** (Clifford & Bostock 2007): in honor of Auguste François Marie Glaziou (fl. 1833–1906) French-born artist and Brazilian botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Basal innovations intravaginal. Culms 150–200 cm long, 5–6 mm diam. Leaf-sheaths smooth, glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 15–50 cm long, 4–7 mm wide. Leaf-blade surface pilose, hairy abaxially. Leaf-blade apex abruptly acute.

**Inflorescence.** Synflorescence compound, linear, 20–50 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 2.5–3 cm long. Racemes 2, paired, 2 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs on upper part of internode, 4 mm long. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, villous, hairy above, with 4 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 4 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume mucous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, incised 0.33 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 9–10 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

*N* = 30 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America, Brazil, Southern South America.** Bolivia. Brazil Southeast. Paraguay.

Minas Gerais, Rio de Janeiro, Espirito Santo.

### **Andropogon glomeratus** (Walt.) Britton Stern. et Poggenb. *Prel. Catal.* 67 (1888).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from USA. **Basionym or Replaced Name:** *Cinna glomerata* Walt., *Fl. Carol.* 59 (1788). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Walter s.n.*, USA: South Carolina (BM; IT: GH (fragm. ex BM & photo), NY (fragm.)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (663 as varieties *glomeratus* & *pumilus* & *scabriglumis* & *glaucopsis* & *hirsutior*), F.W.Gould, *The Grasses of Texas* (1975) (585, Fig. 307), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (397, Fig. 354), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (43, Fig 43), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:4(1980)).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): *L. glomus*, ball of thread; -ata, possessing. Spikelets crowded and forming clusters in the inflorescence.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms erect, 75–150 cm long. Leaf-sheaths keeled, glabrous on surface, outer margin glabrous or hairy. Ligule a ciliolate membrane. Leaf-blades 2.5–6 mm wide.

**Inflorescence.** Synflorescence compound, paniculate (oblong), dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 1.5–3 cm long. Peduncle 0.5–1 cm long, hirsute above. Racemes 2, paired, sinuous, 1.5–3 cm long. Rhachis fragile at the nodes, plumose on surface, plumose on margins. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, plumose.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3–4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 10–20 mm long overall. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

*N* = 10 (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Pacific, North America, South America.

**Country /Province /State.** **North-central Pacific.** Hawaii (\*). **Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** New Jersey, Pennsylvania. Arizona, California, Nevada, Utah. New Mexico, Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America.** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Bahamas, Cayman Is, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico. Venezuela. Colombia.

**TDWG4.** Mexico State, Morelos, Puebla. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo Leon, Queretaro, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Baja California. Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

**Andropogon gracilis** Spreng. *Syst.* 1: 284. (1825).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Dominican Rep, Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Anonymous s.n.*, no date, Dominican Republic / Haiti: Hispaniola I. (B; IST: US-75673 (fragm. ex B)). ST: *T. Haenke s.n.*, no date, Peru (BR; IST: US-3088250 (fragm. ex BR), US-75919).

**Recent Synonyms:** *Schizachyrium gracile* (Spreng.) Nash, Small, *Fl. S. E. U. S.* 60 (1903).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (654), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (389, Fig. 349).

**Derivation** (Clifford & Bostock 2007): *L. slender*. Culms or inflorescences slender.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–80 cm long, wiry. Ligule an eciliate membrane. Leaf-blades filiform, terete, 4–30 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, sinuous, 2–5 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 2–3 mm long. Rhachis internodes cuneate, 3–4 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets spreading, in

pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, 3–4 mm long, plumose, with 2–3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear or lanceolate, 2–3 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes membranous, acute, awned, with 1–1.5 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 3.5–5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, inserted. Spikelet callus hairs 2–3 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface flat. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, membranous, 1-keeled, 3 -veined. Upper glume apex acute, muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline, 2 -veined, acute. Fertile lemma oblong, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Southeastern USA.** Florida. **Mesoamerica, Caribbean, Northern South America, Western South America, Southern South America.** Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama. Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Puerto Rico. French Guiana, Guyana, Venezuela. Ecuador. Paraguay, Uruguay.

**Andropogon greenwayi** Napper. *Kirkia* 3: 121 (1963).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tanzania, Naabi Hill: *Greenway & Turner 10165* (EA holo, K).

**Illustrations (Books):** T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (261, Fig. 154).

**Illustrations (Journals):** *Kew Bulletin* (50: 110, Fig.1 (1995)).

**Derivation** (Clifford & Bostock 2007): in honor of Percy James Greenway (1897–1980) English botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, mat forming. Rhizomes absent or short. Butt sheaths glabrous. Culms 15–60 cm long. Ligule an eciliate membrane. Leaf-blades flat, 3–10 cm long, 1–4 mm wide.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2(–5), paired, 3–7 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs white. Rhachis internodes filiform or linear. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform or linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 5.5–10 mm long, shorter than fertile, persistent. Companion sterile spikelet glumes chartaceous, acute or acuminate, muticous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 6.5–11 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear or lanceolate, 1 length of spikelet, coriaceous, much thinner above, 2-keeled, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 4–10 in number. Lower glume surface convex or with a longitudinal median groove. Lower glume apex dentate, 2 -fid, acute or acuminate. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume apex acuminate, awned, 1 -awned, awn 0.5–4 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 14–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Distribution (TDWG). Continent.** Africa.



**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea), Somalia. Kenya, Tanzania.

**Andropogon gyrans** Ashe. *Journ. E. Mitchell Sci. Soc.* 1898, 113. (1898).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, North Carolina.; *Ashe 2034* (NCU holo).

**Recent Synonyms:** *Andropogon campyloracheus* Nash, *Bull. N. York Bot. Gard.* 1: 431. (1900). *Andropogon elliotii* Chapm., *Fl. S. Un. St.* 581. (1860).

*Andropogon subtenuis* Nash, Small, *Fl. S. E. U.S.* 63. (1903).

*Andropogon perangustatus* Nash, in Small, *Fl. S. E. U.S.* 62. (1903).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (660 as varieties *gyrans* & *stenophyllus*), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (as *Andropogon elliotii*).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): L. gyro, turn round in a circle. Awns forming loose spirals on drying.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–80 cm long. Ligule a ciliate membrane. Leaf-blades flat or conduplicate, 3–4 mm wide.

**Inflorescence.** Synflorescence compound, fasciculate.

Inflorescence composed of racemes, terminal and axillary, subtended by an inflated leaf-sheath or a spatheole, exerted or enclosed. Spatheole lanceolate. Peduncle flexuous, 1–15 cm long. Racemes 2, paired, 3–4 cm long. Rhachis fragile at the nodes, plumose on surface, plumose on margins. Rhachis internodes filiform, 8–10 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 8–10 mm long, 1.4 length of fertile spikelet, plumose.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 1.

$N = 10$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** North-central USA, South-central USA, Southeastern USA, Mexico. Illinois, Iowa, Missouri. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Central Mexico, Gulf (Mexico), Northwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean.** Belize, Honduras. Cuba.

Puebla. San Luis Potosi. Veracruz. Chiapas.

**Andropogon hallii** Hack. *Sitzb. Acad. Wien* 1, 9: 127. (1884).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Nebraska: *Hall & Harbour 651*.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (654).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): in honor of Elihu Hall (1822–82) United States farmer and amateur botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 100–200 cm long. Lateral branches ample. Leaf-sheaths without keel, glabrous on surface. Ligule a ciliolate membrane, 2.5–4 mm long. Leaf-blades 5–10 mm wide. Leaf-blade surface glabrous or pilose, hairy adaxially, with tubercle-based hairs.

**Inflorescence.** Inflorescence composed of racemes, terminal or terminal and axillary. Racemes 2–4, paired or digitate, 4–6 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 2–4 mm long. Rhachis internodes clavate, 3–5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, 5–6 mm long, villous, with 2–4 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 9–10 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acute, muticous. Companion sterile spikelet lemmas muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 9–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct, 4 in number. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 1–5 mm long overall.

**Flower and Fruit.** Anthers 3, 3–4 mm long.

$2n = 60$  (1 ref TROPICOS).

**Distribution (TDWG), Continent.** North America.

**Country /Province /State.** Western Canada, Eastern Canada, Northwest USA, North-central USA, Southwestern USA, South-central USA, Mexico. Manitoba. Ontario, Quebec. Colorado, Montana, Wyoming. Iowa, Kansas, North Dakota, Nebraska, Oklahoma, South Dakota. Arizona, Utah. New Mexico, Texas. Northeast Mexico.

**Andropogon heterantherus** Stapf. *Kew Bull.* 1908, 409. (1908).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Holst 3073*, East Africa, Usambara, Maou [Muoa?] (K; IT: US-1037908 (fragm. ex K)).

**Recent Synonyms:** *Andropogon heteranthus* Steud, *Syn. Pl. Gram.* 370 (1854).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *heteros*, different; *antheros*, blooming. Anthers of the sessile spikelets much smaller than those of the pedicelled.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms rambling, 60–120 cm long, wiry. Leaf-sheath auricles absent. Ligule an eciliate membrane. Leaf-blades lanceolate, tapering towards tip, 3–18 cm long, 3–8 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Racemes 2(–3), paired, bilateral (as to sterile spikelets), 4–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes clavate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 5–5.5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous or mucronate. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5.5–6.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface concave. Upper glume linear, chartaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 9–12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** East tropical Africa. Kenya, Tanzania.

**Andropogon huillensis** Rendle. *Cat. Welw. Afr. Pl.* 2: 146. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Angola. **Basionym or Replaced Name:** *Andropogon laxatus* Stapf, Prain, *Fl. Trop. Afr.* 9 : 237 (1919). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Angola: Huilla: rather poor wooded meadows at Humptat, Apr 1860, *Welwitsch 2670* (K iso)

**Illustrations (Books):** R.M.Phill, F.T.E.A., *Gramineae* (3(1982):769, Fig. 180 as *A. laxatus*).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Huilla, Angola.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–200 cm long. Ligule an eciliate membrane. Leaf-blades conduplicate, 5–30 cm long, 2–3 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Synflorescence compound, scanty or linear, open.

Inflorescence composed of racemes, terminal or terminal and axillary, subtended by a spatheole. Spatheole linear, 5–9 cm long. Racemes 2–6, paired or digitate, sinuous, 2–6 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 2–16 mm long. Rhachis internodes filiform, 4–5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets ascending, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, 4–5 mm long, plumose, with 2–6 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets rudimentary, linear or lanceolate, 0–2.5 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous or awned, one glume awned, with 0–3 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 4–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear or lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear or lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 0–2 -veined, without midvein, without lateral veins or obscurely veined, ciliate on margins. Fertile lemma lanceolate or oblong, hyaline, without keel. Lemma margins ciliolate. Lemma apex lobed, 2 -fid, incised 0.25–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, flexuous or geniculate, 8–20 mm long overall, without a column or with a straight or slightly twisted column. Column of lemma awn glabrous. Palea present or absent or minute, oblong.

**Flower and Fruit.** Anthers 3, 1.5 mm long.

*N* = 40 (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean. Cameroon, DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Kwazulu-Natal. Madagascar.

**Andropogon humbertii** A. Camus. *Bull. Soc. Bot. France* 74: 631 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *H. Humbert* 3922, 27 Nov 1924–8 Dec 1924, Madagascar (US-2236445, US-1271917).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Jean Henri Humbert (1887–1967) French botanist who collected in Madagascar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 40–50 cm long. Lateral branches fastigiate. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 4–9 cm long, 3–5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 2–4, paired or digitate, 3–4.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 2–4 in number (on lowest raceme).

Companion sterile spikelets well-developed, male, lanceolate, 6 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 0.5 mm long, pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, winged on keel, winged narrowly, winged above. Lower glume intercarinal veins distinct, 4–6 in number. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume awned, 1 -awned.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, ciliate on margins. Fertile lemma lanceolate, 3 mm long, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 9–10 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3, 3 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Andropogon hypogynus** Hack. *Mart. Fl. Bras.* 2. 3: 290 (1883).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *F. Sello s.n.*, Habitat in Brasilia australi ST: *Riedel s.n.*, Brazil: in paludosis ad Rio Tamanduate et prope Araracoara ST: *Weddell* 1858, Brazil: in prov. Minarum.

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (586, Fig. 137), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (23, Fig. 7).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 297, Fig.18 (2006)).

**Derivation** (Clifford & Bostock 2007): Gk. hypo, below; gyne, woman.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 100–150 cm long. Leaf-sheaths pubescent. Ligule an eciliate membrane. Leaf-blades 30–60 cm long, 4–5 mm wide. Leaf-blade surface pubescent.

**Inflorescence.** Inflorescence a panicle with branches tipped by a raceme or composed of racemes, terminal and axillary. Panicle axis 0–5 cm long. Racemes 6–15, digitate or borne along a central axis, 2–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 3 mm long. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2.5 mm long, ciliate, with 3–4 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 5 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, 2 mm long, hyaline, without keel. Lemma apex lobed, 2-fid, incised 0.25 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 6 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

$N = 30$  (1 ref TROPICOS).  $2n = 60$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Western South America, Brazil, Southern South America. Guatemala. Bolivia, Colombia. Brazil West Central, Brazil Southeast, Brazil South. Paraguay, Uruguay.

**TDWG4.** Mato Grosso, Goias, Sao Paulo Parana. Corrientes, Misiones.

### **Andropogon ibityensis** A. Camus. *Not. Syst.* 14 : 213 (1952).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Mt. Ibity: Perrier 10768.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. from Mt Ibity, Madagascar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 60–70 cm long. Leaf-sheaths keeled. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane. Leaf-blades 15–25 cm long, 3–5 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence simple.

Inflorescence composed of racemes. Racemes 4–9, digitate, 1.5–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acuminate. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface concave. Lower glume apex acuminate. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma oblong, 3 mm long, hyaline, without keel. Lemma apex lobed, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 9–11 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

### **Andropogon imerinensis** Bosser. *Adansonia* n. s., 8: 521 (1968).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Tananarive: *Bosser* 7697 (P holo).

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (269, Fig. 98).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Imerin, Madagascar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 20–70 cm long, 2–3-noded. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaves mostly basal. Ligule an eciliate membrane,

0.2–0.5 mm long, truncate. Leaf-blades filiform, conduplicate, 5–25 cm long, 0.8–1.4 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 2–5 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 1.5–2.5 mm long. Rhachis internodes filiform, 2–4.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 4–5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or oblong, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally, 4–6 -veined. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled, 3–5 -veined. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4–4.5 mm long, hyaline, 0–3 -veined, without midvein or with evident midvein, without lateral veins or distinctly veined, ciliate on margins, fringed above. Fertile lemma lanceolate, 4 mm long, hyaline, without keel, 1–3 -veined, 0–3 -veined. Lemma margins ciliolate. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–10 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 1 mm long.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Andropogon incomptus** W. D. Clayton. *Kew Bull.* 17: 467 (1964).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Guinea, Madina Tossekre: *Adam 12528* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. unadorned. Anthoecial surface dull rather than glossy.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Basal innovations flabellate. Culms erect, 250 cm long. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 10–25 cm long, 2–4 mm wide, stiff.

**Inflorescence.** Synflorescence compound, paniculate, 40–60 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 1–1.5 cm long, herbaceous. Peduncle pubescent above. Racemes 1, single, 1 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis internodes linear, 1–1.5 mm long. Rhachis internode tip transverse, flat, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 1–1.5 mm long, ciliate, tip rectangular.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4–5 mm long, longer than fertile, persistent. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 0.8 mm long, bearded, base truncate, attached transversely. Spikelet callus hairs 0.25 length of spikelet.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled above. Lower glume primary vein scaberulous. Lower glume intercarinal veins absent. Lower glume surface flat. Lower glume apex acute. Upper glume lanceolate, coriaceous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume margins ciliolate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 2 mm long, 0.5 length of spikelet, hyaline, 2 -veined. Fertile lemma linear, 2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.4 of lemma length, awned, 1 -awned.

Principal lemma awn from a sinus, geniculate, 7 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Guinea.

### **Andropogon indetonsus** Sohns. *Mem. New York Bot. Gard.* 9(3): 269 (1957).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *B. Maguire & C.K. Maguire 40148*, 4 Dec 1954, Brazil Rio Branco: (US-2182180; IT: NY-169529).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 297, Fig.19 (2006)).

**Derivation** (Clifford & Bostock 2007): L. unshorn. Pedicels of reduced spikelets densely hairy.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–200 cm long. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 1.8–2 mm long. Leaf-blades 30–40 cm long, 10–15 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, linear, 30 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2–3, paired or digitate, straight or arcuate, 2.5–8 cm long. Rhachis fragile at the nodes, scabrous on surface, glabrous on surface or pilose on surface, villous on margins. Rhachis internodes clavate, 3–5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 3–3.5 mm long.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, elliptic, 3.5–5 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous. Companion sterile spikelet lemmas enclosed by glumes, 3–3.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.5–5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, 6 -veined. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume primary vein scabrous. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 3–3.5 mm long, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–15 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous. Palea 1.5 mm long, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, 0.5–0.8 mm long. Anthers 3, 2–2.2 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil North.

### **Andropogon ingratus** Hack. *Oesterr. Bot. Z.* 51(5): 151. 1901.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *A.F.M. Glaziou 18681*, 1891, Brazil; Minas Gerais (W; IT: US-75689 (fragm. ex W), W). LT designated by Zanin & Longhi-Wagner, *Novon* 15: 250 (2005).

**Illustrations (Journals):** *Novon* (13: 369 Fig 3 (2003) as var. *hirsutus*), *Revista Brasil. Bot.* (29: 297, Fig.20 (2006)).

**Derivation** (Clifford & Bostock 2007): L. disagreeable. The sharp callus enables the spikelets to catch on to clothing.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms erect, slender, 70–100 cm long. Lateral branches sparse. Ligule an eciliate membrane. Leaf-blades 14–35 cm long, 2–3 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 5–6 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform,

with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas, linear or lanceolate, 5 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, scaberulous, glabrous, acute, muticous. Companion sterile spikelet lemmas 3.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave, asperulous. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, muticous or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast, Brazil Southeast.

### **Andropogon insolitus** Sohns. *Mem. N. Y. Bot. Gard.* 9: 271 (1957).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *B. Maguire & J.J. Wurdack* 35777, 2 May 1953, Venezuela: Bolmvar: abundant in morichal 2 km SSW of Ciudad Piar, 300 m (US-2116112; IT: NY-169528; MO-3326787 (fragm. ex US)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. uncommon. The species is geographically restricted although locally abundant.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 25–50 cm long. Leaves mostly basal. Leaf-sheaths keeled, glabrous on surface. Ligule an ciliate membrane, 1 mm long. Leaf-blades 10–25 cm long, 1.5–2.5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous, tuberculate-ciliate, hairy at base.

**Inflorescence.** Synflorescence compound, linear, 6–10 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 2–2.5 cm long. Racemes 2–4, paired or digitate, 1.5–2 cm long. Rhachis fragile at the nodes, pubescent on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 1.7–2.2 mm long, ciliate, with 1.5–3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 3–4.7 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–4.8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface flat or concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret linear, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex entire, muticous.

**Flower and Fruit.** Anthers 3, 0.9–1.1 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America, Brazil.** Venezuela.



**Andropogon ivohibensis** A. Camus. *Bull. Soc. Bot. France* 71: 922 (1924).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Magagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Ambohimaroa: *Perrier 10820* ; Madagascar, Ivohibe: *Perrier 11170* .

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (267, Fig. 97).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Pie d'Ivohibi, Madagascar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–60 cm long. Lateral branches sparse. Leaf-sheaths keeled, glabrous on surface. Ligule a ciliolate membrane, 0.5 mm long, truncate. Leaf-blades 20–30 cm long, 1.5–2 mm wide, stiff. Leaf-blade surface scabrous, rough on both sides, glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 3, digitate, 3.5–6 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 2 mm long. Rhachis internodes linear, 2.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2.5 mm long, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute. Companion sterile spikelet lemmas dentate, 1-awned, with 3–4 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 0.5 mm long, pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface concave. Lower glume margins ciliolate. Upper glume lanceolate, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 5 mm long, hyaline, ciliate on margins. Fertile lemma lanceolate, 4.5 mm long, hyaline, without keel, 0–3 -veined. Lemma margins ciliate. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Andropogon ivorensis** Adjan. & W. D. Clayton. *Adansonia, n. s.*, 3: 401. (1963).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ivory Coast. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ivory Coast, Kongasso: *Adjanohoun 388a* (K holo, ABI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Ivory Coast, in particular from Togo.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms 150–200 cm long, 2–4 mm diam. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades 40–70 cm long, 6–12 mm wide. Leaf-blade surface glabrous or pubescent, hairy on both sides. Leaf-blade margins scaberulous. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2, paired, unilateral (as to sterile spikelets), 9–11 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes columnar, 6 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets squeezed between internode and pedicel, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, 5 mm long, ciliate, tip widened.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 12 mm long, longer than fertile. Companion sterile spikelet glumes chartaceous, keeled, 19 -veined, acute, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 1 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled above, keeled dorsally, keeled obtusely. Lower glume lateral veins several in each keel (5–6). Lower glume surface deeply depressed. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume mucous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 7 mm long, hyaline, 2 -veined, obtuse. Fertile lemma lanceolate, 4.5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 40 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, cuneate, 1 mm long, fleshy, truncate. Anthers 3, 3.4 mm long.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa. Ivory Coast, Mali, Togo.

**Andropogon kelleri** Hack. ex Schinz. *Mem. Herb. Boiss.* no. 20. 6. (1900).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Somalia, Ogaden steppe: *Keller 129* (Z syn); Somalia, Tujus steppe: *Keller 156* (Z syn, K).

**Illustrations (Books):** T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (260, Fig. 153).

**Derivation** (Clifford & Bostock 2007): in honor of A. Keller (1873–1945) Swiss botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms geniculately ascending or decumbent, 15–40 cm long. Lateral branches suffrutescent. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 2–7 cm long, 1–2 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 2–3 cm long. Racemes 1, single, 2–3 cm long. Rhachis fragile at the nodes, semiterete, villous on surface, villous on margins. Rhachis hairs 3–6 mm long. Rhachis internodes linear, 3–3.5 mm long. Rhachis internode tip crateriform. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, linear, dorsally compressed, 3–4 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 6–7 -veined, glabrous, acuminate. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, chartaceous, much thinner above, 2-keeled, keeled dorsally, wingless. Lower glume primary vein scaberulous. Lower glume intercarinal veins absent. Lower glume surface concave. Lower glume margins ciliolate. Lower glume apex emarginate or obtuse. Upper glume lanceolate, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume margins ciliolate. Upper glume apex acute, mucronate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret linear, 4 mm long, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma margins ciliolate. Lemma apex lobed, 2 -fid, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 14–16 mm long overall, with twisted column. Column of lemma awn 8–10 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** Northeast tropical Africa. Ethiopia (inc. Eritrea), Somalia.

**Andropogon lacunosus** J. G. Anders. *Bothalia* 8: 113 (1962).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: South Africa, Ermelo: *Gericke A49* (PRE holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. lacuna, cavity; -osus, well developed. Lower glume pitted.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms rambling, 30–60 cm long, wiry. Ligule an eciliate membrane. Leaf-blades 8–15 cm long, 2–5 mm wide.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2–3, paired or digitate, 3–6 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 7–8 mm long, longer than fertile, persistent. Companion sterile spikelet glumes chartaceous, 3 -veined (raised), lacunose, glabrous, acuminate, mucous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square or oblong, 0.7 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct. Lower glume surface convex or with a longitudinal median groove, lacunose (2 or more pits). Lower glume apex acuminate. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume awned, 1 -awned, awn 1–2 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–14 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Cameroon. Tanzania. Angola, Zimbabwe. Mpumalanga, Swaziland.

### **Andropogon lateralis** Nees. *Agrost. Bras.* 2: 329. (1829).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, no date, Brazil (B; IT: US-925158 (fragm.)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (586, Fig. 137), S.A.Renvoize, *The Grasses of Bahia*, 1984 (280, Fig. 107), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (517, Fig. 185), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1285, Fig. 251 & 1304, Fig. 257), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (498, Fig. 209), B.Rosengurt, *Gramineas Uruguayas I* (1970) (162, Fig. 63), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:5(1980)).

**Illustrations (Journals):** *Ruizia* (13:442 Fig 59f (1993)), *Revista Brasil. Bot.* (29: 297, Fig.21 (2006)).

**Derivation** (Clifford & Bostock 2007): laterus, side; -ale, pertaining to. Inflorescence forming as a lateral shoot.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms 70–150 cm long. Culm-nodes glabrous. Leaf-sheaths 5–16 cm long, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1–2.3 mm long, truncate. Leaf-blades 7–34 cm long, 2–4 mm wide. Leaf-blade surface puberulous, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2–6, digitate, 2.5–7.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs on upper part of internode, 0.5–4 mm long. Rhachis internodes linear, 3.5–4 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate, with 0.5–4 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 4.5–8 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume primary vein scaberulous. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, 2–4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5.5–11 mm long overall, with a straight or slightly twisted column. Column of lemma awn 0.5–1.5 mm long, glabrous.

**Flower and Fruit.** Anthers 3, 0.5–1.3 mm long. Caryopsis 2.5 mm long.

$N = 30$  (1 ref TROPICOS).  $2n = 60$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mesoamerica, Caribbean, Western South America, Brazil, Southern South America. Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama. Cuba. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Buenos Aires, Chaco, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe.

### **Andropogon lehmannii** Pilger. *Engl. Jahrb.* 27: 24. (1899).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.C. Lehmann* 6979, no date, Colombia: near Popoyan (B; IT: US-75595).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): as for *Paspalum lehmanniana*.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Basal innovations extravaginal. Culms 80–300 cm long. Lateral branches sparse. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane, truncate. Leaf-blades 20–40 cm long, 5–10 mm wide. Leaf-blade margins scabrous.

**Inflorescence.** Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 5–7 cm long. Racemes 2, paired, 4–6 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 4 mm long. Rhachis internodes filiform, 3.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 4 mm long, villous, with 4 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 6–7 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, 4 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 7–12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

### **Andropogon leprodes** T.A. Cope. *Kew Bull.* 50(1): 111 (1995).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Somalia, Sanaag: *Hemming & Watson 3286* (K holo).

**Illustrations (Books):** T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995).

**Illustrations (Journals):** *Kew Bulletin* (50: 110, Fig.1 (1995)).

**Derivation** (Clifford & Bostock 2007): Gk. leprodes, rough. Lower glumes of sessile spikelet densely scabrid.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms 25–50 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades flat, 2–7 cm long, 1–2 mm wide, glaucous.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2–4, paired or digitate, 4–6 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs white. Rhachis internodes filiform or linear. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform or linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4–7 mm long, shorter than fertile, persistent. Companion sterile spikelet glumes chartaceous, glabrous, acute or acuminate, muticous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or elliptic, dorsally compressed, 6.5–9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 1 mm long, pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate or elliptic, 1 length of spikelet, herbaceous, much thinner above, 2-keeled, keeled laterally. Lower glume lateral veins ribbed, intercarinal veins distinct, intercarinal veins 5–7 in number. Lower glume surface convex or with a longitudinal median groove, scabrous. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume apex acuminate, awned, 1 -awned, awn 1–1.5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Somalia.

## **Andropogon leucostachyus** H. B. & K. *Nov. Gen. et Sp.* 1: 187. (1815).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, Sep, Venezuela: between Caripe and Cumana (P; IT: B-W-18654, BM, P).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (592, Fig. 140), S.A.Renvoize, *The Grasses of Bahia*, 1984, J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (22, Fig. 6), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1285, Fig. 251 & 254).

**Illustrations (Journals):** *Ruizia* (13:442 Fig 59d-e (1993)), *Revista Brasil. Bot.* (29: 297, Fig.22 (2006)).

**Derivation** (Clifford & Bostock 2007): Gk. leukos, white; stachys, ear of corn. The spikelets are white and sometimes invested with copious white hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–110 cm long, 0.7–2 mm diam. Culm-internodes solid. Culm-nodes glabrous. Lateral branches sparse. Leaves mostly basal. Leaf-sheaths keeled, glabrous on surface. Ligule a ciliolate membrane, 0.7–1.7 mm long. Leaf-blades flat or conduplicate, 15–32 cm long, 1.5–2.5 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2–4, paired or digitate, 2–5.5 cm long. Rhachis fragile at the nodes, plumose on surface, plumose on margins. Rhachis hairs lengthening towards internode tip, 5–10 mm long. Rhachis internodes linear, 1.8–2.7 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2.5–3.5 mm long, plumose, with 5–10 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 1.1–1.5 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 2–3.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, inserted. Spikelet callus hairs 4–5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1.8–2.6 mm long, hyaline, 2 -veined, ciliate on margins, fringed above. Fertile lemma lanceolate, 1.5–2.5 mm long, hyaline, without keel. Lemma apex entire, acuminate, muticous or mucronate. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

$2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. North America, South America.

**Country /Province /State.** Mexico. Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Paraguay, Uruguay.

**TDWG4.** Roraima, Amazonas, Acre, Rondonia, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Buenos Aires, Corrientes, Entre Rios, Misiones. Veracruz. Guerrero, Oaxaca. Campeche, Chiapas, Tabasco.

**Andropogon liebmannii** Hack. *Flora* 68: 132. (1885).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Chinantla: *Liebmann 77* (C lecto, MICH, UC, US).

**Recent Synonyms:** *Andropogon mohrii* Hack., *Flora*, 68: 132. (1885).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (658).

**Derivation** (Clifford & Bostock 2007): in honor of Frederik Michael Leibmann (1813–56), Danish botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–100 cm long. Lateral branches sparse. Leaf-sheaths glabrous on surface or pilose. Ligule an eciliate membrane, 0.5–1 mm long, brown. Leaf-blades 10–30 cm long, 2–6 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 4–5, digitate, 2–4 cm long, bearing 5–10 fertile spikelets on each. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 6–8 mm long. Rhachis internodes filiform, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3–4 mm long, plumose, with 6–8 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, 1–2 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.5–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 13–17 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 1.

$N = 10$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. North America.

**Country /Province /State.** Southeastern USA, Mexico. Alabama, Georgia, Louisiana, North Carolina, South Carolina. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico.

**TDWG4.** Mexico State, Puebla. Hidalgo, Queretaro. Veracruz. Jalisco, Michoacan, Nayarit, Oaxaca.

**Andropogon ligulatus** (Stapf) W.D. Clayton. *Kew Bull.* 32(1): 2 (1977).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Zimbabwe. **Basionym or Replaced Name:** *Andropogon laxatus* var. *ligulatus* Stapf, *Fl. Trop. Afr.* 9:238 (1919). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Mozambique Distr. Rhodesia: Mashonaland, Charter Distr., *Mundy s.n.* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ligula*, small tongue; -ata, possessing. Origin uncertain.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–100 cm long. Ligule an eciliate membrane, 1.5–3 mm long. Leaf-blades 10–25 cm long, 1–2 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence simple or compound, scanty, open.

Inflorescence composed of racemes, terminal and axillary or terminal, subtended by a spatheole. Spatheole linear, 5–8 cm long. Racemes 2(–4), paired, sinuous, 4–9 cm long. Rhachis fragile at the nodes, villous on margins or plumose on margins. Rhachis hairs 2–5 mm long. Spikelet packing lax. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets ascending, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, villous or plumose, with 2–5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas or containing empty lemmas, lanceolate, dorsally compressed, 5–7 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acute, muticous or awned, one glume awned, with 0–1 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5.5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous or awned, awn 0–1 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong.

**Distribution (TDWG), Continent.** Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa. Tanzania. Malawi, Mozambique, Zambia.

**Andropogon lima** (Hack.) Stapf. Prain, *Fl. Trop. Afr.* 9: 217 (1918).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Cameroon. **Basionym or Replaced Name:** *Andropogon amethystinus* var. *lima* Hack., *DC., Monogr. Phan.* 6:464 (1889). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Mann 2084*, Dec 1862, Cameroon: mountains 2700 m (W; IT: K, US-1037914 (ex K)).

**Illustrations (Books):** S. Phillips, *Poaceae* (Gramineae) in I. Hedberg & S. Edwards, *Flora of Ethiopia and Eritrea* (1995) (323, Fig. 130).

**Derivation** (Clifford & Bostock 2007): *L. lima*, file. Leaves or glumes scabrid.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths glabrous. Culms 45–100 cm long. Ligule an eciliate membrane. Leaf-blades erect, 15–50 cm long, 2 mm wide, stiff. Leaf-blade midrib widened (0.33 width of blade). Leaf-blade surface scabrous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2(–5), paired, 6–14 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform or linear. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform or linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, linear or lanceolate, dorsally compressed, 4.5–8 mm long, shorter than fertile, persistent. Companion sterile spikelet glumes chartaceous,

glabrous, acute, awned, one glume awned, with 0.5–3 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 6.5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 2–5 in number. Lower glume surface flat or concave. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume awned, 1 -awned, awn 2–4 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5–0.6 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Cameroon, Rwanda. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Malawi.

**Andropogon lindmanii** Hack. ex Lindm. *Svensk. Vet.-Akad. Handl.* 4 no. 6. 6. (1900).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. in Brasilia australi, Rio Grande do Sul, Quinta prope oppidum Sco Pedro do Ri Grande, locis arena mobili obtectis, mens Dec. florens, *Exp. I. Regnell, A. 855 [Lindmann coll.]* (HT: S).

**Illustrations (Books):** B.Rosengurt, *Gramineas Uruguayas I* (1970) (160, Fig. 62).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 297, Fig.23 (2006)).

**Derivation** (Clifford & Bostock 2007): in honor of Carl Axel Magnus Lindman (1856–1928) Swedish botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms erect, 40–100 cm long. Culm-nodes glabrous. Leaf-sheaths 5–10 cm long, glabrous on surface. Ligule an eciliate membrane, 1.4 mm long, scarious. Leaf-blades 3–30 cm long, 2–4 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade apex acute.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 6.5–8 cm long. Racemes 2–3, paired or digitate, 2.5–7 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 7–8 mm long. Rhachis internodes filiform, 0.66 length of fertile spikelet. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 0.75 length of fertile spikelet, villous, with 7–8 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 4.8–6 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.8–4.6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted. Spikelet callus hairs 2.5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, 1.6–2.8 mm long, hyaline, without keel, 1 -veined, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5.5–9 mm long overall, with a straight or slightly twisted column. Column of lemma awn 0.5–1.2 mm long, glabrous.

**Flower and Fruit.** Anthers 3, 0.8–0.9 mm long. Caryopsis 2.4 mm long, dark brown.

*N* = 30 (1 ref TROPICOS).

**Distribution (TDWG).** Continent. South America.



**Country /Province /State.** Brazil, Southern South America. Brazil South. Uruguay. Catarina, Rio Grande do Sul.

**Andropogon lividus** Thw. *Enum. Pl. Zeyl.* 367. (1864).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Sri Lanka. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: TYPE COLLECTION: *G.H.K. Thwaites 953 C.P.*, 1866, Sri Lanka (US-76232).

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills* (1996) (780, Pl. 780).

**Derivation** (Clifford & Bostock 2007): L. leaden. Spikelets grey or purple.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations flabellate. Culms 25–90 cm long. Leaf-sheath auricles erect, 2–6 mm long. Ligule an eciliate membrane, 2–6 mm long. Leaf-blades erect, 7–20 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal or terminal and axillary. Racemes 2(–4), paired, 2–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes clavate. Rhachis internode tip transverse, cupuliform, with scarious rim. Raceme-bases brief, unequal (the longer measured), 3–5 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 6–7 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acute, muticous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, 6–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, winged on keel, winged narrowly, winged near apex. Lower glume intercarinal veins distinct, 3–7 in number. Lower glume surface flat or concave. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 9–13 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** *N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India, Sri Lanka.

**TDWG4.** Tamilnadu.

**Andropogon longiberbis** Hack. *Flora* 68: 131. (1885).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *A.P. Garber 1877*, 1877, USA: Florida (W; ILT: MO, NY, US-75610 (fragm.), W, W). LT designated by Campbell, *J. Arnold Arbor.* 64: 223 (1983).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (662).

**Derivation** (Clifford & Bostock 2007): L. longus, long; barba, beard.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–100 cm long. Lateral branches ample. Leaf-sheaths hirsute. Ligule an eciliate membrane. Leaf-blades 25–50 cm long, 3–7 mm wide. Leaf-blade surface scabrous, rough adaxially, hirsute, hairy abaxially.

**Inflorescence.** Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 3–5 cm long, brown. Racemes 2(–4), paired, 3–4 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 8–10 mm long. Rhachis internodes linear, 2 mm long. Rhachis internode tip transverse,

cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 4 mm long, plumose, with 8–10 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or represented by single glumes, linear, 0–1 mm long, shorter than fertile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, 2-keeled, keeled laterally. Lower glume primary vein ciliolate. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 12–16 mm long overall.

**Flower and Fruit.** Anthers 1.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Southeastern USA. Florida, South Carolina. Caribbean. Bahamas.

### **Andropogon macrophyllus** Stapf. Prain, *Fl. Trop. Afr.* 9: 264 (1918).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Nigeria. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *W. MacGregor 248*, Feb 1902, Nigeria: Lagos (K; IT: US-1037904).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. makros, large; phyllon, leaf. Leaf-blades large.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms robust, 200–350 cm long, 6–12 mm diam. Leaf-sheaths outer margin hairy. Ligule a ciliolate membrane, 2–4 mm long. Collar without external ligule. Leaf-blade base tapering to the midrib. Leaf-blades 40–75 cm long, 20–40 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence compound, paniculate, 60–120 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole lanceolate, 6–10 cm long, scarious or herbaceous. Racemes 2, paired, 4–7 cm long. Rhachis fragile at the nodes, glabrous on surface or pubescent on surface, ciliate on margins. Rhachis hairs 2 mm long. Rhachis internodes clavate, 4 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, 4 mm long, ciliate, tip lobed (bilobed).

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 4–5 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, acute, mucronate. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct, 8–10 in number. Lower glume surface flat or with a longitudinal median groove. Upper glume lanceolate, membranous, 1-keeled, 3 -veined. Upper glume surface puberulous. Upper glume margins ciliate. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 5 mm long, hyaline, 2 -veined, ciliate on margins. Fertile lemma oblong, hyaline, without keel, 1 -veined, 0–3 -veined. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 9–16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong.

**Flower and Fruit.** Anthers 3, 4–5 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa. Guinea, Ivory Coast, Liberia, Nigeria, Sierre Leone, Togo. Annobon, Principe & Sao Tome, Bioko.

**Andropogon macrothrix** Trin. *Mem. Acad. Petersb. Ser. 6, 2: 270* (1833).

Regarded by K as a synonym (*A. ternatus*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: OM: 1288, Dec 1824, Brazil: in camp. siccis Tijeuca (LE). HT: *G.H. von Langsdorff s.n.*, Brazil: Serra da Lapa Brasiliae (LE-TRIN-0256.02; IT: US-75611 (fragm.)). ST: *F. Sello 212*, Brazil: Rio de Janeiro (L).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1285, Fig. 251 & 254), B.Rosengurt, *Gramineas Uruguayas I* (1970) (162, Fig. 63).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 297, Fig.24 & 298, Fig.25 (2006)).

**Derivation** (Clifford & Bostock 2007): Gk. makros, large; thrix, hair. Pedicels bearing long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Flower and Fruit.** *N* = 30 (1 ref TROPICOS). *2n* = 20 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** **Western South America, Brazil, Southern South America.** Bolivia. Brazil West Central, Brazil Southeast, Brazil South. Paraguay, Uruguay.

**TDWG4.** Corrientes, Misiones.

**Andropogon manni** Hook. f. *Journ. Linn. Soc. 7: 232*. (1864).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Fernando Po. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Fernando Po: Mann 1475 (K syn);.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Gustav Mann (1836–1916) German botanist and plant collector employed as gardener at Royal Botanic Gardens, Kew, England.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths papery or coriaceous, glabrous. Basal innovations flabellate. Culms 10–60 cm long. Ligule an eciliate membrane. Leaf-blades erect, conduplicate, 2–25 cm long, 2–8 mm wide, stiff.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes (2–)3–10, digitate, 2–7 cm long. Central inflorescence axis 0–3 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs white, 0.5–1 mm long. Rhachis internodes filiform or linear, 3–5 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform or linear, 3–5 mm long, ciliate, with white hairs, with 0.5–1 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 5–8 mm long, as long as fertile, persistent. Companion sterile spikelet glumes chartaceous, glabrous, acute, mucous or mucronate. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 0.5 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, purple, 2-keeled, keeled laterally. Lower glume intercarinal veins absent or obscure, 0–4(–7) in number. Lower glume surface flat or concave, glabrous. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume mucous or awned, 1 -awned, awn 0–5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.25–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4–14 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** **West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa.** Ivory Coast, Sierre Leone. Cameroon, Annobon, Principe & Sao Tome, Bioko. Sudan. Tanzania, Uganda. Malawi, Mozambique, Zambia, Zimbabwe. Limpopo, Mpumalanga, Swaziland.

**Andropogon monocladus** A.Zanin & Longhi-Wagner. *Novon* 13(3): 370 . (2003).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brasília: Reserva Ecológica do IBGE, 4 Aug 1979, *E.P. Heringer et al. 1716*, Brazil (Bahia, Distrito Federal) HT: IBGE; IT: CEN, ICN, SP, UEC

**Illustrations (Journals):** *Novon* (13: 371 Fig 2 (2003)), *Revista Brasil. Bot.* (29: 298, Fig.298 (2006)).

**Derivation** (Clifford & Bostock 2007): Gk *monos*, one; *klados*, a shoot. Culms with a solitary branch at each node.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 170–250 cm long, 9–10 -noded. Culm-internodes distally glabrous. Leaf-sheaths mostly shorter than adjacent culm internode, hirsute. Ligule a ciliate membrane, 1–1.2 mm long, truncate. Leaf-blades 22–70 cm long, 5–7 mm wide. Leaf-blade surface glabrous or hirsute, hairy on both sides. Leaf-blade margins scabrous. Leaf-blade apex abruptly acute or acute.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 3.5–7 cm long. Peduncle 1.5–6.5 cm long. Racemes 1, single, 2.5–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear, 2.2–3.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2.2–3.5 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 3–5.5 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, 2 -veined. Lower glume primary vein scaberulous. Lower glume intercarinal veins absent. Lower glume surface concave. Lower glume apex erose or dentate, 2 -fid. Upper glume linear, 3.5–4 mm long, coriaceous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume margins ciliate. Upper glume apex acuminate, muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3–4 mm long, hyaline, 2–3 -veined, ciliate on margins, fringed above. Fertile lemma lanceolate, 3–3.5 mm long, hyaline, without keel, 1–3 -veined, 0–3 -veined, one-veined or several-veined. Lemma apex lobed, 2 -fid, incised 0.2–0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–9 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous. Palea 0.8–1.2 mm long, hyaline, 0 -veined, without keels. Palea apex erose.

**Flower and Fruit.** Lodicules 2, 0.8 mm long. Anthers 3, 0.6–1 mm long, yellow. Caryopsis 2–5 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central.

**Andropogon multiflorus** S.A. Renvoize. *Gramineas de Bolivia*: 596 (1998).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolivia: La Paz: Iturralde, Luisita, *Haase 1* (HT: LPB; IT: K).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (589, Fig. 138).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 298, Fig.28 (2006)).

**Derivation** (Clifford & Bostock 2007): L. *multus*, many; *flos*, flower. Spikelets with more florets than those of related species.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms erect, 160–190 cm long. Ligule an eciliate membrane. Leaf-blades flat or conduplicate, 28–30 cm long, 1.5–4 mm wide. Leaf-blade apex acute.

**Inflorescence.** Synflorescence compound, linear, 50 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2–6, paired or digitate, 2.5–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis

internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 3–4 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex muticous.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America. Bolivia, Colombia.

**Andropogon munroi** C. B. Clarke. *Journ. Linn. Soc.* 25: 87 t. 37.[Feb.] (1889).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (& as *A. tristis*, *Cymbopogon hookeri*, *C. tibeticus*).

**TYPE** from India. **Basionym or Replaced Name:** *Cymbopogon munroi* (C.B. Clarke) H.J. Noltie, *Edinburgh J. Bot.*, 56(3): 400 (1999), *C. hookeri* (Munro ex Hack.) Stapf ex Bor, *Indian Forest Rec., n. s. Bot.*, 1 92 (1938). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Muneypore: *Clarke 4197*.

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (807, Fig. 806 as *Cymbopogon*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 874).

**Derivation** (Clifford & Bostock 2007): in honor of William Munro (1818–1880) Scots-born British soldier and amateur botanist who collected extensively in India.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–150 cm long. Ligule an eciliate membrane. Leaf-blades 15–30 cm long, 3–7 mm wide. Leaf-blade surface glabrous or pubescent.

**Inflorescence.** Inflorescence composed of racemes, terminal or terminal and axillary. Racemes 2–4(–8), digitate, 2.5–7.5 cm long. Central inflorescence axis 0.3–1.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, crateriform, with lobed rim. Raceme-bases brief or filiform, 4–8 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, elliptic or oblong, dorsally compressed, 4.5–6.5 mm long, as long as fertile, persistent. Companion sterile spikelet glumes chartaceous, muticous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, 4.5–6.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic or oblong, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally or laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, chartaceous, 1-keeled.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–15 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG).** Continent. Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central, Tibet. **Indian Subcontinent.** Assam, Eastern Himalaya, India, Nepal, Pakistan, West Himalaya.

**TDWG4.** Sichuan, Yunnan. Bhutan. Nagaland.

**Andropogon nashianus** Hitchcock. *Contrib. U. S. Nat. Herb.* 12: 193 (1909).

Regarded by K as a synonym (*A. ternatus*).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Wright* 3899, 1865, Cuba (US-35320; IT: NY-71015 (possible)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of George Valentine Nash (1864–1921) United States botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, culms solitary or caespitose. Culms 30–45 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface or pilose. Ligule an eciliate membrane. Leaf-blades 1–4 cm long, 1 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2, paired, 3–4 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 5–7 mm long. Rhachis internodes clavate, 2–3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2–3 mm long, plumose, with 5–7 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 1–2 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 3–3.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled dorsally. Lower glume primary vein scabrous. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma lanceolate, hyaline, without keel, 1 -veined, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 10–15 mm long overall.

**Flower and Fruit.** Anthers 1.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Caribbean. Cuba.

**Andropogon perdignus** Sohns. *Mem. N. Y. Bot. Gard.* 9 : 274 (1957).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Cerro Duida: Maguire, Cowan & Wurdack 29572 (US holotype).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. per, very; dignus, worthy. Worthy of recognition on several counts and especially the height of the culms.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 200–300 cm long. Culm-internodes glaucous. Culm-nodes glabrous. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 2 mm long. Leaf-blades 20–45 cm long, 10–15 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade surface glabrous.

**Inflorescence.** Synflorescence compound, linear, 25–35 cm long, open.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 2–4 cm long. Racemes 1, single, 2–4 cm long. Rhachis fragile at the nodes, scabrous on surface, villous on margins. Rhachis internodes clavate, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, villous, hairy on margins.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 2.5–3 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, 4 -veined. Lower glume primary vein scaberulous, ciliolate. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled, 3 -veined. Upper glume primary vein pubescent (above). Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2-keeled, ciliolate on margins. Fertile lemma lanceolate, 3–3.7 mm long, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–20 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous. Palea 2.5–3 mm long, hyaline, 2 -veined, 2-keeled.

**Flower and Fruit.** Lodicules 2, 0.5–0.7 mm long. Anthers 3, 1.5 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

### **Andropogon perligulatus** Stapf. *Kew Bull.* 1908. 410. (1908).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Togo. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Togo, Misahohe: *Baumann 318* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. per, very; ligulus, tongue; -atus, possessing. Ligule prominent.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–150 cm long. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect, 3–12 mm long. Ligule an eciliate membrane. Leaf-blades 10–40 cm long, 1–5 mm wide.

**Inflorescence.** Synflorescence simple or compound, linear.

Inflorescence composed of racemes, terminal or terminal and axillary, subtended by an unspecialized leaf-sheath or a spatheole. Racemes 2, paired, bilateral (as to sterile spikelets), 3–8 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes cuneate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 3.5–6 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, scaberulous, glabrous, acute, muticous or mucronate. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed. Upper glume linear, chartaceous, 1-keeled. Upper glume muticous or awned, 1 -awned, awn 0–3 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–20 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Benin, Burkina, Ghana, Ivory Coast, Mali, Nigeria, Senegal, Sierre Leone, Togo. Central African Republic, DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Angola, Malawi, Zambia, Zimbabwe.

### **Andropogon pinguipes** Stapf. *Kew Bull.* 1908. 411. (1908).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Senegal. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Senegambia: M'Bidjen, *Thierry 92* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. pinguis, fatty; pes, foot. Pedicels clavate and glossy on the back.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms 30–150 cm long. Leaf-sheath auricles absent or erect, 0–3 mm long. Ligule a ciliate membrane. Leaf-blade base tapering to the midrib. Leaf-blades 10–20 cm long, 3–5 mm wide. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence compound, linear, 15–30 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole lanceolate, 6–8 cm long, scarious. Racemes 2, paired, 3–4.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes oblong. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, inflated, 4 mm long, ciliate, tip lobed (bilobed).

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, elliptic, dorsally compressed, 6–6.5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, glabrous or pubescent, acute, awned, one glume awned, with 1–4 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct, 7–8 in number. Lower glume surface flat or with a longitudinal median groove. Lower glume apex obtuse. Upper glume lanceolate, chartaceous, 1-keeled, 3 -veined. Upper glume margins ciliate. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma oblong, 3.5 mm long, hyaline, without keel. Lemma margins ciliate. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–22 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3, 3.5 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa. Senegal.

### **Andropogon platyphyllus** Hack. *Monogr. Phan.* 6: 428–429 (1889).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Karsten s.n.*, Colombia: Gatame prope Gagueza (W; IT: US).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

### **Andropogon pohlianus** Hack. *Mart. Fl. Bras.* 2, 3:304. (1883).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *J.B.E. Pohl 1541*, no date, Brazil: Goias (US-75615).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29): 298, Fig.30 (2006)).

**Derivation** (Clifford & Bostock 2007): L. -anus, indicating connection. In honor of Johann Emanuel Pohl (1782–1834) Bohemian botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 100–150 cm long. Ligule an eciliate membrane. Leaf-blades lanceolate, 10–15 cm long, 5–16 mm wide.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2, paired, 2–3 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 2–3 mm long. Rhachis internodes cuneate, 5 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, 4 mm long, ciliate, with 2–3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 7–8 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret



male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, 4–5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–18 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central. Mato Grosso, Goiás.

### **Andropogon polytychos** Steud. *Syn. Pl. Gram.* 380. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A. polytychos*, *Dichanthium polytychum*).

**TYPE** from Sri Lanka. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ceylon.

**Illustrations (Books):** N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (92, Fig. 1 as *A. polytychos*).

**Derivation** (Clifford & Bostock 2007): Gk. polys, several; ptyx, fold. Origin uncertain.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations flabellate. Culms 30–60 cm long. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades erect, 15–25 cm long, 2–7 mm wide. Leaf-blade surface pilose.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes (1–)2–3(–6), paired or digitate, 4–8 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, crateriform, with simple rim. Raceme-bases linear, subequal, 5–15 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate or elliptic, dorsally compressed, 6–7 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acute, muticous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, wingless. Lower glume intercarinal veins distinct, 5 in number. Lower glume surface flat or concave. Lower glume apex acute. Upper glume lanceolate, chartaceous, 1-keeled, wingless. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma linear, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 9–17 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.**  $2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent, Indo-China.** India, Sri Lanka. Myanmar, Thailand.

**TDWG4.** Kerala. Tamilnadu.

### **Andropogon pringlei** Scribn. & Merrill. *U.S. Dept. Agric. Agrost. Bull.* 24: 7. (1901).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.G. Pringle 6577*, 23 Oct 1896, Mexico: Distrito Federal: Valley of Mexico, dry soil, 8000 ft (US-287863; IT: LE, S-G405).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Cyrus Guernsey Pringle (1838–1911) United States botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short, woody. Culms 100–120 cm long. Lateral branches sparse. Leaf-sheaths pilose. Ligule an eciliate membrane, 1 mm long. Leaf-blades involute, 20–25 cm long, 3 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2, paired, 3–6 cm long, bearing 5–10 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 3 mm long. Rhachis internodes linear, 5–6 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 5–6 mm long, ciliate, with 3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, 2.5–6 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 8–12 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma lanceolate, hyaline, without keel. Lemma margins ciliate. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 17–18 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico.

**TDWG4.** Distrito Federal, Mexico State, Puebla. Queretaro, Zacatecas. Veracruz. Jalisco, Michoacan, Oaxaca. Chiapas.

**Andropogon pseudapricus** Stapf. Prain, *Fl. Trop. Afr.* 9: 242 (1918).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Nigeria. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Barter 936*, Nigeria (K).

**Illustrations (Books):** W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi*, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (133, Pl. 10).

**Derivation** (Clifford & Bostock 2007): Gk. pseudos, false. Resembling *Andropogon apricus*.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 50–150 cm long. Ligule an eciliate membrane. Leaf-blades 8–40 cm long, 1–5 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Synflorescence compound.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, exerted or embraced at base by subtending leaf. Spatheole linear or lanceolate, 5 cm long. Racemes 2, paired, 2–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes oblong or cuneate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, oblong or cuneate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, elliptic, dorsally compressed, 4–5 mm long, shorter than fertile. Companion sterile spikelet glumes membranous, glabrous to villous, acute, awned, both glumes awned, with 5–11 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed, glabrous. Upper glume linear, chartaceous, 1-keeled. Upper glume awned, 1 -awned, awn 8–16 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 30–50 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong.

**Flower and Fruit.** *N* = 20 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Benin, Burkina, Gambia, Ghana, Guinea-Bissau, Guinea, Ivory Coast, Mali, Nigeria, Senegal, Sierre Leone, Togo. Cameroon, Gabon, DRC. Chad. Tanzania. Malawi.

**Andropogon pteropholis** W. D. Clayton. *Hook. Ic. Pl.* 7 t. 3644 (1967).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ghana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ghana, Gambaga to Bawku: *Rose Innes 30268* (K holo).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.3644 (1967)).

**Derivation** (Clifford & Bostock 2007): Gk. pteron, feather; pholis, scale of a snake. Glume keels winged.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 150–200 cm long, 5–6 -noded. Ligule an eciliate membrane, 1–2 mm long. Leaf-blade base with a false petiole. Leaf-blades 15–25 cm long, 2–8 mm wide. Leaf-blade surface pubescent, hairy on both sides. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Synflorescence compound, paniculate, 30–40 cm long, lax.

Inflorescence composed of racemes, terminal, subtended by a spatheole. Racemes 2, paired, 4–6 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes clavate, 8 mm long. Rhachis internode tip oblique, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, ciliate, tip lobed (bilobed).

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 8–10 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, acute, awned, both glumes awned, with 6–13 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, acuminate, 11–13 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 2 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, winged on keel, winged all along. Lower glume intercarinal veins distinct, 10 in number. Lower glume surface flat or with a longitudinal median groove. Lower glume apex dentate, 2 -fid, awned, 2 -awned, awn 1–3 mm long. Upper glume lanceolate, chartaceous, 1-keeled, winged on keel, 3 -veined. Upper glume margins ciliate. Upper glume awned, 1 -awned, awn 6 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 9 mm long, hyaline, 3 -veined, ciliate on margins. Fertile lemma lanceolate, 7 mm long, hyaline, without keel. Lemma margins ciliate. Lemma apex dentate, 2 -fid, incised 0.15 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 30–40 mm long overall, with twisted column. Column of lemma awn glabrous. Palea elliptic, 0.75 length of lemma.

**Flower and Fruit.** Lodicules 2, cuneate, 1 mm long, fleshy, truncate.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Ghana.

**Andropogon pumilus** Roxb. *Fl. Ind.* 1: 277. (1820).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: A native of Coromandel.

**Illustrations (Books):** K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 802 & 803).

**Derivation** (Clifford & Bostock 2007): L. dwarf, low growing. Habit typically depauperate.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending, 15–45 cm long. Culm-nodes glabrous. Ligule an eciliate membrane. Leaf-blades 7.5–12.5 cm long, 2.5–4 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, paniculate, 4–10 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 0.5–2 cm long. Racemes 2, paired, deflexed, 1.3–2 cm long. Rhachis tough, deciduous from axis, ciliate on margins. Rhachis internodes cuneate, 2.5 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Raceme-bases flattened, subequal, 1 mm long, shortly lobed (4-lobed), persistent. Spikelets squeezed between internode and pedicel, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, oblong, 2.5 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, dorsally compressed, 3–3.5 mm long, shorter than fertile, persistent. Companion sterile spikelet glumes chartaceous, keeled, 5 -veined, acute, mucous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface deeply depressed. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume mucronate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret linear, 3 mm long, hyaline, 2 -veined. Fertile lemma linear, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent, Indo-China.** Myanmar.

**TDWG4.** Madhya Pradesh, Maharashtra.

**Andropogon pungens** T.A. Cope. Kew Bull., 50(1): 109 (1995).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Somalia, Galguduud: *Herlocker 329* (K holotype).

**Illustrations (Journals):** *Kew Bulletin* (50: 110, Fig.1 (1995)).

**Derivation** (Clifford & Bostock 2007): callus pungent.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–125 cm long. Ligule an eciliate membrane. Leaf-blades flat, 6.5–20 cm long, 1–5.5 mm wide.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Racemes 2, paired, 4.5–7 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs white. Rhachis internodes cuneate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets squeezed between internode and pedicel, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 5–7 mm long, as long as fertile, persistent. Companion sterile spikelet glumes chartaceous, glabrous, ciliate on margins, acute or acuminate, awned, both glumes awned, with 1.5–4 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, dorsally compressed, 5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 2–3.5 mm long, pilose, base pungent, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume apex acuminate, awned, 1 -awned, awn 3–6 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 40–60 mm long overall, with twisted column. Column of lemma awn puberulous. Palea hyaline, 0 -veined.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Somalia. Kenya.

**Andropogon pusillus** Hook. f. *Journ. Linn. Soc.* 7: 233. (1864).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Cameroon. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cameroon, Cameroon Mt.: *Mann 2097* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. very small. Plants of small stature.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms geniculately ascending or decumbent, 5–15 cm long. Leaf-sheaths hirsute, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blades 2–3 cm long, 2–3 mm wide. Leaf-blade surface hirsute. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 3–4 cm long. Racemes 2, paired, deflexed, 2.5–5 cm long, bearing few fertile spikelets, bearing 2–4 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform, 3 mm long. Rhachis internode tip transverse, flat, with simple rim. Raceme-bases linear, subequal, 1 mm long, pilose, hairy in axils, persistent. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, ciliate.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes.

Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas or containing empty lemmas, lanceolate, dorsally compressed, 7–8 mm long, longer than fertile, persistent. Companion sterile spikelet glumes chartaceous, keeled, without depressions or pitted (2 pits), dentate, 2 -fid, acute, awned, one glume awned, with 6–8 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, attached transversely. Spikelet callus hairs 1–2 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous or herbaceous, 2-keeled, keeled above, keeled laterally. Lower glume primary vein scabrous. Lower glume intercarinal veins distinct, 4–6 in number. Lower glume surface convex or with a longitudinal median groove, pitted (2 pits). Lower glume apex dentate, 2 -fid. Upper glume oblong, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 3–6 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 35–45 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa. Nigeria. Cameroon.

**Andropogon reinoldii** Leon. *Mem. Soc. Poey*, 4: 81 (1922).

Regarded by K as a synonym (*A. glomeratus*).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Bro. Leon et al.* 9932, 11 Jul 1921–14 Aug 1921, Cuba: Oriente: Sierra Maestra, loma del Gato (cresta) (HAC-405; IT: US-1296094).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–80 cm long. Leaf-sheaths keeled, glabrous on surface. Ligule an eciliate membrane, 1 mm long. Leaf-blades flat or conduplicate, 10–35 cm long, 2.5–5 mm wide. Leaf-blade surface scabrous, glabrous.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 4–5 cm long. Peduncle 3–5 cm long. Racemes 2, paired, 2–4 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 4–5 mm long. Rhachis internodes filiform, 2.5–3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 2.5–3 mm long, plumose, with 4–5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, curved or geniculate, 7–8 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Bahamas, Cayman Is, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico.

**Andropogon sanlorenzanus** T.J. Killeen. *Ann. Missouri Bot. Gard.*, 77(1): 137 (1990).

Regarded by K as a synonym (*A. carinatus*).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Killeen 2832*, 22 Oct 1987, Bolivia: Santa Cruz (ISC; IT: F, LPG, MO, SI, US-3181403).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-anus*, indicating location. From Serania de San Lorenzo, Department of Santa Cruz, Bolivia.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms erect, 30 cm long. Leaf-sheaths keeled. Ligule an eciliate membrane. Leaf-blades flat or conduplicate, 6–13 cm long, 2–3 mm wide. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 4–6, digitate, 3–6 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 5.5–6 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acuminate, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 1.5 mm long overall.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America.** Bolivia.

**Andropogon scabriglumis** Swallen. *Mem. N. Y. Bot. Gard.* 9: 144 (1955).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *W.H. Camp E-3472*, 29–31 May 1945, Ecuador: Chimborazo: Cañon of the Rmo Chanchan, 5000–7000 ft., on open deforested sloped with small patches of scrub in the draws, directly above the village of Huigra (US-2011209).

**Illustrations (Books):** G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 196, Fig. 23 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. scaber*, rough; gluma, husk. Glumes scabrous.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 70–80 cm long. Lateral branches sparse. Leaf-sheaths keeled, glabrous on surface. Ligule an eciliate membrane, 1 mm long. Leaf-blades 18–20 cm long, 4–5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2, paired, 3–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 2 mm long. Rhachis internodes clavate, 4 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, 3 mm long, ciliate, with 2 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 7 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, mucronate or awned, one glume awned, with 0.5–1 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume primary vein scabrous. Lower glume intercarinal veins distinct. Lower glume surface flat or concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–18 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America. Ecuador.

**Andropogon schirensis** Hochst. *Tent. Fl. Abyss.* 2: 456. (1851).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia, Shire: *Schimper 1807* (P holo). **Basionym or Replaced Name:** *Andropogon ravus* J. G. Anders., *Bothalia*, 7: 417 (1960). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Schimper 1807*, Ethiopia (P).

**Illustrations (Books):** W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi*, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (135, Pl. 11), F.N.Hepper, *F.W.T.A.* 3(2) (1972) (487, Fig.454), R.M.Pohill, F.T.E.A., *Gramineae* 3(1982):781, Fig 181), G.V.Pope et al., *Flora Zambesiaca* 10.

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Schire Highlands, Ethiopia.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths withering or persistent and investing base of culm, with fibrous dead sheaths. Culms 40–250 cm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades flat or convolute, 9–70 cm long, 2–12 mm wide.

**Inflorescence.** Inflorescence composed of racemes, terminal. Racemes 2, paired, unilateral (as to sterile spikelets), 5–25 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 1–3 mm long. Rhachis internodes cuneate, 4–5 mm long. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets squeezed between internode and pedicel, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, semiterete, ciliate.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 2 in number, barren, smaller than fertile. Basal sterile spikelet lemmas awnless.

Companion sterile spikelets well-developed, male, elliptic, dorsally compressed, 5–10 mm long, longer than fertile, persistent. Companion sterile spikelet glumes coriaceous, 13–15 -veined, acute, muticous. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 4.5–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–2 mm long, pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface deeply depressed. Upper glume lanceolate, coriaceous, much thinner above, 1-keeled, keeled above, 1 -veined. Upper glume lateral veins absent. Upper glume margins ciliolate. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4 mm long, hyaline, 2 -veined. Fertile lemma oblong, 4 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–40 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.**  $N = 10$  (1 ref TROPICOS).  $2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Benin, Burkina, Ghana, Guinea, Ivory Coast, Nigeria, Senegal, Sierre Leone, Togo. Cameroon, Congo, Gabon, Rwanda, DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Eastern Cape.

**Andropogon selloanus** (Hack.) Hack. *Bull. Herb. Boiss. Ser. 2*, 4. 266. (1904).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil & Paraguay. **Basionym or Replaced Name:** *Andropogon leucostachyus* subsp. *selloanus* Hack., *DC., Monogr. Phan.* 6:420 (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Sellow s.n.*, Brazil (B, P, W, US-75616 (fragm. ex B, W)). ST: *Balansa 279*, Paraguay (K).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (592, Fig. 140), S.A.Renvoize, *The Grasses of Bahia*, 1984 (276, Fig. 104), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1285, Fig. 251 & 254), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (501, Fig. 211), B.Rosengurt, *Gramineas Uruguayas I* (1970) (164, Fig. 64), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:6(1980)).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 298, Fig.31 (2006)).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Friedrich Sellow (1789–1831) German botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–110 cm long, 2–3.5 mm diam. Culm-internodes solid. Culm-nodes glabrous. Lateral branches sparse. Leaves mostly basal. Leaf-sheaths keeled, glabrous on surface. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades flat or conduplicate, 20–40 cm long, 3–5 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade apex obtuse, hooded.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Peduncle pilose above. Racemes 3–5, digitate, 3–6 cm long. Rhachis fragile at the nodes, plumose on surface, plumose on margins. Rhachis hairs lengthening towards internode tip, 5–10 mm long. Rhachis internodes linear, 2–2.8 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 3.5–3.8 mm long, plumose, with 5–10 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 0.6–1.2 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.5–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, inserted. Spikelet callus hairs 4–5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.



**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2–2.5 mm long, hyaline, 2 -veined, ciliate on margins, fringed above. Fertile lemma lanceolate, 1.5–2 mm long, hyaline, without keel. Lemma apex entire, acuminate, muticous or mucronate. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.6 mm long. Caryopsis linear, 1.7 mm long.

$N = 10$  (1 ref TROPICOS).  $2n = 20$  (3 refs TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Costa Rica, El Salvador, Honduras, Nicaragua, Panama. Cuba, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Argentina Northeast, Argentina Northwest, Paraguay, Uruguay.

**TDWG4.** Para, Amapa, Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Jujuy. Chaco, Cordoba, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe. Veracruz. Oaxaca. Campeche, Chiapas, Tabasco.

**Andropogon sincoranus** S.A. Renvoize. *Kew Bull.* 39(1): 181 (1984).

Regarded by K as a synonym (*A. ingratus*).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Brazil: Bahia: Barra da Estiva, *Harley et al.* 20765 (HT: CEPEC).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (277, Fig. 105).

**Derivation** (Clifford & Bostock 2007): L. -anum, indicating location. From Serra do Sincora, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms erect, slender, 70–100 cm long. Lateral branches sparse. Ligule an eciliate membrane. Leaf-blades 14–35 cm long, 2–3 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 5–6 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas, linear or lanceolate, 5 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, scaberulous, glabrous, acute, muticous. Companion sterile spikelet lemmas 3.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave, asperulous. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, muticous or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Northeast, Brazil Southeast.

**TDWG4.** Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo.

**Andropogon tectorum** Schum. & Thonn. *Beskr. Guin. Pl.* 49. (1827).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ghana. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Thonning s.n.*, Ghana.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. tectum, roof. Growing on earth roofs but not exclusively so.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 200–300 cm long, without nodal roots or with prop roots. Ligule an eciliate membrane or a ciliolate membrane, 1–2 mm long. Leaf-blade base tapering to

the midrib, with a false petiole. Leaf-blades lanceolate, 30–45 cm long, 10–25 mm wide, flaccid, light green. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence compound, paniculate, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole lanceolate, 4–7 cm long, membranous or herbaceous. Racemes 2, paired, 3–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 2–3 mm long. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 3 mm long, ciliate, tip lobed (bilobed).

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 4–5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acute, mucronate or awned, both glumes awned, with 0.5–1.5 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted. Spikelet callus hairs 1–1.5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins distinct. Lower glume surface flat or with a longitudinal median groove. Upper glume lanceolate, membranous, 1-keeled, 3-veined. Upper glume margins ciliate. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 2-veined, ciliate on margins. Fertile lemma linear, 3 mm long, hyaline, without keel. Lemma apex dentate, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 15–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 0.33 length of lemma.

**Flower and Fruit.** Anthers 3, 2 mm long.

$2n = 20$  (2 refs TROPICOS), or  $30$  (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa. Burkina, Ghana, Guinea-Bissau, Guinea, Ivory Coast, Liberia, Mali, Nigeria, Senegal, Sierre Leone. Central African Republic, Cameroon.

**Andropogon tenuiberbis** Hack. DC. *Monog. Phan.* 6: 435. (1889).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Sudan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Schweinfurth 2600*, Sudan: Seriba Ghatta (W; IT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. tenuis*, thin; berbe, beard. Awn slender.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms 100–250 cm long. Ligule a ciliate membrane. Leaf-blades revolute, 30–60 cm long, 2–3 mm wide, stiff. Leaf-blade margins spinulose.

**Inflorescence.** Synflorescence compound, paniculate, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 6–8 cm long. Racemes 5–40, digitate, straight or sinuous, 3–12 cm long. Rhachis fragile at the nodes, glabrous on margins or ciliate on margins. Rhachis hairs 0–2 mm long. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets ascending, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, straight or curved, glabrous or ciliate, with 0–2 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 3–5.5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acute, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 4–5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear or lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4 mm long, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.25–0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Senegal. DRC. Sudan. Tanzania.

**Andropogon ternarius** Michx. *Fl. Bor. Am.* 1: 57 (1803).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Michaux s.n.*, USA: in regione Wabash Georgia montosa &c. (P).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (656 as varieties *ternarius* & *cabanisii*), F.W.Gould, *The Grasses of Texas* (1975) (583, Fig. 306), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:7(1980)).

**Derivation** (Clifford & Bostock 2007): L. terni, three each; -arius, pertaining to. Spikelets occurring to triads.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths glabrous or pilose or villous. Culms erect, 70–120 cm long. Lateral branches ample. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 2–4 mm wide.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear. Racemes 2, paired, 3–6 cm long. Rhachis fragile at the nodes, plumose on surface, plumose on margins. Rhachis internodes filiform, 6–9 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 4–5 mm long, 0.9 length of fertile spikelet, plumose.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 1–2 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, ciliate on margins. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–25 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** North-central USA, South-central USA, Southeastern USA, Mexico. Iowa, Kansas, Missouri, Oklahoma. Texas. Alabama, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia. Northeast Mexico. Coahuila.

**Andropogon ternatus** (Spreng.) Nees. *Agrost. Bras.* 2: 326. (1829).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. **Basionym or Replaced Name:** *Saccharum ternatum* Spreng., *Syst.* 1: 283 (1825). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uruguay, Montevideo: Coll?.

**Recent Synonyms:** *Andropogon macrothrix* Trin., *Mem. Acad. Petersb. Ser.* 6(2) 270 (1833).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1285, Fig. 251 & 1301, Fig. 256), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (500, Fig. 210), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (593, Fig. 159), B.Rosengurt, *Gramineas Uruguayas I* (1970) (164, Fig. 64).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 298, Fig.32 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. terni*, three each; -ata, possessing. Spikelets in clusters of three.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms erect, 20–70 cm long, 3–4 -noded. Culm-nodes glabrous. Lateral branches sparse. Leaves mostly basal. Leaf-sheaths 2–9 cm long, glabrous on surface or puberulous. Ligule a ciliolate membrane, 0.4–0.6 mm long, truncate. Leaf-blades 4.5–30 cm long, 2–3.5 mm wide. Leaf-blade surface glabrous or pubescent, hairy adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4, paired or digitate, 2.5–7 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 7–8 mm long. Rhachis internodes linear, 0.66 length of fertile spikelet. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 0.75 length of fertile spikelet, villous, with 7–8 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, lanceolate, 2.4–5 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous, glabrous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–6.6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface concave. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous or awned, 1 -awned, awn 0.8–3 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3.8 mm long, hyaline, 2 -veined, ciliate on margins. Fertile lemma lanceolate, 3–4.6 mm long, hyaline, without keel, 1 -veined, 0–3 -veined. Lemma margins ciliate. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 13–22 mm long overall, with twisted column. Column of lemma awn 3.5–7 mm long, glabrous.

**Flower and Fruit.** Anthers 3, 1.5–2.3 mm long. Caryopsis 2–3 mm long, dark brown.

$2n = 30$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil, Southern South America. Venezuela. Bolivia. Brazil West Central, Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Mato Grosso, Goias, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Buenos Aires, Cordoba, Corrientes, Entre Rios, Misiones.

**Andropogon textilis** Rendle. *Cat. Welw. Afr. Pl.* 2: 144. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Angola. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Angola: Pungo Andongo: common in rather damp meadows between N-billa and Bumba, Mar 1857, *Welwitsch 7440* (LISU holo).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.3088 (1922)).

**Derivation** (Clifford & Bostock 2007): *L. textilis*, intertwined. Used for weaving or thatching.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–150 cm long. Ligule an eciliate membrane, 5–20 mm long. Leaf-blades 15–40 cm long, 1–5 mm wide.

**Inflorescence.** Synflorescence compound, open.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Racemes 1, single, 3–5 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis internodes clavate. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 6–7 mm long, longer than fertile. Companion sterile spikelet glumes chartaceous, ciliolate on margins, acute, awned, one glume awned, with 1–3 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed, glabrous or pilose. Upper glume linear, chartaceous, 1-keeled. Upper glume awned, 1 -awned, awn 5–12 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma oblong, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong, 0–2 -veined, without keels.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa. Tanzania. Angola, Malawi, Zambia, Zimbabwe.

**Andropogon thorelii** A. Camus. *Bull. Mus. Hist. Nat. Paris*, 26: 561. (1920).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Laos. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Laos: Kemarath (Thorel) Asia Oriental, ?*Thorel s.n.*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Clovis Thorel (1833–1911) French botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–40 cm long. Culm-internodes distally glabrous. Culm-nodes pubescent. Leaves mostly basal. Leaf-sheaths striately veined, smooth, glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 4–6 cm long, 1.5–2 mm wide. Leaf-blade midrib scarcely raised beneath. Leaf-blade venation indistinct. Leaf-blade surface smooth, glabrous.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear or lanceolate, 7–10 cm long. Racemes 2, paired, 3–3.5 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 4–5 mm long. Rhachis internodes filiform, 4 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets ascending, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 4.5 mm long, villous, with 4–5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 2–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted. Spikelet callus hairs 2.5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear or lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally, 5 -veined. Lower glume surface flat. Lower glume apex acute. Upper glume linear, 5 mm long, membranous, 1-keeled. Upper glume apex acute, muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4.5 mm long, hyaline, 2 -veined. Fertile lemma oblong, 1.5–1.8 mm long, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 12 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Laos.

**Andropogon tracyi** Nash. *Bull. N. York Bot. Gard.* 1: 433. (1900).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *S.M. Tracy* 3083, 14 Oct 1895, USA: Mississippi: Lowndes County: Columbus (NY-345592; IT: US-75626 (fragm.)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (660).

**Derivation** (Clifford & Bostock 2007): In honour of Samuel Mills Tracy (1847–1920) United States agronomist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–80 cm long. Lateral branches sparse. Leaf-sheaths keeled, smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 1–3 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex abruptly acute.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf or enclosed. Spatheole lanceolate, 4–5 cm long. Peduncle 1–3 cm long. Racemes 2, paired, 3–4 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 6 mm long. Rhachis internodes linear, 2–2.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 5–6 mm long, plumose, with 6 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or represented by single glumes, linear, 0–1 mm long, shorter than fertile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, 2-keeled, keeled dorsally. Lower glume primary vein ciliolate. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15–20 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 1.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southeastern USA.** Alabama, Arkansas, Florida, Georgia, Mississippi, North Carolina, South Carolina.

**Andropogon trichozygus** Baker. *Journ. Linn. Soc.* 20: 300. (1883).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Central Madagascar., *Baron 1807* (HT: K).

**Illustrations (Books):** J. Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (267, Fig. 97).

**Derivation** (Clifford & Bostock 2007): Gk. thrix, hairs; zygos, yoke. Spikelets in pairs subtended by a ring of hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–100 cm long. Ligule an eciliate membrane. Leaf-blades filiform, 15–30 cm long, 1 mm wide. Leaf-blade surface ribbed.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–8, paired or digitate, 5–8 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis internodes filiform, 2.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, plumose.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 4 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10 mm long overall, with twisted column. Column of lemma awn glabrous.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG). Continent.** Africa.  
**Country /Province /State.** Western Indian ocean. Madagascar.

**Andropogon tsaratananensis** A. Camus. *Bull. Soc. Bot. France*, 72: 591 (1925).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Mt. Tsaratanana: Perrier 16370.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Mt Tsaratanana, Madagascar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms erect or geniculately ascending, 50–70 cm long. Culm-internodes smooth, distally glabrous. Lateral branches ample. Leaf-sheaths striately veined, glabrous on surface or puberulous. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1.8–2.5 mm long. Leaf-blades 12–20 cm long, 2–4 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence simple.

Inflorescence composed of racemes. Racemes 2, paired, 5–8 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes cuneate, 3–5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 7–7.5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acute, awned, one glume awned, with 2 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted. Spikelet callus hairs 1.5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, 2-keeled, keeled dorsally. Lower glume surface deeply depressed. Lower glume margins ciliolate. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume primary vein ciliolate. Upper glume margins ciliolate. Upper glume awned, 1 -awned, awn 2.5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline. Fertile lemma oblong, 3.5 mm long, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 12–15 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Andropogon urbanianus** Hitchcock. *Bot. Gaz.* 54: 424. (1912).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Dominican Rep. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M.D. Fuertes 1420*, Sep 1911, Dominican Republic: Hispaniola I., Barahona Prov.: near Las Salinas, 100 m (US-75628; IT: LE, NY-71020).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Ignatz Urban (1848–1931) German botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 75–150 cm long. Ligule an eciliate membrane. Leaf-blades involute, 30 cm long, 1–2 mm wide.

**Inflorescence.** Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 4–6 cm long. Racemes 2, paired, 2–4 cm long. Rhachis fragile at the nodes, plumose on margins. Rhachis hairs 5 mm long. Rhachis internodes filiform, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3 mm long, plumose, with 5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, 2–4 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, glabrous, acuminate, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume linear, membranous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–20 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Dominican Republic, Haiti.

**Andropogon vetus** Sohns. *Mem. New York Bot. Gard.* 9(3): 277, f. 12. 1957.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Maguire et al.* 30519, 1 Jan 1951, Venezuela: Amazonas (US-2040240).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (24, Fig. 8).

**Derivation** (Clifford & Bostock 2007): L. old age. Pedicels of sterile florets bearded with abundant long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–400 cm long. Culm-internodes distally glabrous. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Leaf-sheath auricles erect. Ligule an eciliate membrane, 3–5 mm long. Leaf-blade base tapering to the midrib. Leaf-blades 30–60 cm long, 10–15 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Synflorescence compound, linear.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear. Racemes 1, single, 1–3 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 1–3 mm long. Rhachis internodes clavate, 2–3.5 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 3.5–3.8 mm long, villous, hairy on margins.

**Sterile Spikelets.** Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas or containing empty lemmas, lanceolate, 2.4–3.4 mm long, separately deciduous. Companion sterile spikelet glumes chartaceous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.7–5.3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled laterally, 6 -veined. Lower glume primary vein scaberulous. Lower glume surface flat, glabrous. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2-keeled. Fertile lemma lanceolate, 3–4 mm long, hyaline, without keel, 0–3 -veined. Lemma apex lobed, 2 -fid, with lobes 1 mm long, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–25 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 1.5–2 mm long, hyaline, 2-keeled. Palea keels ciliate.

**Flower and Fruit.** Lodicules 2, 0.5–0.7 mm long. Anthers 3, 1.5–2 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Colombia.

**Andropogon virgatus** Desv. ex Ham. *Prod. Ind. Occ.* 9 (1825).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).



**TYPE** from West Indies. **Basionym or Replaced Name:** *Hypogynium virgatum* (Desv. ex Ham.) Dandy, *Journ. Bot.* 64: 54 (1931). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Baudin s.n.*, West Indies (P).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (293, Fig. 230 as *Hypogynium spathiflorum*), S.A.Rennoize, *Gramineas de Bolivia* (1998) (590, Fig. 139), S.A.Rennoize, *The Grasses of Bahia*, 1984 (274, Fig. 103), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (25, Fig. 9), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (549, Fig. 200 as *Hypogynium*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1255, Fig. 248 as *Hypogynium*), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (477, Fig. 202 as *Hypogynium virgatum*), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (269, Fig. 97 as *Hypogynium*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (180, Fig. 72 as *Hypogynium*), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (51, Fig. 5), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (157, Fig. 83 as *Hypogynium*).

**Illustrations (Journals):** *Revista Brasil. Bot.* (29: 298, Fig.33–34 (2006)).

**Derivation** (Clifford & Bostock 2007): *L. virga*, broom; -ata, possessing. Inflorescence arms or culms held erect.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Basal innovations flabellate. Culms erect, 60–100 cm long. Ligule a ciliate membrane. Leaf-blades flat or conduplicate, 10–50 cm long, 2–4 mm wide, stiff.

**Inflorescence.** Synflorescence compound, fastigiate, 10–40 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 0.7–1.5 cm long, herbaceous. Peduncle pubescent above. Racemes 1, single, 6–12 cm long. Rhachis fragile at the nodes, subterete, glabrous on margins. Rhachis internodes linear, 0.5–0.6 mm long. Rhachis internode tip transverse, flat, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 0.5–0.6 mm long, glabrous, tip rectangular.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 2.4–3 mm long, as long as fertile, persistent. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 2.4–3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 0.5 mm long, glabrous, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, keeled above. Lower glume primary vein scaberulous. Lower glume intercarinal veins absent. Lower glume surface flat. Lower glume apex acute. Upper glume lanceolate, coriaceous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1.5 mm long, 0.5 length of spikelet, hyaline, 2 -veined. Fertile lemma linear, 2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, muticous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.5–1.3 mm long.

*N* = 30 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama. Cuba, Dominican Republic, Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia. Brazil Northeast, Brazil Southeast, Brazil North. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Corrientes, Entre Rios, Misiones. Chiapas.

**Andropogon virginicus** L. Sp. Pl. 1046. (1753).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: " 7 virginicum", USA (LINN-1211.12). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 125 (1908); Campbell, *J. Arnold Arbor* 64: 224 (1983).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (622, Fig. 125), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (122), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (98), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1497, Pl. 219), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (662 as varieties *virginicus* & *glaucus* & *decipiens*), F.W.Gould, *The Grasses of Texas* (1975) (585, Fig. 308), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (398, Fig. 355), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (as *Hypogynium virgatum*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:3(1980)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Virginia, USA.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long. Culm-nodes glabrous. Leaf-sheaths keeled, glabrous on surface or hispid, outer margin glabrous or hairy. Ligule a ciliate membrane. Leaf-blades flat or conduplicate, 10–20 cm long, 2–5 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Synflorescence compound, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 2.5–6 cm long. Racemes 2–5, paired or digitate, sinuous, 2–3 cm long. Rhachis fragile at the nodes, plumose on surface, plumose on margins. Rhachis hairs 5–10 mm long. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, curved, plumose, with 5–10 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 2.5–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume mucous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 10–26 mm long overall. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

*N* = 10 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia (\*), Australasia (\*), Pacific, North America, South America.

**Country /Province /State. Eastern Asia.** Japan. Japan Honshu. **Australia, New Zealand.** New South Wales (\*), Queensland (\*), Victoria (\*). New Zealand North I. **North-central Pacific.** Hawaii (\*). **Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Michigan, Ohio, New Jersey. California (\*). Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Central Mexico, Northeast Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Western South America.** Belize, Costa Rica, Guatemala, Honduras, Panama. Bahamas, Bermuda, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico. Colombia.

**TDWG4.** South East. Coast, Tablelands. Puebla. Coahuila, Neuvo Leon, Zacatecas. Oaxaca. Chiapas, Quintana Roo.

**Andropogon vohiboryensis** A. Camus. *Bull. Soc. Bot. France*, 78: 9 (1931).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Ivohibe: Humbert 3092.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From the Voribory Range, Madagascar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 60 cm long. Culm-internodes striate, distally glabrous. Culm-nodes glabrous. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane. Leaf-blades 18–20 cm long, 2–5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scaberulous.

**Inflorescence.** Synflorescence simple.

Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 2–3 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform, with simple rim. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4.5–5.5 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, acuminate, awned, one glume awned, with 0.7–1 mm long awn. Companion sterile spikelet lemmas enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4.5–5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume surface concave. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline, ciliolate on margins. Fertile lemma oblong, 4–4.5 mm long, hyaline, without keel. Lemma margins ciliate, hairy above. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8 mm long overall, with twisted column. Column of lemma awn glabrous.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Andropogon yunnanensis** Hack. DC. *Monog. Phan.* 6: 440. (1889).

Regarded by K as a synonym (*A. munroi*).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.M. Delavay 1782*, no date, China: Yunnan: supra Mo-so-yn, prope Lan-Kong (P; IT: US-76243 (fragm. ex W)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Yunnan Province, China.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–60 cm long, 4–5 -noded. Lateral branches sparse. Ligule an eciliate membrane, 1–1.5 mm long, truncate. Leaf-blades 10–14 cm long, 2.5–3.5 mm wide. Leaf-blade surface scaberulous, rough abaxially, glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear, 2.5 cm long. Racemes 2, paired, 2–2.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes clavate, 0.66 length of fertile spikelet. Rhachis internode tip transverse, crateriform, with simple rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, 0.66 length of fertile spikelet, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 6–7 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, glabrous, acute.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear or oblanceolate, dorsally compressed, 6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1 mm long, pubescent, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of spikelet, coriaceous, purple, 2-keeled, keeled dorsally. Lower glume intercarinal veins absent. Lower glume surface deeply depressed. Upper glume linear, coriaceous, 1-keeled. Upper glume muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 4–5 mm long, hyaline, 3 -veined, ciliolate on margins, acute. Fertile lemma lanceolate, 4–5 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.25 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–10 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 0.33 length of lemma, 0 -veined.

**Flower and Fruit.** Anthers 3, 2.5 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.  
**Country /Province /State.** China. China South Central, Tibet.  
**TDWG4.** Sichuan, Yunnan.

**Andropterum stolzii** (Pilger) C. E. Hubbard. *Mem. N. Y. Bot. Gard.* 9: 112 (1954).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Malawi. **Basionym or Replaced Name:** *Ischaemum stolzii* Pilger, *Engl.Jahrb.* 54: 280 [March] (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: A. *Stolz* 1248, 7 May 1912, Africa Oriental: Nyassa Hochland, Station Kyimbila (iso K).

**Illustrations (Books):** R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):753, Fig. 177), G.V.Pope et al., *Flora Zambesiaca* 10 (59:4(2002), T. 22).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.3077 (1922) as *A. variegatum*).

**Derivation** (Clifford & Bostock 2007): in honor of Adolph Ferdinand Stolz (1871–1917) German missionary in East Africa.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ISCHAEMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 30–80 cm long, rooting from lower nodes. Ligule a fringe of hairs. Leaf-blades 5–20 cm long, 3–15 mm wide. Leaf-blade surface pubescent. Leaf-blade margins serrulate, ciliate. Leaf-blade apex attenuate, hardened.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, 4–11 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis internodes cuneate. Rhachis internode tip transverse, cupuliform. Spikelets squeezed between internode and pedicel, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, cuneate, semiterete, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, oblong, asymmetrical, laterally compressed, 6–10 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes cartilaginous, winged on keels (both glumes), distinctly veined, 7 -veined, truncate. Companion sterile spikelet lemmas 2, enclosed by glumes, mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, 2-keeled, wingless. Lower glume primary vein ciliate. Lower glume intercarinal veins absent. Lower glume surface deeply depressed. Lower glume apex acute. Upper glume ovate, cartilaginous, 1-keeled, winged on keel, winged above, 7 -veined. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 4 mm long, hyaline, 3 -veined, acute. Fertile lemma oblong, 4 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, 2 -veined.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, East tropical Africa, South tropical Africa. DRC. Tanzania. Malawi, Mozambique, Zambia, Zimbabwe.

**Anemanthele lessoniana** (Steud.) J.F. Veldkamp. *Acta Bot. Neerl.*, 34(1): 108 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Agrostis lessoniana* Steud., *Nom. ed.* 2(1) 41 (1840). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Lesson s.n.*, New Zealand (P).

*Oryzopsis lessoniana* (Steud.) Veldkamp, *Blumea*. 22(1): 11 (1974).

**Illustrations (Books):** No illustration found (BKS).

**Images:** E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);, R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Reni Primivhre (1794–1849) or his brother Pierre Adolphe Lesson (1805–1888) French botanists.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short, scaly. Culms 100–150 cm long. Culm-internodes smooth, distally glabrous. Lateral branches lacking. Leaf-sheaths outer margin hairy. Ligule an eciliate membrane, 1–1.5 mm long, truncate. Leaf-blades involute, 20–40 cm long, 4–8

mm wide, stiff. Leaf-blade surface smooth or scaberulous, rough adaxially, glabrous. Leaf-blade margins smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, effuse, 40–75 cm long. Primary panicle branches 5–8 -nate, whorled at most nodes. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.75–3.25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.15–0.2 mm long, pubescent, obtuse. Floret callus hairs 0.15–0.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.5–3 mm long, 0.9 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.75–3.25 mm long, 1.3 length of adjacent fertile lemma, scarious, 1-keeled, 1(–3) -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex erose, acute, mucronate.

**Florets.** Fertile lemma lanceolate, laterally compressed, 2.1–2.4 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute (above only), exposing palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 4–9 mm long overall, deciduous. Palea 1.5–1.6 mm long, 0.75 length of lemma, without keels. Palea apex erose.

**Flower and Fruit.** Lodicules 2, 0.6 mm long. Anthers 1, 1 mm long, yellow, anther tip smooth. Stigmas 2, laterally exerted, plumose. Styles 0 mm long. Caryopsis with adherent pericarp, fusiform, 1.5 mm long. Embryo 0.33 length of caryopsis. Hilum elliptic, 0.15 length of caryopsis.

**Distribution (TDWG). Continent.** Europe (\*), Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : Great Britain (\*). **New Zealand.** New Zealand North I, New Zealand South I.

**Aniselytron agrostoides** Merrill. *Philipp. Journ. Sci.* 5: 329 (1910).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*.

**TYPE** from Philippines. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Merrill 6483, May 1909, Philippines: Luzon: Mt. Pulog, 2400 m (PHN; IT: K, L, W).

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (304 as *Aulacolepis agrostoides* var. *formosana*), C-C Hsu, *Taiwan Grasses* (1975) (435, Pl. 1389 as *Aulacolepis agrostoides* var. *formosana*).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling *Agrostis* in some respect, usually the form of the inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms geniculately ascending, slender, 20–40 cm long, 2–3 -noded. Culm-internodes striate, smooth. Culm-nodes black. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane, 3 mm long, entire or erose, acute. Leaf-blades 10–12 cm long, 3–4 mm wide. Leaf-blade surface smooth. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, equilateral or nodding, 9–13 cm long. Primary panicle branches ascending or spreading, distant, 4–5 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or ovate, laterally compressed, 3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus sparsely hairy, acute.

**Glumes.** Glumes one the lower absent or obscure or two, persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume orbicular, 0.1 mm long, 0.05 length of upper glume, hyaline. Lower glume apex truncate. Upper glume lanceolate, 1.5–2 mm long, 0.4–0.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 3.5 mm long, 1.5–2 mm wide, membranous, keeled, lightly keeled, 5 -veined, more than 3-veined. Lemma midvein scaberulous. Lemma lateral veins obscure. Lemma apex dentate, 2 -fid, acuminate, mucicous. Palea 1 length of lemma, hyaline, 2 -veined. Palea keels scaberulous. Palea apex acuminate. Rhachilla extension 0.8 mm long, glabrous.

**Flower and Fruit.** Lodicules 2. Anthers 3, 1.2 mm long. Stigmas 2. Caryopsis with adherent pericarp, 2 mm long. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China, Eastern Asia. Taiwan. Malesia. Philippines.

**Aniselytron treutleri** (O. Kuntze) J. Sojak. *Cas. Nar. Muz.* (Prague), 148(3–4): 202 (1980).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (as *Aulacolepis treutleri*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Aulacolepis treutleri*).

**TYPE** from India. **Basionym or Replaced Name:** *Milium treutleri* Kuntze, *Rev. Gen.* 780 (1891). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Treutler* 486, 5 Aug 1874, India: Sikkim, Tanglo, 3050 m (K; ILT: CAL, L, W). LT designated by Korthof & Veldkamp, *Gard. Bull. Singapore* 37(2): 216 (1984).

**Recent Synonyms:** *Calamagrostis treutleri* (Kuntze) U. Shukla, *Grasses N.E. India* 51 (1996). *Aulacolepis treutleri*.

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (168, Fig. 58 as *Aulacolepis*), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (305 as *Aulacolepis*), C-C Hsu, *Taiwan Grasses* (1975) (436, Pl. 1390 as *Aulacolepis*), H.J.Noltie, *The Grasses of Bhutan* (2000) (611, Fig. 27 as *Calamagrostis*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 430).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.2396 (1899) as *Deyeuxia*).

**Derivation** (Clifford & Bostock 2007): in honor of William John Treutler (1841–1915) Indian-born of English parents, physician and plant collector.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 20–50 cm long. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 10–25 cm long, 10–15 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 15–25 cm long. Primary panicle branches 5–7-nate. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.5–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 1.5–1.7 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 2–2.4 mm long, 0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2.5–2.8 mm long, cartilaginous, keeled, 5 -veined, more than 3-veined. Lemma surface scabrous, rough above. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea keels approximate. Palea surface asperulous. Rhachilla extension 0.4 length of fertile floret.

**Flower and Fruit.** Anthers 3, 1.3 mm long.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China, Eastern Asia. China South Central, China Southeast. Japan, Taiwan. Japan Honshu. **Indian Subcontinent, Indo-China, Malesia.** Assam, Eastern Himalaya, India. Myanmar, Vietnam. Borneo, Malaya, Singapore, Sumatra.

**TDWG4.** Fujian, Guangxi, Guizhou, Hubei, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim.

**Anisopogon avenaceus** R. Br. *Prod.* 176 (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown* 6223, no date, Australia: New South Wales (BM; IT: US-3168441 (fragm. ex BM)).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (547, Fig. 108), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (123), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (69, Fig. 10).

**Images:** K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*.

**Derivation** (Clifford & Bostock 2007): L. -acea, resembling. With inflorescences and/or spikelets similar to those of *Avena*.

**Classification.** Subfamily Pooideae. Tribe: Phaenospermateae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–100 cm long. Leaves mostly basal. Ligule a ciliolate membrane, 1.5 mm long. Leaf-blades involute, 10–30 cm long, 1–2 mm wide, coriaceous, stiff. Leaf-blade surface ribbed, scabrous, rough adaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, effuse, nodding, 15–25 cm long. Panicle branches angular, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 4–6 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 40–60 mm long, 1 length of upper glume, herbaceous, without keels, 7–11 -veined. Lower glume lateral veins ribbed. Lower glume apex obtuse. Upper glume lanceolate, 40–60 mm long, 2.5–3 length of adjacent fertile lemma, herbaceous, without keels, 7–11 -veined. Upper glume lateral veins ribbed. Upper glume apex obtuse.

**Florets.** Fertile lemma linear, subterete, 12–18 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins involute, covering most of palea. Lemma apex lobed, 2 -fid, with linear lobes, incised 0.25 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 60–75 mm long overall, with twisted column. Lateral lemma awns present, arising on inner edge of lobes, wrapped around principal, 25–30 mm long, shorter than principal. Palea 1 length of lemma, scarious, thinner above, 2 -veined. Palea keels approximate. Palea apex dentate, 2 -fid. Rhachilla extension 0.5–1 length of fertile floret.

**Flower and Fruit.** Lodicules 3, lanceolate, 2.5–3 mm long, membranous, glabrous, acute. Ovary pubescent all over. Caryopsis with tardily free pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Victoria.

**TDWG4.** Coast.

## **Anomochloa marantoidea** Brongn. *Ann. Sc. Nat. Ser. 3*, 16: 369. (1851).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *coll. unknown [presumably received by Mons. Morel from Mons. Porto (of Bahia), and cultivated subsequently]*, 1842, Brazil: Bahia (P; IT: K, US (fragm. ex P)).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (42, Fig. 14), E.J.Judziewicz et al, *American Bamboos* (1999) (323, Fig. 196), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14e (1940) (219, Fig. 7).

**Images:** E.J.Judziewicz, E.J., *American Bamboos* (1999); (*Smith. Contr. Bot.* No. 68 : 6,7 (1989)).

**Derivation** (Clifford & Bostock 2007): Gk. -oidea, resembling. The leaf-blades resemble those of many Marantaceae.

**Classification.** Subfamily Anomochlooideae. Tribe Anomochloae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms 50–100 cm long. Leaves mostly basal. Ligule a fringe of hairs, 1–2 mm long. Leaf-blade base cordate, with a false petiole. Leaf-blades lanceolate to oblong, (18–)25–40 cm long, (40–)60–100 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade apex acute.

**Inflorescence.** Synflorescence compound, linear (spiciform), 7–14 cm long.

Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate (enclosing a florescence of 1–5 spikelets, its branches each subtended by 2 bracts), 4.5–9 cm long, herbaceous (with cross-veins). Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 7–15 mm long, tip pyriform.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, curved, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3–4 mm long, truncate.

**Glumes.** Glumes one the lower absent or obscure, deciduous, shorter than spikelet, thinner than fertile lemma. Upper glume lanceolate, 10–15 mm long, 0.5 length of adjacent fertile lemma, herbaceous, without keels, 10–17 -veined. Upper glume lateral veins with cross-veins. Upper glume apex obtuse.

**Florets.** Fertile lemma ovate, 9–13 mm long, coriaceous, much thinner above, pallid, without keel, 9–15 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute. Lemma apex caudate, with a conical beak (herbaceous, deciduous), with this appendage 13–18 mm long. Palea absent or minute.

**Flower and Fruit.** Lodicules represented by a ring of hairs. Anthers 4, 3–5 mm long. Stigmas 1, terminally exerted, papillose. Caryopsis with adherent pericarp, oblong, laterally compressed, 10 mm long, apex rostrate. Embryo 0.25 length of caryopsis. Hilum linear, 1 length of caryopsis.

*N* = 18 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast.

**TDWG4.** Bahia.

***Anthaenantia lanata*** (Kunth) Benth. *Journ. Linn. Soc.* 19: 39. (1882).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Leptocoryphium*).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Leptocoryphium lanatum* (HBK) Nees, *Agrost. Bras.* 84 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, Mexico: prope Venta del Camaron et Alto del Peregrino (P; IT: K (photo)).

**Illustrations (Books):** A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (164, Fig. 104 *Leptocoryphium lanatum*), S.A.Renvoize, *Gramineas de Bolivia* (1998) (542, Fig. 123 as *Leptocoryphium lanatum*), S.A.Renvoize, *The Grasses of Bahia*, 1984 (250, Fig. 93 as *Leptocoryphium*), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (148, Fig. 104), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (477, Fig. 171 as *Leptocoryphium*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (593, Fig. 129 & 614, Fig. 133 as *Leptocoryphium lanatum*), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (271, Fig.104), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (472, Fig. 122), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (522, Fig. 349 as *Leptocoryphium lanatum*), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (195, Fig. 54), B.Rosengurt, *Gramineas Uruguayas I* (1970) (320, Fig. 136 all as *Leptocoryphium*), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (318, Fig. 56 as *Leptocoryphium*).

**Illustrations (Journals):** *Ruizia* (13:405 Fig 54a-c (1993) as *Leptocoryphium*).

**Derivation** (Clifford & Bostock 2007): *L. lana*, wool; -ata, possessing. Leaf-blades densely pubescent.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe OTACHYRIINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 60–90 cm long, 1–2 mm diam. Culm-nodes black. Leaves mostly basal. Ligule a ciliolate membrane. Leaf-blades involute, 20–40 cm long, 2–3 mm wide. Leaf-blade surface ribbed.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 8–15 cm long, 1–3 cm wide. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, tip cupuliform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.5–4 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume lanceolate, 3.5–4 mm long, membranous, without keels, 5–7 -veined. Upper glume lateral veins ribbed. Upper glume surface villous, hairy on veins. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, linear, 1 length of spikelet, membranous, 5–7 -veined, ribbed, villous, hairy on veins, acute. Fertile lemma ovate, dorsally compressed, 3.5–4 mm long, cartilaginous, much thinner above, much thinner on margins, dark brown, without keel. Lemma margins flat. Lemma apex acute. Palea gaping, 1 length of lemma, cartilaginous.

**Flower and Fruit.** Anthers 3, 2.5 mm long.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Cuba, Dominican Republic, Haiti, Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Amazonas, Acre, Rondonia, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Penabuco, Alagoas, Sergipe, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Catamarca, Santiago del Estero. Buenos Aires, Chaco, Corrientes, Entre Rios,



Formosa, Misiones, Santa Fe. Mexico State, Puebla. Guanajuato, San Luis Potosi, Tamaulipas. Veracruz. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

***Anthaenantia rufa*** (Ell.) Schult. *Mant.* 2: 258. (1824).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Anthenantia*).

**TYPE** from USA. **Basionym or Replaced Name:** *Aulaxanthus rufus* Elliot.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (386), F.W.Gould, *The Grasses of Texas* (1975) (421, Fig. 225).

**Derivation** (Clifford & Bostock 2007): L. reddish. Inflorescence purple to red.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe OTACHYRIINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short, knotty. Culms 70–110 cm long. Ligule a ciliolate membrane. Leaf-blades erect or ascending, parallel-sided, 5–30 cm long, 3–5 mm wide. Leaf-blade margins scaberulous, glabrous. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 8–16 cm long, 2–3(–5) cm wide. Primary panicle branches ascending or spreading. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 3–4 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume obovate, 3–4 mm long, 1 length of spikelet, membranous, purple, without keels, 5 -veined. Upper glume surface villous. Upper glume hairs dark brown. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret obovate, 3–4 mm long, 1 length of spikelet, membranous, 5 -veined, villous, bearing dark brown hairs, bearing hairs 0.6–1 mm long, obtuse. Fertile lemma ovate, 3–4 mm long, cartilaginous, of similar consistency above, much thinner on margins, dark brown, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex acute. Palea gaping, 1 length of lemma, cartilaginous, 2 -veined.

**Flower and Fruit.** Anthers 3, 2.6–2.8 mm long. Caryopsis with adherent pericarp, orbicular, isodiametric, exposed between gaping lemma and palea at maturity, 1.2–1.4 mm long. Embryo 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** North-central USA, South-central USA, Southeastern USA. Oklahoma. Texas. Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina.

***Anthaenantia villosa*** (Michx.) Beauv. *Agrost.* 48. t. 10. f. 7. (1812).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Anthenantia*).

**TYPE** from USA. **Basionym or Replaced Name:** *Phalaris villosa* Michx., *Fl. Bor. Am.* 1: 43 (1803). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Michaux s.n.*, USA: In sabulosis Carolinae (P).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (386).

**Derivation** (Clifford & Bostock 2007): L. villi, long weak hairs; -osa, abundance. The plant in whole or in part covered with long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe OTACHYRIINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short, scaly. Culms 70–110 cm long. Ligule a ciliolate membrane. Leaf-blades ascending or spreading, tapering towards tip, 5–30 cm long, 5–10 mm wide. Leaf-blade margins scaberulous, tuberculate-ciliate, hairy at base. Leaf-blade apex abruptly acute or acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 8–16 cm long, 1–2 cm wide. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 3–4 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume obovate, 3–4 mm long, 1 length of spikelet, membranous, mid-green, without keels, 5 -veined. Upper glume surface villous. Upper glume hairs white. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret obovate, 3–4 mm long, 1 length of spikelet, membranous, 5 -veined, villous, bearing white hairs, bearing hairs 0.3–0.5 mm long, obtuse. Fertile lemma ovate, 3–4 mm long, cartilaginous, of similar consistency above, much thinner on

margins, dark brown, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex acute. Palea gaping, 1 length of lemma, cartilaginous, 2 -veined.

**Flower and Fruit.** Anthers 3, 2.6–2.8 mm long. Caryopsis with adherent pericarp, orbicular, isodiametric, exposed between gaping lemma and palea at maturity, 1.2–1.4 mm long. Embryo 0.5 length of caryopsis.

$2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** North-central USA, South-central USA, Southeastern USA. Oklahoma, Alabama, Arkansas, Florida, Georgia, Mississippi, North Carolina, South Carolina.

***Anthaenantia villaregalis*** (R. McVaugh & R. Guzman) Espejo & Lspez-Ferrari. *Acta Bot. Mex.* 51: 62. 2000.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Leptocoryphium*).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Leptocoryphium villaregalis* McVaugh & R. Guzman, R. McVaugh, *Fl. Novo-Galiciana*, 14: 218 (1983). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico: Jalisco: Mun. de Talpa: between Cuale and Cumbre Blanca, *González T.* 369 (HT: MICH).

**Illustrations (Books):** R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983) (as *Leptocoryphium*).

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe OTACHYRIINAE.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes elongated, scaly. Butt sheaths withering. Culms erect, 60–100 cm long. Leaf-sheaths outer margin hairy. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades 10–30 cm long, 6–10 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade margins scaberulous, tuberculate-ciliate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 20–30 cm long, 20–30 cm wide. Primary panicle branches 5–10 in number, ascending, 6–13 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, flexuous, 1–8 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acute, 3–4 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure or two, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 0.5–0.7 mm long, 0.15 length of upper glume, hyaline. Upper glume lanceolate, 3–4 mm long, 1 length of spikelet, membranous, without keels, 3(–5) -veined. Upper glume surface pilose, hairy between veins. Upper glume hairs 1 mm long. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, lanceolate, 1 length of spikelet, membranous, 3(–5) -veined, pilose, hairy between veins, bearing hairs 1 mm long, acute. Fertile lemma ovate, dorsally compressed, 3–4 mm long, cartilaginous, much thinner above, much thinner on margins, dark brown, without keel. Lemma lateral veins obscure. Lemma margins flat, ciliolate. Lemma apex acute. Palea gaping, 1 length of lemma, cartilaginous.

**Flower and Fruit.** Anthers 3, 2–2.5 mm long.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Southwest Mexico.

**TDWG4.** Jalisco.

***Anthaenantiopsis fiebrigii*** Mez. *Engl. Jahrb.* 56 *Beibl.* 125, 11 (1921).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolivia, Tarija: *Fiebrig 2381* (B lecto, BAA, G, LIL, SI, W).

**Illustrations (Books):** E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (446, Fig. 157), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (18, Fig. 2), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14e (1940) (42, Fig. 22).

**Illustrations (Journals):** *Systematic Botany* (18: 444, Fig.5 (1993)).

**Derivation** (Clifford & Bostock 2007): in honor of Karl Fiebrig Gertz (1869–1951) German-born South American botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 65–150 cm long. Culm-internodes elliptical in section, 20–30 cm long, distally glabrous. Culm-nodes brown, glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths 12–27 cm long, glabrous on surface to pubescent, outer

margin glabrous or hairy. Ligule an eciliate membrane, 0.3–1.2 mm long. Leaf-blades linear or lanceolate, 9–45 cm long, 5–10 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 20–60 cm long, glabrous. Racemes 12, borne along a central axis, distant, erect, unilateral, 1–6.5 cm long. Central inflorescence axis 15–27 cm long, hirsute. Rhachis semiterete, hirsute on surface. Spikelet packing crowded. Spikelets in pairs or in threes. Fertile spikelets pedicelled. Pedicels present, clavate, angular, unequal, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, compressed slightly, 3–3.6 mm long, 1.2 mm wide, falling entire.

**Glumes.** Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.3–1 mm long, 0.1–0.33 length of spikelet, hyaline, 0 -veined. Lower glume lateral veins absent. Lower glume surface hirsute. Upper glume oblong, 2.6–2.8 mm long, 0.9–0.95 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume lateral veins ribbed. Upper glume surface hirsute, with tubercle-based hairs. Upper glume margins ciliate. Upper glume apex obtuse or acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 2.8–3.3 mm long, 1 length of spikelet, membranous, 5–7 -veined, ribbed, hirsute. Palea of lower sterile floret 3–3.3 mm long, 1 length of lemma. Fertile lemma elliptic, 2.9–3.3 mm long, 1 mm wide, coriaceous, yellow, shiny, without keel, more than 3-veined. Lemma margins involute. Lemma apex acute, papillose or pubescent. Palea gaping, 1 length of lemma, coriaceous.

**Flower and Fruit.** Lodicules 2, 0.3 mm long, truncate. Anthers 3, 2.3–2.4 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Argentina Northwest, Paraguay.

**TDWG4.** Jujuy.

## **Anthraenantiopsis perforata** (Nees) L. Parodi. *Not. Mus. La Plata, Bot.*, 8: 91 (1943).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum perforatum* Nees, *Agrost. Bras.* 126 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *F. Sellow s.n.*, [mis.?] de Schlechtendal, 1829, Brasilia (LE-TRIN-0881.02 (& fig.)).

**Illustrations (Books):** F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (21, Fig. 2).

**Illustrations (Journals):** *Systematic Botany* (18: 446 (1993), Fig.6 as var. *perforata*, 447, Fig.7 as var. *camporum* (1993)).

**Derivation** (Clifford & Bostock 2007): L. per, very; forum, open-space; -ata, possessing. With the rhachis bearing an oblong perforation.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 17–95 cm long. Culm-internodes terete, 15–17 cm long, distally glabrous or hirsute. Culm-nodes pubescent. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths 6–10.5 cm long, mostly shorter than adjacent culm internode, hirsute to hispid. Ligule an eciliate membrane, 0.3–0.7 mm long, truncate. Collar pilose. Leaf-blades linear or lanceolate, 4–22 cm long, 3–8 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface hirsute. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Peduncle hispid above. Racemes 7, borne along a central axis, closely spaced, in a multilateral false spike, erect, unilateral, 1–2.5 cm long. Central inflorescence axis 3.5–10 cm long, hirsute. Rhachis semiterete, hirsute on surface. Spikelet packing contiguous. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, linear, angular, unequal, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, compressed slightly, 2.7–3.6 mm long, 1.1–1.5 mm wide, falling entire.

**Glumes.** Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.3–1.2 mm long, 0.1–0.33 length of spikelet, hyaline, 0–1 -veined. Lower glume lateral veins absent. Lower glume surface hirsute. Upper glume oblong, 2.7–3.3 mm long, 0.9–0.95 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume lateral veins ribbed. Upper glume surface hirsute. Upper glume margins ciliate. Upper glume apex obtuse or acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 2.7–3 mm long, 1 length of spikelet, membranous, 5–7 -veined, ribbed, hirsute. Palea of lower sterile floret 2.4–3.1 mm long, 1 length of lemma. Fertile lemma elliptic, 2.4–3 mm long, 1–1.3 mm wide, coriaceous, yellow, without keel, more than 3-veined. Lemma surface papillose. Lemma margins involute. Lemma apex acute, scabrous or pubescent. Palea gaping, 1 length of lemma, coriaceous.

**Flower and Fruit.** Lodicules 2, 0.4 mm long, truncate. Anthers 3, 2 mm long, purple.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Brazil West Central. Paraguay.

**TDWG4.** Mato Grosso, Goias.

### ***Anthaenantiopsis rojasiana*** L. Parodi. *Not. Mus. La Plata, Bot.*, 8: 87 (1943).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Paraguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Rojas* 6290, 6 Sep 1933, Paraguay: Amambay: Pedro Juan Caballero, estero Ypayere, 22: 33'S 55: 45'W (BAA).

**Illustrations (Books):** F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (23, Fig. 4).

**Illustrations (Journals):** *Systematic Botany* (18: 448, Fig.8 (1993)).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Teodoro Rojas (1877–1954) Paraguayan botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–110 cm long, 3 -noded. Culm-nodes glabrous. Leaf-sheaths pubescent. Ligule a fringe of hairs. Leaf-blades 25–35 cm long, 5–7 mm wide. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 6–30, borne along a central axis, closely spaced, in a multilateral false spike, unilateral, 1–3 cm long. Central inflorescence axis 10–15 cm long. Rhachis angular, glabrous on margins. Spikelet packing contiguous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, unequal, 1–3 mm long, ciliate, hairy at tip.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, compressed slightly, obtuse, 3–3.5 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets or shorter than spikelet, thinner than fertile lemma. Upper glume oblong, membranous, without keels, 5–7 -veined. Upper glume lateral veins ribbed. Upper glume surface pilose or villous, hairy above. Upper glume margins ciliate. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, membranous, 5 -veined, ribbed, pilose or villous, hairy above, obtuse. Palea of lower sterile floret 1 length of lemma (with pubescent apex). Fertile lemma oblong, 3–3.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acute, pubescent. Palea gaping, 1 length of lemma, coriaceous, 2 -veined.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Paraguay.

**TDWG4.** Corrientes, Misiones.

### ***Anthaenantiopsis trachystachya*** (Nees) Mez. *Engl. Jahrb. 56 Beibl.* 125, 11 (1921).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum trachystachyum* Nees, *Agrost. Bras.* 125. (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *F. Sellow* 1243, Brazil: without further locality (B; INT: US-1063676). NT designated by Morrone et al., *Syst. Bot.* 18: 450 (1993). INT: *F. Sellow s.n.*, Brazil (US-1063676, US-81146).

**Illustrations (Books):** F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (26, Fig. 5).

**Illustrations (Journals):** *Systematic Botany* (18: 451, Fig.8 (1993)).

**Derivation** (Clifford & Bostock 2007): Gk *trachys*, rough; *stachys*, spike as of an ear of wheat. Glumes rough.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 60–80 cm long. Ligule an eciliate membrane. Leaf-blades convolute, 5–30 cm long, 2–4 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–7, borne along a central axis, unilateral, 1–2 cm long. Central inflorescence axis 7–10 cm long. Rhachis angular, ciliate on margins. Spikelet packing lax. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, linear or oblong, unequal, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, compressed slightly, obtuse, 3 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure or two, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 0–1.5 mm long, 0–0.5 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume surface villous. Upper glume ovate, membranous, without keels, 5 -veined. Upper glume lateral veins ribbed. Upper glume surface villous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined, ribbed, villous, bearing hairs 0.5–1 mm long, acute. Fertile lemma ovate, 3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acute, pubescent. Palea gaping, 1 length of lemma, coriaceous, 2 -veined.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Brazil West Central, Brazil South. Paraguay.

**TDWG4.** Mato Grosso, Goias, Sao Paulo Parana.

***Anthephora ampullacea*** Stapf & G. E. Hubbard. Prain, *Fl. Trop. Afr.* 9: 939 (1930).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Nigeria. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Upper Guinea: Northern Nigeria: Aboh, *Barter 463*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ampulla*, flask; -acea, indicating resemblance. Spikelets flask-shaped.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 50–100 cm long. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 10–20 cm long, 2–5 mm wide. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 8–17 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, smooth, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 6–9 in the cluster. Companion sterile spikelets sessile, 6–9 in the cluster. Involucre composed of imperfect spikelets, oblong, 4–5 mm long, base obtuse, base glabrous.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, lanceolate, 4–5 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes free, coriaceous, thicker on margins (cartilaginous as seen from inside), 7–11 -veined, scabrous, glabrous, acute or acuminate, muticous or awned, with 0–4 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3–4 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume subulate, 1 length of spikelet.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5–7 -veined, puberulous, eciliate on margins, obtuse. Fertile lemma lanceolate, 3–5 mm long, cartilaginous, much thinner on margins, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface asperulous (above). Lemma margins flat, covering most of palea. Lemma apex acuminate. Palea cartilaginous, 1-keeled.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, South tropical Africa. Nigeria. DRC. Angola.

**Anthephora argentea** Goossens. *Trans. Roy. Soc. S. Afr.* 20: 198 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Cape Province...Hay dist. near Dunmurry, on sides of kloof, *Wilmann 2203*.

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (439, Fig. 363), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. silvery. Glumes or lemmas silvery.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–90 cm long. Leaf-sheaths wider than blade at the collar. Ligule an eciliate membrane, 4–8 mm long. Leaf-blades tapering towards sheath, conduplicate, 10–15 cm long, 1–2 mm wide, stiff. Leaf-blade surface ribbed. Leaf-blade margins unthickened.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 7–13 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 3–4 in the cluster. Companion sterile spikelets sessile, 3–4 in the cluster. Involucre composed of imperfect spikelets, oblong, 6–8 mm long, base bluntly stipitate, base villous.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, elliptic, 5–7 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes free, coriaceous, 3–4 -veined, villous, acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume subulate, 0.75–0.8 length of spikelet. Upper glume margins ciliolate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, villous, hairy above, acute. Fertile lemma lanceolate, 4–6 mm long, cartilaginous, much thinner on margins, without keel. Lemma margins flat, covering most of palea. Lemma apex acute. Palea cartilaginous, 1-keeled.

**Flower and Fruit.** Anthers 3.

$2n = 9$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** Southern Africa. Namibia, Botswana, North-West, Northern Cape.

**Anthephora cristata** (Doell) Hack. ex Wildem. & Th. Dur. *Reliq. Dewevre.* :255 (1901).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Anthephora elegans* var. *cristata* Doell, *Fl. Bras.* 2,2:314 (1878). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: T: *Anon. s.n.*, no date, Brazil: Pernambuco (US-865420 (fragm. ex hb. Doll)). HT: *Forsell s.n.*, Brazil (KR).

**Illustrations (Books):** W. Robyns (1929 and 1934). Flora Agrostologique du Congo Belge et du Ruanda-Urundi, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (323, Pl. 49).

**Derivation** (Clifford & Bostock 2007): L. crested. Inflorescence forming a crest.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 50–100 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths glabrous on surface or hirsute. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades tapering towards tip, 5–10 cm long, 3–8 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade margins cartilaginous, crenate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 2.5–8 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, scaberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 3–8 in the cluster. Companion sterile spikelets sessile, 3–8 in the cluster. Involucre composed of imperfect spikelets, connate into a disc below (3–4mm diam), cuneate (conical), 3.5–6 mm long, base obtuse, base glabrous.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, ovate, 3.5–6 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes united below, coriaceous, thinner on margins, 7–15 -veined, scaberulous, glabrous, obtuse or acute, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3–4 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume subulate, 0.5–0.75 length of spikelet. Upper glume margins ciliolate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 7–9 -veined, scaberulous, puberulous, ciliolate on margins, acute or acuminate. Fertile lemma lanceolate, 3–4 mm long, cartilaginous, much thinner on margins, without keel. Lemma margins flat, covering most of palea. Lemma apex acute. Palea cartilaginous, 1-keeled.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, South tropical Africa. Benin, Ghana, Guinea, Ivory Coast, Nigeria. Cabinda, Gabon, Annobon, Principe & Sao Tome, DRC. Angola (\*).

***Anthephora elongata*** Wildem. *Ann. Mus. Congo, Ser. 4, 2.* (1902).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from DRC. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Lukafu, fevrier, *Ct. Verdick*, 413.

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (261, Fig. 193 as *A. acuminata*), R.M.Pollhill, F.T.E.A., *Gramineae* (3(1982):663, Fig. 151), G.V.Pope et al., *Flora Zambesiaca* 10 (3(1989):191, T. 50).

**Derivation** (Clifford & Bostock 2007): L. elongated. Inflorescence elongated.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 50–100 cm long. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 10–40 cm long, 2–7(–12) mm wide. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 8–20 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, scaberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 6–9 in the cluster. Companion sterile spikelets sessile, 6–9 in the cluster. Involucre composed of imperfect spikelets, oblong, 5–6 mm long, base obtuse, base glabrous.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, lanceolate, 5–6 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes free, coriaceous, thicker on margins (cartilaginous as seen from inside), 7–11 -veined, scabrous, glabrous, setaceously acuminate, muticous or awned, with 0–4 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 6–7 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume subulate, 1 length of spikelet.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5–7 -veined, puberulous, eciliate on margins or ciliate on margins (above), acute. Fertile lemma lanceolate, 6–7 mm long, cartilaginous, much thinner on margins, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface asperulous, rough above. Lemma margins flat, covering most of palea. Lemma apex acuminate. Palea cartilaginous, 1-keeled.

**Flower and Fruit.** Anthers 3, 3–3.5 mm long.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West-central tropical Africa, East tropical Africa, South tropical Africa. DRC. Tanzania. Angola, Malawi, Zambia.

***Antheophora hermaphrodita*** (L.) Kuntze. *Rev. Gen.* 759 (1891).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Jamaica. **Basionym or Replaced Name:** *Tripsacum hermaphroditum* L., *Syst. ed.* 10: 1261 (1759). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Browne s.n.*, Jamaica (LINN-1097.2). LT designated by Davidse in Cafferty et al., *Taxon* 49(2): 257 (2000).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (538), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (100, Fig. 58), S.A.Renvoize, *The Grasses of Bahia*, 1984 (260, Fig. 97), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (27, Fig. 10), G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 164, Fig. 19 (2006)), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (44, Fig. 3).

**Illustrations (Journals):** *Ruizia* (13:416 Fig 55e-f (1993)).

**Derivation** (Clifford & Bostock 2007): L. bisexual. Spikelets each with a single bisexual floret.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 20–80 cm long, without nodal roots or rooting from lower nodes. Ligule an eciliate membrane, 1.5–2.5 mm long. Leaf-blades 2.5–17 cm long, 4–7 mm wide. Leaf-blade surface glabrous or hispid. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 3.5–10 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 2 in the cluster. Companion sterile spikelets sessile, 4 in the cluster. Involucre composed of imperfect spikelets, connate into a cup below, oblong, 6–9 mm long, base obtuse.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, ovate, 6–9 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes united below, coriaceous, glabrous, acuminate, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 3.5–4.5 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume subulate, 1.7–4.2 mm long, 0.5–0.9 length of spikelet.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 7 -veined, scabrous, glabrous, acute. Fertile lemma ovate, 3.7–4 mm long, cartilaginous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat, covering most of palea. Lemma apex acute. Palea cartilaginous, 1-keeled.

**Flower and Fruit.** Anthers 3.

$2n = 18$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Hawaii (\*). **Southeastern USA, Mexico.** Florida (\*). Central Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil.** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Aruba, Bahamas, Bermuda, Cayman Is, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico, Trinidad-Tobago, Venezuelan and Netherlands Antilles. French Guiana, Venezuela. Colombia, Ecuador, Galapagos, Peru. Brazil Northeast, Brazil Southeast, Brazil North.

**TDWG4.** Bahia, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Penambuco, Alagoas, Sergipe, Minas Gerais, Rio de Janeiro, Espirito Santo. Mexico State, Morelos, Puebla. Veracruz. Baja California, Baja California Sur, Sinaloa, Sonora. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo, Yucatan.

***Antheophora laevis*** Stapf & C. E. Hubbard. *Prain, Fl. Trop. Afr.* 9: 937 (1930).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Eritrea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Eritrea, Saati: *Schweinfurth* 324 (K holotype).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 420), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (282, Fig 112).

**Derivation** (Clifford & Bostock 2007): L. smooth. Lacking hairs or roughness, usually of leaf-blades or lemmas.



**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect or geniculately ascending, 20–40 cm long, 2–5 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 4–8 cm long, 2–4 mm wide, glaucous. Leaf-blade surface glabrous. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 4–8 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 4–5 in the cluster. Companion sterile spikelets sessile, 4–5 in the cluster. Involucre composed of imperfect spikelets, oblong, 3.5–4.5 mm long, base obtuse, base pubescent.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, elliptic or oblong, 3.5–4.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes free, coriaceous, 4–6 -veined, smooth, glabrous, acute, mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.5–4.5 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume subulate, 2–3 mm long, hyaline, 1 -veined. Upper glume margins ciliolate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret linear or oblong, 3.5–4 mm long, 1 length of spikelet, membranous, 3 -veined, pubescent, acute. Fertile lemma linear or lanceolate, 3.5–4.5 mm long, chartaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins flat, covering most of palea. Lemma apex acute. Palea 1 length of lemma, chartaceous, 1-keeled.

**Flower and Fruit.** Anthers 3, 3 mm long. Caryopsis 1 mm long.

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State.** Northeast tropical Africa. Eritrea, Sudan. Western Asia. Palestine, Israel & Jordan.

**Antheophora nigritana** Stapf & C. E. Hubbard. *Prain, Fl. Trop. Afr.* 9: 937 (1930).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Nigeria. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Nigeria, Nupe: *Barter 1380* (K syn); Nigeria, Katagum district: *Dalziel 260* (K syn);

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From the Niger region of Upper Guinea.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Butt sheaths villous. Culms erect or geniculately ascending, 50–150 cm long. Leaf-sheath auricles absent or erect. Ligule an eciliate membrane, 1–7 mm long. Leaf-blades 10–40 cm long, 3–8 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 10–24 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, scaberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 6–9 in the cluster. Companion sterile spikelets sessile, 6–9 in the cluster. Involucre composed of imperfect spikelets, oblong, 4–6 mm long, base obtuse, base pubescent.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, elliptic, 4–6 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes free, coriaceous, thinner on margins, 3–7 -veined, pubescent, acute, mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–6 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume subulate, 1 length of spikelet. Upper glume margins ciliolate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 5–7 -veined, scaberulous, glabrous, ciliolate on margins, bearing hairs 0.2–0.5 mm long, obtuse. Fertile lemma lanceolate, 4–6 mm long, cartilaginous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat, covering most of palea. Lemma apex obtuse or acute. Palea cartilaginous, 1-keeled.

**Flower and Fruit.** Anthers 3, 1.5–3 mm long.

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State.** West tropical Africa, Northeast tropical Africa, East tropical Africa. Mali, Nigeria, Niger, Eritrea, Somalia, Sudan. Kenya. **Arabian Peninsula.** Saudi Arabia, Yemen.

### ***Antheophora pubescens*** Nees. *Fl. Afr. Austr.* 74. (1841).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. **Basionym or Replaced Name:** *Antheophora hochstetteri* Nees, *Flora*, 27: 249. (1844). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: South Africa, Gariep to Lauwwaterskloof: *Lichtenstein* 569 (B holo).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (437 & 439 , Fig. 362 & 364 as *A. ramosa*), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984) (& as *A. ramosa*), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (42, Fig. 17), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (282, Fig. 112), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (248, Fig. 144), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (101, Fig. 61).

**Images:** E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000); (as *A. ramosa*), F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. pubesco*, become hairy. Plant whole or in part hairy.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 30–100 cm long. Leaf-sheath auricles absent or erect. Ligule an eciliate membrane, 2–8 mm long. Leaf-blades 3–40 cm long, 2–6 mm wide. Leaf-blade margins cartilaginous, crenate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 5–25 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 4–10 in the cluster. Companion sterile spikelets sessile, 4–10 in the cluster. Involucre composed of imperfect spikelets, oblong, 6–11 mm long, base obtuse, base pubescent.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, lanceolate, 6–11 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes free, coriaceous, 3–7 -veined, pilose to villous, acute or acuminate or setaceously acuminate, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3–7 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume subulate, 3–6 mm long. Upper glume margins ciliate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4–6 mm long, 1 length of spikelet, hyaline, 3–7 -veined, puberulous, ciliate on margins, bearing hairs 1 mm long, acute. Fertile lemma lanceolate, 4–6 mm long, cartilaginous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous (above). Lemma margins flat, covering most of palea. Lemma apex acute. Palea cartilaginous, 1-keeled.

**Flower and Fruit.**  $2n = 36$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State.** West tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Mali, Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Uganda. Angola, Mozambique, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Free State, Northern Cape. **Western Asia.** Iran.

### ***Antheophora pungens*** W.D. Clayton. *Kew Bull.* 32(1): 2 (1977).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Zambia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Zambia: Casawa sand dunes, 1050 m, 14 Apr 1957, *H. M. Richards* 9232 (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): stipes sharp-pointed.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, 30–40 cm long. Ligule an eciliate membrane, 0.5–2 mm long. Leaf-blades tapering towards tip, 2–6 cm long, 2.5–6 mm wide. Leaf-blade surface pubescent, hairy on both sides. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 2–6 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 4–6 in the cluster. Companion sterile spikelets sessile, 4–6 in the cluster. Involucre composed of imperfect spikelets, connate into a cup below, oblong, 6–6.5 mm long, base pungently stipitate (4mm long), base pubescent.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, elliptic, 6–6.5 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes united below, coriaceous, thicker on margins, 13 -veined, pubescent, acuminate, awned, with 6–15 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume subulate, 0.5 length of spikelet.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, puberulous, acute. Fertile lemma lanceolate, 4–5 mm long, cartilaginous, much thinner on margins, without keel. Lemma margins flat, covering most of palea. Lemma apex acute. Palea cartilaginous, 1-keeled.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. South tropical Africa.** Malawi, Mozambique, Zambia.

**Anthephora schinzii** Hack. ex Schinz. *Verh. Bot. Ver. Brand.* 139. (1888).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Namibia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Schinz s.n.*, no date, Namibia (W; IT: US-865422 (fragm. ex W)).

**Illustrations (Books):** M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

**Derivation** (Clifford & Bostock 2007): in honor of Hans Schinz (1858–1941) Swiss traveller and botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms geniculately ascending, 12–35 cm long, 4–5 -noded. Culm-internodes distally pubescent. Leaf-sheaths pilose. Ligule an eciliate membrane, 1.5–2 mm long. Leaf-blades 6–10 cm long, 4–6 mm wide, glaucous. Leaf-blade surface scaberulous, rough abaxially, pubescent, hairy adaxially. Leaf-blade margins cartilaginous, crenate. Leaf-blade apex acute, callose.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, flexuous, 3–7 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 4–5 in the cluster. Companion sterile spikelets sessile, 4–5 in the cluster. Involucre composed of imperfect spikelets, elliptic, 4–5 mm long, base obtuse, base villous.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, lanceolate, 5–6 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes free, coriaceous, 7–13 -veined, scaberulous (above), pubescent to villous (below), entire or dentate, 2 -fid, setaceously acuminate, muticous or awned, with 0–5 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume subulate, 3–3.5 mm long, hyaline, 1 -veined. Upper glume margins ciliate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate or oblong, 4–4.5 mm long, 1 length of spikelet, membranous, 3–6 -veined, puberulous, ciliate on margins, bearing hairs 2–3 mm long, obtuse or acute. Fertile lemma lanceolate or ovate, 4–4.5 mm long, chartaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma margins flat, covering most of palea. Lemma apex acute. Palea 1 length of lemma, chartaceous, 1-keeled.

**Flower and Fruit.** Anthers 3, 2.5 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Angola. Namibia, Botswana, Northern Cape.

***Anthephora truncata*** Robyns. *Bull. Jard. Bot. Brux.* 9: 198 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from DRC. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Zaire, Kasenga: Robyns 1915 (K iso).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. trunco*, shorten by cutting off. Truncate with respect to ligules.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, 25–100 cm long, rooting from lower nodes. Leaf-sheaths hirsute, with tubercle-based hairs. Leaf-sheath auricles erect. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades 5–15 cm long, 2–5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 3–10 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, scabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 3–4 in the cluster. Companion sterile spikelets sessile, 3–4 in the cluster. Involucre composed of imperfect spikelets, connate into a disc below, oblong, 3.5–6 mm long, base obtuse.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, oblong, 3.5–6 mm long, as long as fertile or longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes united below, coriaceous, thinner on margins, winged on margins (above), 7–9 -veined, pubescent, emarginate to acute, awned, with 1–25 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 3.5–4 mm long, falling entire, deciduous with accessory branch structures.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume subulate, 1 length of spikelet.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 3 -veined, puberulous, acute. Fertile lemma lanceolate, 3.5–4 mm long, cartilaginous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat, covering most of palea. Lemma apex acute. Palea cartilaginous, 1-keeled.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** West-central tropical Africa, East tropical Africa, South tropical Africa. DRC. Tanzania. Zambia, Zimbabwe.

***Anthochloa lepidula*** Nees & Meyen. *Reise* 2: 14 (1834).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Meyen s.n.*, Peru: Andes, Lake Titicaca, 15000 ft (IT: LE-TRIN-2483.01, US-865410 (fragm.)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (153, Fig. 36), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (280, Fig. 90).

**Illustrations (Journals):** *Ruizia* (13:146, Fig15j-1 (1993) as *Antochloa*).

**Derivation** (Clifford & Bostock 2007): *L. lepidus*, pretty; -ula, diminutive.

**Classification.** Subfamily Pooideae. Tribe: Meliceae.

**Habit, Vegetative Morphology.** Perennial, cushion forming. Culms 3–12 cm long. Ligule an eciliate membrane, lacerate. Leaf-blades 1–5 cm long, 0.5–2 mm wide.

**Inflorescence.** Inflorescence a panicle, shorter than basal leaves, embraced at base by subtending leaf. Panicle spiciform, oblong or ovate, 0.7–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 3–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 4–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.5–2 mm long, 0.6–0.8 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume orbicular, 2–3 mm long, 0.6–0.7 length of adjacent fertile lemma, hyaline, without keels, 3 -veined. Upper glume apex obtuse.

**Florets.** Fertile lemma flabellate, 3–4 mm long, hyaline (herbaceous near base), pallid, without keel, 5 -veined, more than 3-veined. Lemma apex emarginate. Palea 0.5 length of lemma, hyaline, 2 -veined. Palea apex lobed, 4 -fid. Apical sterile florets resembling fertile though underdeveloped.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Colombia, Peru. Argentina Northwest, Chile North.

**TDWG4.** Jujuy, La Rioja, Salta, Tucuman. Tarapaca, Antofagasta.

**Anthosachne aprica** (Á. Löve & Connor) C. Yen & J.L. Yang. Yen et al, Xiao mai zu sheng wu xi tong xue [Triticeae biosystematics, *Kengyilia*, *Douglasdeweya*, *Agropyron*, *Australopyrum*, *Anthosachne*] 232 (2006). China Agricultural Press: Beijing.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Elymus*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Elymus*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Elymus*).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Elymus apricus* A. Löve & H.E. Connor, *New Zealand J. Bot.*, 20(2): 182 (1982). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand: Central Otago, hillsides above Roxburgh town, H.E. Connor s.n. (CHR-370822).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. growing in the sunshine. Savanna or grassland species.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or elongated. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms erect, 50–100 cm long. Culm-nodes black. Leaf-sheaths 7–10 cm long, keeled, striately veined, glabrous on surface or pubescent. Leaf-sheath oral hairs lacking or ciliate. Leaf-sheath auricles absent or falcate, 0.3–0.5 mm long. Ligule a ciliolate membrane, 0.3–0.5 mm long. Collar ciliate. Leaf-blades 20–30 cm long, 2–4 mm wide, glaucous. Leaf-blade surface ribbed, glabrous or pilose. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 18–25 cm long, bearing 3–7 fertile spikelets on each. Rhachis flattened, scabrous on margins. Spikelet packing broadside to rhachis. Rhachis internodes linear. Rhachis internode tip flat. Spikelets spreading or deflexed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 6–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic to oblong, laterally compressed, 30–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long, pubescent. Floret callus 0.75 mm long, pilose.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 5–10 mm long, 1 length of upper glume, coriaceous, without keels, 3 -veined. Lower glume margins ciliate. Lower glume apex acuminate to setaceously acuminate. Upper glume lanceolate, 5–10 mm long, coriaceous, without keels, 3 -veined. Upper glume margins ciliate. Upper glume apex acuminate to setaceously acuminate.

**Florets.** Fertile lemma lanceolate, 10–14 mm long, coriaceous, keeled, keeled above. Lemma surface scaberulous, rough above. Lemma margins scaberulous. Lemma apex entire or dentate, 2 -fid, awned, 1 -awned. Principal lemma awn apical or from a sinus, straight or curved, 22–45 mm long overall. Palea 6–13 mm long. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1–2.5 mm long, membranous. Anthers 3, 4–9 mm long, yellow or purple. Stigmas 2. Caryopsis with adherent pericarp, 7–10 mm long. Embryo 0.2 length of caryopsis.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand South I.

**Anthosachne falcis** (H.E. Connor) Barkworth & S.W.L. Jacobs. *Telopea* 13 (1–2): 49 (2011).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Elymus*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Elymus*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Elymus*).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Elymus falcis* H.E. Connor, *New Zealand J. Bot.*, 32(2): 132 (1994). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: New Zealand: Mt. Edwards, Canterbury, 5 Jan 1938, V.D. Zotov s.n. (CHR-19687).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. falx*, sickle. Of sickles, that is, the leaf-blades are often sickle-shaped.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal and intravaginal. Culms decumbent or prostrate, 10–35 cm long. Culm-internodes glaucous, smooth. Leaf-sheaths 2–5 cm long, striately veined, glabrous on surface or pubescent, with reflexed hairs. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.3–0.5 mm long, erose. Collar glabrous or pubescent. Leaf-blades curved, terete, 5–15 cm long, 0.5–0.7 mm wide, glaucous. Leaf-blade surface puberulous, hairy abaxially or on both sides. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 2–10 cm long, bearing 1–4 fertile spikelets on each. Rhachis flattened, smooth on margins or scaberulous on margins. Spikelet packing broadside to rhachis. Rhachis internodes linear. Rhachis internode tip flat. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic to oblong, laterally compressed, 40–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–2 mm long, pubescent. Floret callus 0.75 mm long, pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4–9 mm long, 1 length of upper glume, coriaceous, 1-keeled, 3 -veined. Lower glume apex acuminate to setaceously acuminate. Upper glume lanceolate, 4–9 mm long, coriaceous, 1-keeled, 3 -veined. Upper glume apex acuminate to setaceously acuminate.

**Florets.** Fertile lemma lanceolate, 8–12 mm long, coriaceous, pruinose, keeled. Lemma midvein scabrous. Lemma surface scabrous, rough above. Lemma apex awned, 1 -awned. Principal lemma awn curved, reflexed, 30–50 mm long overall. Palea 7–10 mm long. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1.2–1.4 mm long, membranous. Anthers 3, 2.4–2.5 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, 6–6.5 mm long. Embryo 0.15 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand South I.

**Anthosachne fertilis** (S. Wang ex S.W.L. Jacobs & Barkworth) Barkworth & S.W.L. Jacobs. *Telopea* 13 (1–2): 49 (2011).

**TYPE** from Australia. **Basionym or Replaced Name:** *Elymus fertilis* S. Wang ex S.W.L. Jacobs & M.E. Barkworth, *Novon* 19: 168 (2009). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Urban area, Moree, *N.Lloyd* 759, 13 Oct 1988 (NSW220373). Holo: NSW.

**Recent Synonyms:** *Elymus fertilis* S. Wang ex S.W.L. Jacobs & Barkworth, *Novon* 19: 168–170 (2009).

**Illustrations (Books):** S.W.L. Jacobs, R.D.B. Whalley & D.J.B. Wheeler., *Grasses of New South Wales*, 4th edn (2008) (237).

**Illustrations (Journals):** *Novon* (19, 169, Fig.1 (2009)).

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland, New South Wales.

**Anthosachne longisetata** (Hitc.) Barkworth & S.W.L. Jacobs. *Telopea* 13 (1–2): 49 (2011).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Elymus*), J.F. Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Elymus*).

**TYPE** from Papua New Guinea. **Basionym or Replaced Name:** *Brachypodium longisetum* Hitc., *Brittonia* 2(2): 107 (1936)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *L.J. Brass* 4446, May 1933–Jul 1933, Papua New Guinea: New Guinea, Central Div. (NY; IT: K, L, US-1614436).

**Recent Synonyms:** *Elymus longisetus* (Hitc.) J.F. Veldkamp, *Blumea*, 34(1): 74 (1989).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; seta, bristle. Glumes or lemmas long awned.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 50–80 cm long. Culm-internodes distally glabrous. Culm-nodes black, glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent or falcate. Ligule an eciliate membrane, 0.6–1 mm long. Leaf-blades flat or involute, 9–33 cm long, 1–5 mm wide. Leaf-blade surface glabrous to pilose.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, arcuate, bilateral, 7–20 cm long, bearing 4–10 fertile spikelets on each. Spikelet packing broadside to rhachis. Rhachis internodes linear. Spikelets solitary. Fertile spikelets sessile. Pedicels present, oblong, 1 mm long, puberulous.

**Fertile Spikelets.** Spikelets comprising 4–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic to oblong, laterally compressed, 20–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long, pubescent. Floret callus evident, 1 mm long, pilose, with elliptic scar.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 5–15 mm long, 0.75–0.85 length of upper glume, coriaceous, without keels, 3–5 -veined. Lower glume apex acute. Upper glume lanceolate, 6–18 mm long, 0.8–1.1 length of adjacent fertile lemma, coriaceous, without keels, 6–7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 11–16 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins convergent above. Lemma surface puberulous. Lemma apex acute, awned, 1 -awned. Principal lemma awn 32–42 mm long overall. Palea 1 length of lemma. Palea keels scabrous. Palea surface puberulous, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.5–2 mm long, retained within floret. Stigmas 2. Ovary pubescent on apex. Caryopsis with adherent pericarp, 7.5 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Papuasia.** New Guinea West Papua (Irian Jaya). New Guinea.

**Anthosachne multiflora** (Banks & Sol. ex Hook. f.) C. Yen & J.L. Yang. Yen et al, Xiao mai zu sheng wu xi tong xue [Triticeae biosystematics, *Kengyilia*, *Douglasdeweya*, *Agropyron*, *Australopyrum*, *Anthosachne*] 232 (2006). China Agricultural Press: Beijing.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Triticum multiflorum* Banks & Sol. ex Hook. f., *Fl. Nov.-Zel.* 1: 311 (1853). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: J. Banks & D. Solander s.n., 1769, New Zealand: Mercury Bay (BM). LT designated by Connor, New Zealand J. Bot. 32: 134 (1994).

**Recent Synonyms:** *Elymus multiflorus* (Banks & Sol. ex Hook.f.) A. Love & H. Connor, *New Zealand J. Bot.*, 20(2): 183 (1982).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dasher & F.M.James, *Grasses of South Australia* (2006) (264, Fig 204 as var. *multiflorus*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (237), Flora of Australia Oceanic Islands Poaceae 50(1993) & 49(1994) (49: 468 Fig.95 (1993) as var. *kingianus*).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. multus, many; flos, flower. Spikelets with more florets than those of related species.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect or geniculately ascending, 35–70 cm long. Ligule an eciliate membrane, truncate. Collar glabrous. Leaf-blades 3–6 mm wide, mid-green. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 7–15 cm long, bearing 6–12 fertile spikelets on each. Rhachis flattened, scabrous on margins. Spikelet packing broadside to rhachis. Rhachis internodes linear. Rhachis internode tip flat. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 6–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic to oblong, curved, laterally compressed, 10–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose, with 1–2 mm long hairs. Floret callus bearded.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 8–10 mm long, 0.9 length of upper glume, coriaceous, without keels, 3–7 -veined. Lower glume apex setaceously acuminate. Upper

glume lanceolate, 8–10 mm long, coriaceous, without keels, 3–7 -veined. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma lanceolate, 10–13 mm long, coriaceous, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex acute, muticous or mucronate or awned, 1 -awned. Principal lemma awn 1–5 mm long overall. Palea 1 length of lemma. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 3–5 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. Queensland, New South Wales, Victoria, Lord Howe-Norfolk Is. New Zealand North I, New Zealand South I.

**TDWG4.** Southern. Central, South East, Inland. Coast, Tablelands.

### **Anthosachne plurinervis** (Vickery) Barkworth & S.W.L. Jacobs. *Telopea* 13 (1–2): 50 (2011).

**Basionym or Replaced Name:** *Agropyron scabrum* var. *plurinervis* Vickery, *Contributions from the New South Wales National Herbarium* 1(6): 342–343 (1951). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: **Type:** New South Wales, Inverell, *E.O. Thomas*; December 1912 (holotype: NSW).

**Recent Synonyms:** *Elymus plurinervis* (Vickery) Connor, *New Zealand Journal of Botany* 43(2): 500 (2005).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (237), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (100, Fig 14).

**Classification.** Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 30–55 cm long. Leaf-sheath auricles falcate, 0.05–1.6 mm long. Ligule an eciliate membrane, 0.3–0.8 mm long. Leaf-blades 15–30 cm long, 1.8–4.1 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 1, single, bilateral, 21–70 cm long, bearing few fertile spikelets, bearing 6–13 fertile spikelets on each. Rhachis flattened. Spikelet packing broadside to rhachis, distant. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2–20 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 25–48 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate or obovate, 7.7–11 mm long, 0.9–1 length of upper glume, coriaceous, without keels, 5–6 -veined. Lower glume apex acute. Upper glume ovate or obovate, 8–12 mm long, 0.66–0.9 length of adjacent fertile lemma, coriaceous, without keels, 5–8 -veined. Upper glume apex acute.

**Florets.** Fertile lemma elliptic or ovate, 12–14.5 mm long, coriaceous, keeled, keeled above, 5–7 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn curved, 17–27 mm long overall. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 2.3–3 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, New South Wales, Victoria.

### **Anthosachne rectisetata** (Nees) Barkworth & S.W.L. Jacobs. *Telopea* 13 (1–2): 50(2011).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Vulpia rectisetata* Nees, *Lehm. Pl. Preiss.* 2: 107 (1846). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Preiss 1819.

**Recent Synonyms:** *Elymus rectisetatus* (Nees) A. Love & H.E. Connor, *New Zealand J. Bot.*, 20(2): 183 (1982).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (237).

**Derivation** (Clifford & Bostock 2007): L. *rectus*, upright; seta, bristle.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial. Basal innovations extravaginal and intravaginal. Culms geniculately ascending or decumbent, 100–150 cm long. Culm-internodes smooth or scaberulous, distally pubescent. Leaf-sheaths 5–10 cm long, hirsute, with simple hairs or reflexed hairs. Leaf-sheath auricles falcate,



0.5–1 mm long. Ligule an eciliate membrane, 0.1 mm long, truncate. Leaf-blades 18 cm long, 1–4 mm wide. Leaf-blade surface smooth or scaberulous, hirsute, hairy on both sides.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, drooping, bilateral, 10–20 cm long, bearing 5–10 fertile spikelets on each. Rhachis flattened, scabrous on surface. Spikelet packing broadside to rhachis. Rhachis internodes linear. Rhachis internode tip flat. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic to oblong, laterally compressed, 40–55 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–2.3 mm long, pilose. Floret callus 0.75 mm long, pilose.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4–10 mm long, 1 length of upper glume, coriaceous, 1-keeled, 3–5 -veined. Lower glume surface pilose, hairy at apex. Lower glume apex setaceously acuminate. Upper glume lanceolate, 4–10 mm long, coriaceous, 1-keeled, 3–5 -veined. Upper glume surface pilose, hairy at apex. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma lanceolate, 9–11 mm long, coriaceous, keeled above. Lemma apex awned, 1 -awned. Principal lemma awn straight, 30–50 mm long overall. Palea 9–11 mm long. Palea apex emarginate or truncate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1–1.25 mm long, membranous. Anthers 3, 1.8–2.3 mm long. Stigmas 2. Caryopsis with adherent pericarp, 6–6.5 mm long. Embryo 0.15 length of caryopsis.

$2n = 42$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. Western Australia, South Australia, New South Wales, Victoria, Lord Howe-Norfolk Is. New Zealand North I, New Zealand South I.

**TDWG4.** Eremean.

**Anthosachne sacandros** (H.E. Connor) Barkworth & S.W.L. Jacobs. *Telopea* 13 (1–2): 50 (2011).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Elymus sacandros* H.E. Connor, *New Zealand J. Bot.*, 32(2) 138 (1994). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand: Isolation Creek, NW of Ben More, Marlborough, 800 ft, Dec 1975, *A.P. Druce s.n.* (HT: CHR-279320).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. sakos*, shield; *aner*, male. The dense web of hairs on the upper leaf-surface immediately above the ligule resemble the male pubes.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal and intravaginal. Culms erect, 15–40 cm long, rooting from lower nodes. Leaf-sheaths 3–12 cm long, ribbed, scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking or pubescent. Leaf-sheath auricles absent or falcate, 0.5–1 mm long. Ligule an eciliate membrane, 0.2–0.3 mm long. Collar pilose. Leaf-blades filiform, involute, 10–80 cm long, 0.5–0.7 mm wide, glaucous. Leaf-blade surface ribbed, pubescent, hairy adaxially. Leaf-blade margins ciliate, hairy at base.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 5–20 cm long, bearing 4–8 fertile spikelets on each. Rhachis flattened. Spikelet packing broadside to rhachis. Rhachis internodes linear. Rhachis internode tip flat. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic to oblong, laterally compressed, 40–60 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long, pilose. Floret callus 1–1.5 mm long, bearded. Floret callus hairs 1.5–2.5 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4.5–6.5 mm long, 0.5–0.66 length of upper glume, coriaceous, without keels, 3–5 -veined. Lower glume apex setaceously acuminate. Upper glume lanceolate, 7–11 mm long, coriaceous, without keels, 5–7 -veined. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma lanceolate, 10–11.5 mm long, coriaceous. Lemma midvein thickened. Lemma surface scaberulous, rough above. Lemma margins scaberulous. Lemma apex awned, 1 -awned. Principal lemma awn curved, 25–60 mm long overall. Palea 10–11.5 mm long. Palea apex dentate, 2 -fid, acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1.5–2 mm long, membranous. Anthers 3, 3.8–5.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, 5–6 mm long. Embryo 0.25 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand South I.

**Anthosachne scabra** (R.Br.) Nevski. *Trudy Sredne-Aziatsk. Gosud. Univ., Ser. 8b, Bot.* 17: 65 (1934).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Australia. **Basionym or Replaced Name:** *Festuca scabra* Labill., non Vahl(1791), *Nov. Holl. Pl.* 1: 22. t. 26 (1804). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Festuca scabra* Labill. ; Australia, Tasmania: Coll?.

**Recent Synonyms:** *Elymus scabrus* (R. Br.) A.Löve, *Feddes Repert.* 95: 468 (1984).

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (as *Agropyron*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (as *A. scaber*), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (81 as *Agropyron*), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (137, Fig. 21 as var. *scabrus*).

**Derivation** (Clifford & Bostock 2007): L. rough or gritty to the touch. Plants with rough leaf-blades, spikelets or stems.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 25–120 cm long. Culm-internodes smooth or antrorsely scabrous. Culm-nodes glabrous. Leaves mostly basal. Ligule an eciliate membrane. Leaf-blades flat or involute, 10–40 cm long, 2–4 mm wide, glaucous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 15–25 cm long, bearing few fertile spikelets, bearing 2–12 fertile spikelets on each. Rhachis flattened. Spikelet packing broadside to rhachis, distant. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2–20 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 25–35 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 8–10 mm long, 0.66–0.8 length of upper glume, coriaceous, without keels, 3–5 -veined. Lower glume lateral veins ribbed. Lower glume apex acute. Upper glume oblong, 12 mm long, 1 length of adjacent fertile lemma, coriaceous, without keels, 5–7 -veined. Upper glume lateral veins ribbed. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 12 mm long, coriaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 30–40 mm long overall. Palea 0.9 length of lemma. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, elliptic, membranous. Anthers 3, 2.5 mm long. Stigmas 2. Ovary pubescent on apex. Caryopsis with adherent pericarp.

$2n = 42$  (4 refs TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania. New Zealand North I, New Zealand South I.

**Anthosachne solandri** (Steud.) Barkworth & S.W.L. Jacobs. *Telopea* 13 (1–2): 51 (2011).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Triticum solandrii* Steud., *Syn. Pl. Gram.* 347 (1854) ; *Triticum squarrosum* Banks & Soland. ex Hook.f., non Roth(1802), *Hook. Lond. Journ. Bot.* 3: 417 (1844). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *T. squarrosum* Hook.f. ; New Zealand, Totaranui: Banks & Solander (BM lecto).

**Recent Synonyms:** *Elymus solandri* (Steud.) H.E. Connor, *New Zealand J. Bot.*, 32(2): 140 (1994).

**Illustrations (Books):** No illustration found (BKS).

**Images:** R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);

**Derivation** (Clifford & Bostock 2007): in honor of Daniel Carl Solander (1736–1782) Swedish-born English botanist.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary or caespitose. Stolons present. Basal innovations extravaginal and intravaginal. Culms geniculately ascending or decumbent or prostrate, 40–100 cm long, rooting from lower nodes. Leaf-sheaths 3–5 cm long, keeled, puberulous. Leaf-sheath oral hairs pubescent. Leaf-sheath auricles falcate, 1–1.5 mm long. Ligule an eciliate membrane, 0.2–0.5 mm long, truncate. Collar pubescent.

Leaf-blades flat or conduplicate or involute, 15–21 cm long, 2–4 mm wide, glaucous. Leaf-blade surface ribbed, puberulous, hairy adaxially. Leaf-blade margins smooth or scaberulous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 8–20 cm long, bearing 3–15 fertile spikelets on each. Rhachis flattened. Spikelet packing broadside to rhachis. Rhachis internodes linear. Rhachis internode tip flat. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 4–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic to oblong, laterally compressed, 25–80 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–3 mm long, pubescent. Floret callus 0.75 mm long, pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3–11 mm long, 0.66 length of upper glume, coriaceous, 1-keeled, 3 -veined. Lower glume surface asperulous, rough above. Lower glume apex acuminate to setaceously acuminate. Upper glume lanceolate, 5–12 mm long, coriaceous, 1-keeled, 3–5 -veined. Upper glume surface asperulous, rough above. Upper glume apex acuminate to setaceously acuminate.

**Florets.** Fertile lemma lanceolate, 10–13 mm long, coriaceous. Lemma midvein thickened. Lemma margins scaberulous. Lemma apex awned, 1 -awned. Principal lemma awn curved, reflexed, 35–75 mm long overall. Palea 9.5–12 mm long. Palea apex dentate, 2 -fid, acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 1.25–1.5 mm long, membranous. Anthers 3, 3–5 mm long. Stigmas 2. Caryopsis with adherent pericarp, 5–6.5 mm long. Embryo 0.25 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand North I, New Zealand South I.

**Anthoxanthum aethiopicum** I. Hedberg. *Bot. Notiser* 129(1): 90 (1976).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Ethiopia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Ethiopia, Galama Mts: *Hedberg 4239* (UPS holo).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (41, Fig. 19).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. In classical usage Aethiopia was south of the Sudan and widely used in that sense.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated, wiry. Butt sheaths herbaceous. Culms erect or geniculately ascending or rambling, slender, 20–50 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 9–17 cm long, 2–4 mm wide, light green, aromatic. Leaf-blade surface glabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear or lanceolate, 3.5–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–8.4 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6.5–8 mm long, 0.75–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 7–8.4 mm long, 2.5–2.8 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 3.3–4.3 mm long, chartaceous, without keels, 5 -veined, emarginate, awned. Awn of lower sterile floret 2.6–4.4 mm long. Lemma of upper sterile floret oblong, 2.3–4.4 mm long, chartaceous, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 6.7–8.5 mm long. Fertile lemma oblong, 2.5(–3.6) mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex emarginate. Palea oblong, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Ethiopia (inc. Eritrea).

**Anthoxanthum altissimum** (Steud.) Veldkamp. *Blumea* 30(2): 347. 1985.

More checking of status required.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. **Basionym or Replaced Name:** *Hierochloe altissima* Steud., *Syn. Pl. Gram.* 13 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Lechler* 246, Nov.-Dec., Chile: Valdivia: Dep. Valdivia: near Arique and Valdivia (P; IT: BAA (fragm. ex K), BAA (fragm. ex K), BRU, CAEN-STEUD-165, K, L, LE, US-990306 (fragm. ex BRU, CAEN, LE)).

**Recent Synonyms:** *Hierochloe utriculata* (Ruiz & Pav.) Kunth, *Rev. Gram.* 1 193. t. 8. (1830).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. altus*, tall; *-issima*, most. Very tall compared with other members of the genus.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Chile Central, Chile South.

Biobio, La Araucania. Los Lagos, Aisen.

**Anthoxanthum amarum** Brot. *Phyt. Lusit.* 11. t. 4. f. 1. (1800).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Portugal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Portugal, Beira: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. unpleasant*. Foliage bitter to the taste.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths thickened and forming a bulb. Culms 60–90 cm long. Lateral branches lacking. Leaves mostly basal. Ligule an eciliate membrane. Leaf-blades lanceolate, 8–20 cm long, 6–15 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, 3–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–13 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 5–6 mm long, 0.5 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume elliptic, 10–13 mm long, 4 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 5–6 mm long, 1.5–2 length of fertile lemma, scarious, without keels, pubescent, lobed, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, 4–5 mm long. Lemma of upper sterile floret oblong, 5–6 mm long, 1 length of lower sterile floret, scarious, pubescent, lobed, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, geniculate, 7–8 mm long. Fertile lemma orbicular, 2.5–3 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 5 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp, ellipsoid. Hilum punctiform.

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region. Southwestern Europe.**

**Country /Province /State. :** Portugal, Spain. **Caucasus.** Transcaucasus.

**TDWG4.**

**Anthoxanthum arcticum** (Steud.) Veldkamp. *Blumea* 30(2): 349 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe pauciflora*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *Hierochloe pauciflora*).

**TYPE** from Canada. **Basionym or Replaced Name:** *Hierochloe pauciflora* R. Br., *Parry, Ist Voy. Suppl.* 193. (1824). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Parry s.n.*, 1820, Canada: Melville (BM; US (photo)).

ST: *Mr. Evens*, 1820, Melville Island (BM; US (photo)).

LT: *no. 67, Mr. Beverley*, 1820, Melville Island (BM; US (photo)). LT designated by A. J. W. [or M.?] (1935).

IST: *Ross Voy.*, 24 Jul 1820, Melville Island, Winter Harbour (BM; US (fragm. ex BM)).

**Recent Synonyms:** *Hierochloe pauciflora* R. Br., *Parry, Ist Voy. Suppl.* 193. (1824).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (763).

**Derivation** (Clifford & Bostock 2007): Gk *arktos*, north; *-ica*, belonging to. Occurring in and often extending beyond the Arctic.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 15–30 cm long. Culm-internodes smooth or scaberulous. Leaves mostly basal, much reduced on the culm. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades 10–20 cm long, 1–2 mm wide, aromatic. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 1.5–3 cm long, bearing few spikelets. Primary panicle branches appressed, bearing 1–2 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, shiny. Lower glume ovate, 2.5 mm long, 0.75 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3.5–4.5 mm long, 0.9 length of adjacent fertile lemma, hyaline, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 1 length of fertile lemma, membranous, 1-keeled, 5 -veined, scabrous, entire, acute, muticous or mucronate. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, membranous, scabrous, entire, acute, muticous or mucronate. Fertile lemma ovate, 4–5 mm long, cartilaginous, without keel, more than 3-veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 3 -veined, without keels.

**Flower and Fruit.** Anthers 2 (bisexual) or 3 (male). Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, North America.

**Region. Northern Europe, Eastern Europe.**

**Country /Province /State.** North European Russia. Siberia, Russian far east, **Middle Asia, Mongolia.** Krasnoyarsk. Sakhalin. **Subarctic America, Western Canada, Eastern Canada.** Alaska, Yukon, Northwest Territories, Nunavut. Manitoba. Ontario, Quebec.

**TDWG4.**

**Anthoxanthum aristatum** Boiss. *Voy. Bot. Espagne* 2: 638. 1839–1845.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (268 as *A. puelii*), G.Hegi, *Flora von Mitteleuropa* 1 (1909), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (761), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (466, Fig. 91), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:15(1980)).

**Derivation** (Clifford & Bostock 2007): L. *arista*, bristle; *-ata*, possessing. The apices of lemmas, paleas or glumes drawn out into a distinct awn.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Butt sheaths herbaceous, withering. Culms erect or geniculately ascending, 10–40 cm long, 4–5 -noded. Lateral branches sparse. Leaves mostly basal. Ligule an eciliate membrane, 1.5–3 mm long. Leaf-blades 0.8–6 cm long, 1–5 mm wide, aromatic. Leaf-blade surface glabrous or pubescent, hairy adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong or ovate, continuous or interrupted, 1–4 cm long, 0.3–1.2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.1–0.3 mm long, pubescent.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 5–7.5(–8) mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 3.6–5.2 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberrulous. Lower glume lateral veins absent. Lower glume surface glabrous. Lower glume apex acuminate, mucicous or mucronate. Upper glume elliptic, 5–7.5(–8) mm long, 2.5–4 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface glabrous. Upper glume apex acuminate, mucicous or mucronate.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 2.8–3.9 mm long, 1.5–2 length of fertile lemma, membranous, 1-keeled, 4–5 -veined, pilose, erose, truncate, awned. Awn of lower sterile floret dorsal, arising 0.6 way up back of lemma, 4–5 mm long. Lemma of upper sterile floret oblong, 3–4 mm long, 1 length of lower sterile floret, membranous, pilose, erose, truncate, awned. Awn of upper sterile floret dorsal, arising 0.1 way up back of lemma, geniculate, 7–10 mm long. Fertile lemma orbicular, (1.4–)1.6–2.1 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2.8–4.1 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp, ellipsoid. Embryo 0.33 length of caryopsis. Hilum punctiform.

$2n = 3$  (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Australasia (\*), North America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Great Britain. Estonia, Latvia, Lithuania. **Northern Africa, Macaronesia.** Azores, Canary Is. **Western Asia.** East Aegean Is. **Australia, New Zealand.** Victoria (\*). New Zealand South I. **Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, Southeastern USA.** British Columbia. Ontario. Oregon, Washington. Iowa, Missouri. Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, West Virginia. California. Alabama, Florida, Mississippi, North Carolina.

**TDWG4.**

**Anthoxanthum borii** Jain & Pal. *J. Bombay Nat. Hist. Soc.* 72(1): 92. 1975.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India, Pulney hills, Shenthadikanal: Bourne 1954 (CAL holo).

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills* (1996) (781, Pl. 781).

**Derivation** (Clifford & Bostock 2007): in honor of Norman Loftus Bor (1893–1972) Irish-born Indian forest botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 30–120 cm long. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths smooth, glabrous on surface or pilose, with tubercle-based hairs. Ligule an eciliate membrane, erose, acute. Leaf-blade base broadly rounded. Leaf-blades 5–35 cm long, 4–12 mm wide, aromatic. Leaf-blade surface glabrous or pilose, sparsely hairy.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate or oblong, 5–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate or ovate, 4.5–5 mm long, 0.66–0.75 length of upper glume, chartaceous, yellow, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate or ovate, 6–8 mm long, 2.5–3 length of adjacent fertile lemma, chartaceous, yellow, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 5–6 mm long, chartaceous, without keels, 5 -veined, pubescent, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, 3–4 mm long. Palea of lower sterile floret 4–5 mm long. Lemma of upper sterile floret oblong, 5–6 mm long, chartaceous, pubescent, dentate, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.33 way up back of lemma, straight, 10–12 mm long. Fertile lemma oblong or orbicular, 2–3 mm long, 1.5–2 mm wide, cartilaginous, without keel, 3–7 -veined, 0–3 -veined or more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea lanceolate, 1.5–2 mm long, 2 -veined.

**Flower and Fruit.** Lodicules absent. Anthers 2 or 3, 2–4 mm long. Stigmas 2, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

*N* = 28 (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Kerala. Tamilnadu.

**Anthoxanthum davidsei** (Pohl) J.F. Veldkamp. *Blumea* 30(2): 347 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. **Basionym or Replaced Name:** *Hierochloe davidsei* R. W. Pohl, *Iowa State J. Res.*, 47(1): 71 (1972). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.W. Pohl & G. Davidse 11004*, 23 Aug 1968, Costa Rica: San Josi: paramo along Carretera Interamericana, km 86, 3030 m, 9.45N 83.58W (ISC; IT: CR-50765, F, US).

**Recent Synonyms:** *Hierochloe davidsei* R. W. Pohl, *Iowa State J. Res.*, 47(1): 71 (1972).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Gerrit Davidse (1942-) Netherlands-born United States botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes elongated. Culms erect, 30–60 cm long, 2–3 mm diam. Culm-internodes thin-walled, distally glabrous. Lateral branches lacking. Leaves 5–7 per branch. Leaf-sheaths ribbed, glabrous on surface or pilose, with reflexed hairs. Ligule an eciliate membrane, 1.5–5 mm long, pubescent on abaxial surface, truncate. Leaf-blades 6–15 cm long, 5–8 mm wide, aromatic. Leaf-blade surface pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle 10–15 cm long, glabrous. Panicle spiciform, linear, continuous or interrupted, 3–11 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long, pubescent.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 4–4.5 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 5.5–6.5 mm long, 1.8–2.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate or oblong, 5 mm long, membranous, without keels, 5 -veined, ciliate on margins, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, arising 0.65–0.85 way up back of lemma, 1 mm long. Lemma of upper sterile floret oblong, 5 mm long, membranous, ciliate on margins, dentate, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.5 way up back of lemma, geniculate, 4–5.5 mm long. Fertile lemma oblong, 3 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex emarginate, muticous or mucronate. Palea oblong, 3 mm long, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 1.5 mm long, yellow. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Mesoamerica.** Costa Rica.

**Anthoxanthum dregeanum** (Trin.) Stapf. *Flora Capensis* 7: 466–467. 1899.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. **Basionym or Replaced Name:** *Hierochloe dregeana* Nees ex Trin., *Phalar.* 37 (1839). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *J.F. Drège s.n.*, South Africa (L, MO).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (92, Fig. 63).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Johann Franz Drhge (1794–1881) German horticulturalist and plant collector in South Africa.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect, 20–60 cm long. Ligule an eciliate membrane. Leaf-blades flat or conduplicate, 12–25 cm long, 4–9 mm wide, stiff, aromatic. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, continuous or interrupted, 4–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 4.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate. Upper glume oblong, 6–7 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, male or barren, with palea or without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 6 mm long, 2 length of fertile lemma, chartaceous, without keels, 5 -veined, pubescent, lobed, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, 3 mm long. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, pubescent, lobed, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, geniculate, 9–10 mm long. Fertile lemma orbicular, 3 mm long, cartilaginous, dark brown, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 4.5 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Western Cape.

**Anthoxanthum ecklonii** (Nees ex Trin.) Stapf. *Fl. Cap.* 7:466. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. **Basionym or Replaced Name:** *Hierochloe ecklonii* (Nees ex Trin.) Nees, *Fl. Afr. Austr.* 1: 7 (1841). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa, Cape: Coll?.

**Recent Synonyms:** *Anthoxanthum brevifolium* Stapf, *Kew Bull.* 1910, 59. (1910).

**Illustrations (Books):** G.V.Pope et al., *Flora Zambesiaca* 10 (1(1971):73, t. 21), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (94, Fig. 64), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (44, Fig. 18).

**Derivation** (Clifford & Bostock 2007): in honor of Christian Frederick Ecklon (1795–1868) German-born South African apothecary and plant collector.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely or moderately. Rhizomes elongated. Culms 35–80 cm long, swollen at the base, forming an ovoid corm. Ligule an eciliate membrane. Leaf-blades 7–25 cm long, 4–9 mm wide, aromatic.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or oblong, 4–13 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret.



**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 4.5–5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 6–8 mm long, 1.7–2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute, mucronate.

**Florets.** Basal sterile florets 2 or more, dissimilar, male or barren, with palea or without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 5 mm long, 1.3 length of fertile lemma, chartaceous, without keels, 5 -veined, pubescent, lobed, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, 2 mm long. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, pubescent, lobed, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, geniculate, 6–7 mm long. Fertile lemma orbicular, 3.5–4 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Malawi.

**Anthoxanthum flexuosum** (Hook. f.) J.F. Veldkamp. *Blumea*, 30(2): 347 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*).

**TYPE** from Sikkim. **Basionym or Replaced Name:** *Hierochloe flexuosum* Hook. f., *Fl. Brit. India* 7(21): 222 (1897) [1896]. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: King's collector s.n., Sikkim: Bijean (K).

**Recent Synonyms:** *Hierochloe flexuosa* Hook. f., *Fl. Brit. Ind.* 7: 222. (1896).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (591, Fig. 23).

**Derivation** (Clifford & Bostock 2007): L. *flecto*, bend; -osa, abundance. Inflorescence branches lax and drooping or bent in a zigzag fashion.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–60 cm long. Ligule an eciliate membrane. Leaf-blades 5–12 cm long, 2–4 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 5–8 cm long. Panicle branches capillary, flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume ovate, 5 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 5 mm long, chartaceous, 1-keeled, 5 -veined, pubescent, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret 1.5 mm long. Lemma of upper sterile floret oblong, 5 mm long, chartaceous, pubescent, lobed, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.5 way up back of lemma, geniculate, 5–6 mm long. Fertile lemma ovate, 3.5 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Anthers 2 (bisexual) or 3 (male), 1.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent. Eastern Himalaya.

**TDWG4.** Bhutan, Sikkim.

**Anthoxanthum glabrum** (Trin.) J.F. Veldkamp. *Blumea*, 30(2): 347 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Hierochloe*).

**TYPE** from Russia. **Basionym or Replaced Name:** *Hierochloe glabra* Trin., *Neue Entdeck. Pflanzenk.* 2: 66 (1821)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT?IT: *Hort. Gorenke ?Reliq. Fischer*, May, Dahuria (LE -a). b- "Lolius odoratus". HT: *Herb. Trinius*, Siberia: Dahurica (LE).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 455).

**Derivation** (Clifford & Bostock 2007): L. smooth. Leaf-blades lacking hairs.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes elongated. Culms 10–35 cm long. Leaf-sheaths pubescent. Ligule an eciliate membrane. Leaf-blades 3–9 cm long, 2–3 mm wide, aromatic. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or pyramidal, 3–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 2.5–3 mm long, 1 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2.5–3 mm long, 1.1–1.2 length of adjacent fertile lemma, hyaline, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 1 length of fertile lemma, coriaceous, dark brown, 1-keeled, 5 -veined, papillose, ciliate on margins, obtuse, mucicous. Lemma of upper sterile floret oblong, 0.9 length of lower sterile floret, coriaceous, scabrous, ciliate on margins, dentate, 2 -fid, obtuse, mucicous. Fertile lemma ovate, 2–2.5 mm long, membranous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea 1 -veined, without keels.

**Flower and Fruit.** Anthers 2 (bisexual) or 3 (male). Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, Russian far east, **Middle Asia, China, Mongolia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva, West Siberia, Yakutiya. Kamchatka, Khabarovsk, Kuril Is, Primorye, Sakhalin. Kazakhstan. China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, China Southeast, Xinjiang. Mongolia.

**TDWG4.** Hebei, Shandong, Anhui, Jiangsu, Zhejiang, Yunnan.

**Anthoxanthum gracile** Bivon. *Stirp. Rar. Sicil.* 1, [13] t. 1. f. 2. (1813).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Italy. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Italy,.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. slender. Culms or inflorescences slender.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 10–22 cm long. Lateral branches lacking or sparse. Leaf-sheaths loose or inflated, glabrous on surface. Ligule an eciliate membrane, 1.2–4 mm long, acute. Leaf-blades 1–7.5 cm long, 2–7 mm wide, aromatic. Leaf-blade margins ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle, comprising 4–9 fertile spikelets. Panicle contracted, linear or oblong, 1.5–3.5 cm long, 0.6–2 cm wide, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, ciliate.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 9–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 5.5–6.5 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 10–12 mm long, 4 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 6.5–9 mm long, 2.4–2.8 length of fertile lemma, chartaceous, without keels, 3 -veined, pilose, hairy below, lobed, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, pilose, lobed, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, geniculate, 20–22 mm long. Fertile lemma

orbicular, 2.7–3.2 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp, ellipsoid. Embryo 0.25 length of caryopsis. Hilum punctiform.

$2n = 10$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Sardinia. : Albania, Greece, Italy, Crete, Malta, Sicily. **Northern Africa.** Tunisia. **Western Asia.** East Aegean Is.

**Anthoxanthum gunckelii** (Parodi) J.F. Veldkamp. *Blumea*, 30(2): 348 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. **Basionym or Replaced Name:** *Hierochloe gunckelii* parodi, *Revista Mus. La Plata, Secc. Bot.* 3(14): 197, f. 5–6 (1941)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Parodi 13643*, Sep 1940, Cultivated from Gunckel s.n. collected in Chile, Depto. Valdivia, Corral (Amargos) (BAA; IT: SI (fragm. ex BAA & photo)).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (291, Fig. 189 as *Hierochloa*).

**Derivation** (Clifford & Bostock 2007): in honor of H. Gunckel (fl. 1931) who collected in Chile.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Basal innovations extraxillary. Culms 50–100 cm long. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, obtuse. Leaf-blades convolute, 15–35 cm long, 5–7 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, equilateral or nodding, 12–25 cm long. Primary panicle branches 1–2 -nate, 5–7 cm long. Panicle axis smooth or scaberulous. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 1.5 mm long. Floret callus pilose.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 5–6 mm long, 0.8 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein smooth or scaberulous. Lower glume apex acute. Upper glume ovate, 6–7 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins all falling short of apex. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 5.5–7 mm long, chartaceous, 1-keeled, 5 -veined, scabrous, eciliate on midvein or ciliolate on midvein, eciliate on margins or ciliolate on margins, fringed below, obtuse, awned. Awn of lower sterile floret subapical, 1 mm long. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.33 way up back of lemma, straight, 2 mm long. Fertile florets female. Fertile lemma ovate, 4.3–4.8 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma midvein eciliate or ciliolate. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea linear, 1 -veined, without keels.

**Flower and Fruit.** Anthers 3, 3.5 mm long. Staminodes two present. Ovary glabrous. Caryopsis with adherent pericarp, fusiform, 1.5 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** **Southern South America.** Argentina South, Chile Central, Chile South.

**TDWG4.** Río Negro. Biobio, La Araucanía. Los Lagos.

**Anthoxanthum hirtum** (Schrank) Y. Schouten & Veldkamp. *Blumea* 30(2): 348 (1985).

Regarded by K as a synonym (*A. nitens*).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *Hierochloe*).

**Basionym or Replaced Name:** *Savastana hirta* Schrank, *Baier. Fl.* 1: 337 (1789). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Germany, Bavaria, Fohring: Wellmann (M neo).

**Recent Synonyms:** *Hierochloe hirta* (Schrank.) Borb., *A Balaton Floraja* :315 (1900).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (763).

**Derivation** (Clifford & Bostock 2007): L. hairy. Hairy in part or extensively.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** Europe.

**Region.** Eastern Europe.

**Country /Province /State.** Central European Russia.

***Anthoxanthum hookeri*** (Griseb.) Rendle. *Journ. Linn. Soc.* 6: 380 (1904).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Sikkim. **Basionym or Replaced Name:** *Ataxia hookeri* Griseb., *Nachr. Ges. Wiss. Gottingen, Math.-Phys. Kl.* 77 (1868). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sikkim: 2743–3658 m, *J.D. Hooker* 2 (HT: ?; IT: L).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (591, Fig. 23), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 456).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph Dalton Hooker (1817–1911), English botanist, traveller and Garden's Director.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, weak, 15–70 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 8–16 cm long, 2–5 mm wide, flaccid.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or ovate, loose or effuse, 4–17 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 6 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.2 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 3.5 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume ovate, 6 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

**Florets.** Basal sterile florets 2 or more, dissimilar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 5.5 mm long, chartaceous, without keels, 5 -veined, pilose, dentate, 2 -fid, awned. Awn of lower sterile floret dorsal, arising 0.5 way up back of lemma, 1.5 mm long. Lemma of upper sterile floret oblong, 5.5 mm long, chartaceous, pilose, lobed, 2 -fid, awned. Awn of upper sterile floret dorsal, arising 0.2 way up back of lemma, geniculate, 9–10 mm long. Fertile lemma oblong, 3 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2.5 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central, Tibet. **Indian Subcontinent, Indo-China.** Eastern Himalaya, India, Nepal, Myanmar.

**TDWG4.** Guizhou, Sichuan, Yunnan, Bhutan, Sikkim, Tamilnadu.

***Anthoxanthum horsfieldii*** (Bennet) Reeder. *J. Arn. Arb.* 24:325 (1950).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A. clarkei*).

**TYPE** from Indonesia. **Basionym or Replaced Name:** *Ataxia horsfieldii* Kunth ex Benn., *Pl. Jav. Rar.* 8, pl. 3 (1838)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indonesia: Java:, *Horsfield 339* (HT: BM; IT: K, L, P).

**Recent Synonyms:** *Anthoxanthum clarkei* (Hook. f.) Ohwi, *Bull. Tokyo Sci. Mus.*, No. 18, 8 (1947).

**Illustrations (Books):** E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (27, Pl. 3 as *A. angustum*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 456).

**Derivation** (Clifford & Bostock 2007): in honor of Thomas Horsfield (1773–1859) United States physician and naturalist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 50–105 cm long. Culm-internodes thin-walled, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 0.7–2 mm long. Leaf-blades 15–37 cm long, 5–10 mm wide, flaccid, aromatic. Leaf-blade surface glabrous, hairless throughout or except near base. Leaf-blade margins glabrous or ciliate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, elliptic, continuous or interrupted, 3.5–13.5 cm long, 0.7–2.2 cm wide. Primary panicle branches 1–3 -nate, 1.5–5.4 cm long, bearing 5–28 fertile spikelets on each lower branch. Panicle axis glabrous. Panicle branches glabrous or pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4.5–7.4 mm long, 1.3–2.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 2.7–5.1 mm long, 0.5–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein eciliate or ciliolate. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume obovate, 4.4–7.3 mm long, 1.6–2.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein eciliate or ciliolate. Upper glume apex acute or acuminate.

**Florets.** Basal sterile florets 2 or more, dissimilar, male or barren, with palea or without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 3.7–6.4 mm long, membranous, without keels, 5 -veined, pubescent, hairy below, ciliate on margins, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, arising 0.6–0.8 way up back of lemma, 0.4–2.75 mm long. Lemma of upper sterile floret oblong, 3.6–5.8 mm long, membranous, pubescent, ciliate on margins, dentate, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.25–0.5 way up back of lemma, geniculate, 4–9.2 mm long. Fertile lemma oblong, 2.3–3.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex emarginate, mucicous or mucronate or awned, 1 -awned. Principal lemma awn 0–3.5 mm long overall. Palea linear, 2–3.4 mm long, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 1.8–3.6 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp, lanceolate or oblong, 1.6–2.2 mm long. Hilum punctiform.

**Distribution (TDWG).** Continent. Temperate Asia, Tropical Asia.

**Country /Province /State.** **China, Eastern Asia.** China South Central. Japan, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Assam, India. Myanmar, Thailand. Borneo, Java, Moluccas, Philippines, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea.

**TDWG4.** Guizhou. Meghalaya.

**Anthoxanthum japonicum** (Maxim.) Hackel ex Matsumura. *Bot. Mag., Tokyo*, 11:443 (1897).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Japan. **Basionym or Replaced Name:** *Hierochloe japonica* Maxim., *Bull. Acad. Sci. St. Petersb.* 32: 626 (1888). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan, Mt. Haku-san: Yatabe (LE holo).

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (224, Fig. 81), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (254 as *A. formosanum*), C-C Hsu, *Taiwan Grasses* (1975) (406, Pl. 1378 as *A. formosanum*).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to; Japan, a modified spelling Zhapan introduced into Europe by Marco Polo as a transliteration for the Chinese name for the large islands to the east of that country. From Japan.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes short. Culms slender, 26–65 cm long, 1–1.2 mm diam., 3–5 -noded. Culm-internodes distally glabrous. Lateral branches lacking.

Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 2–6 mm long, truncate or obtuse or acute. Leaf-blades linear or lanceolate, 12–20 cm long, 4–10 mm wide, aromatic. Leaf-blade surface smooth, pubescent, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, loose, 5–10 cm long, 1–3.5 cm wide. Primary panicle branches 2-nate, 1–3 cm long. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or oblong, laterally compressed, compressed slightly, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.7–1 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 3–4 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 5–7 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 5–7 mm long, chartaceous, without keels, 5-veined, pilose, dentate, 2-fid, obtuse, awned. Awn of lower sterile floret dorsal, arising 0.5 way up back of lemma, 1.5–2 mm long. Lemma of upper sterile floret oblong, 5–7 mm long, chartaceous, pilose, dentate, 2-fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.25 way up back of lemma, geniculate, 4–5 mm long. Fertile lemma elliptic or ovate, 2.5–3 mm long, cartilaginous, without keel, 5-veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex emarginate. Palea oblong, 1-veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2–2.5 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 70$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China, Eastern Asia. Japan, Taiwan. Japan Shikoku.

### **Anthoxanthum juncifolium** (Hack.) J.F. Veldkamp. *Blumea*, 30(2): 348 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. **Basionym or Replaced Name:** *Hierochloe utriculata* var. *juncifolia* Hack., *Anales Mus. Nac. Buenos Aires* 21: 64 (1911)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *N. Illin* 222, 20–25 Mar 1901, Argentina: Chubut: Dep. Languiño: region del Río Corcovado (W; IT: BAA, BAF, LPS-2543, SI, US-990307).

**Recent Synonyms:** *Hierochloe juncifolia* (Hack.) L. Parodi, *Not. Mus. La Plata, Bot.*, 3: 27 (1938).

**Illustrations (Books):** M.N.Corréa, *Flora Patagonica* Parte III, Gramineae (1978) (284, Fig. 184 as *Hierochloe juncifolia*).

**Derivation** (Clifford & Bostock 2007): *L. juncea*, rush-like; folium, leaf. With rush-like leaf-blades or culms.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Cataphylls evident. Culms 30–80 cm long. Leaf-sheaths longer than adjacent culm internode, smooth or scaberulous. Ligule a ciliolate membrane, 1–4 mm long, obtuse. Leaf-blades filiform, convolute, 7–35 cm long, 1–2 mm wide, stiff. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle spiciform, linear, continuous, 6–10 cm long. Panicle axis scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, pubescent, hairy at tip.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 5.5–6.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3-veined.

Lower glume primary vein scabrous. Lower glume apex acute. Upper glume ovate, 5.5–6.5 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 5–6.5 mm long, chartaceous, 1-keeled, 5 -veined, ciliolate on margins, obtuse, mucronate. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, ciliolate on margins, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.75 way up back of lemma, geniculate, 1.5–4 mm long. Fertile florets female. Fertile lemma ovate, 4–4.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea linear, 1 -veined, without keels.

**Flower and Fruit.** Anthers 3, 2.5–4 mm long. Staminodes two present. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Argentina South, Chile Central, Chile South.

**TDWG4.** Chubut, Neuquén, Río Negro. La Araucania. Los Lagos.

**Anthoxanthum latifolium** B.S.Sun & S.Wang. *Bull. Bot. Res. North-East. Forest. Inst.*, 10(4): 16 (1990).

Regarded by K as a synonym.

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Yongde, on ridge, 2750 m, 29 Aug. 1987, *B.S. Sun & Y.C. Wang 89019* (HT: YUNU).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. latus*, broad; *folium*, leaf. Leaf-blades broad or relatively broad with respect to related species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Yunnan.

**Anthoxanthum laxum** (Hook. f.) J.F. Veldkamp. *Blumea*, 30(2): 348 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*).

**TYPE** from India. **Basionym or Replaced Name:** *Hierochloe laxa* R. Br. ex Hook. f., *Fl. Brit. India* 7(21): 222 (1897)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Wallich 3796*, 1848, India Orient. (LE). *H. laxa* R.Br. ex Hook.f.. LT: *Thomson s.n.*, NW Himalaye: temperate region, 3050–3960 m (K; ILT: L). LT designated by ?; cited by Schouten & Veldkamp, *Blumea* 30: 348 (1985).

**Recent Synonyms:** *Hierochloe laxa* Hook. f., *Fl. Brit. India* 7:222 (1896).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. loose*. Inflorescence much branched either as a single panicle or from branching of the culms.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 20–75 cm long. Ligule an eciliate membrane, 0.75–2.5 mm long. Leaf-blades 2.5–17 cm long, 4–14 mm wide, aromatic. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 5–16 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 4–7 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume ovate, 4–7 mm long, 1.3–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 4.5–5.5 mm long, 1.5 length of fertile lemma, membranous, 1-keeled, 5 -veined, ciliolate on margins, emarginate or truncate, awned. Awn of lower sterile floret dorsal, 0.5–3 mm long.

Fertile lemma ovate, 3–4 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea, ciliate. Lemma apex acute, muticous or awned, 1 -awned. Principal lemma awn 0–2 mm long overall. Palea elliptic, 1 -veined, 1-keeled.

**Flower and Fruit.** Lodicules 2. Anthers 2 (bisexual) or 3 (male). Stigmas plumose. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** Western Asia, China. Iran. **Indian Subcontinent.** Pakistan.

**TDWG4.** Sikkim. Uttah Pradesh. Himachal Pradesh, Jammu Kashmir.

### ***Anthoxanthum madagascariense* Stapf. *Kew Bull.* 1897, 287. (1897).**

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar., *Baron 2050, 4098* (ST: K).

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (62, Fig. 12).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Madagascar.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths herbaceous. Culms erect, 15–60 cm long. Lateral branches lacking. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades 2.5–10 cm long, 3–4 mm wide, stiff, aromatic. Leaf-blade surface smooth or scaberulous, glabrous. Leaf-blade margins ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 3–8 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–4.5 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–5.5 mm long, 2.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 4.5 mm long, chartaceous, without keels, 5 -veined, pubescent, emarginate, awned. Awn of lower sterile floret 1 mm long. Lemma of upper sterile floret oblong, 4.5 mm long, chartaceous, pubescent, dentate, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.5 way up back of lemma, geniculate, 4–5 mm long. Fertile lemma oblong, 2 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

### ***Anthoxanthum mexicanum* (Fourn.) Hitchc. Fedde, *Repert.* 17: 291 (1921).**

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Ataxia mexicana* Rupr. ex E. Fourn., *Mexic. Pl.* 2: 71 (1886)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Galeotti 5756*, Mexico (BR; ILT: US-865363 (fragm. ex BR)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 17(3): ? (1913).

**Recent Synonyms:** *Hierochloe mexicana* (Fourn.) Hitchc., *Contrib. US Nat. Herb.* 24:614 (1930).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating origin. From Mexico.

**Classification.** Subfamily Pooideae. Tribe: Poeae.



**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 40–70 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 5–15 cm long, 2–4 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, interrupted, 6–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.2 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 3.5–4 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 5–6 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 5 mm long, chartaceous, without keels, 5 -veined, pubescent, bearing tawny hairs, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, arising 0.75 way up back of lemma, 1–1.5 mm long. Lemma of upper sterile floret oblong, 5 mm long, chartaceous, pubescent, dentate, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.25 way up back of lemma, geniculate, 6–7 mm long. Fertile lemma oblong, 2.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America.** Guatemala.

Oaxaca. Chiapas.

### ***Anthoxanthum monticola* (Sw.) Roem. & Schult. Syst. ii. 515. (1817).**

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe alpina*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *Hierochloe alpina*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Hierochloe alpina*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Hierochloe alpina*).

**TYPE** from Sweden. **Basionym or Replaced Name:** *Holcus alpinus* Sw. ex Willd., *Sp. Pl.* 4(2): 937 (1806)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Liljeblad in Swartz hb.*, Lapland (B-W-18699; IT: S). LT (at S) designated by G. Weimarck, *Bot. Not.* 134: 157 (1971) as S, but Willd. specimen would seem to be the HT [rjs].

**Recent Synonyms:** *Anthoxanthum monticulum* (Bigelow) Veldkamp, *Blumea* 30(2): 347 (1985).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (761 as *Anthoxanthum monticola*).

**Derivation** (Clifford & Bostock 2007): *L. alpes*, high mountain; -ina, belonging to. Species growing at high altitudes.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms 20–40 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane, 0.6 mm long. Leaf-blades involute, 1–2 mm wide, aromatic. Leaf-blade surface pubescent, hairy abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 1.5–4.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 5–8 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume ovate, 5–8 mm long, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 1 length of fertile lemma, chartaceous, 1-keeled, 5 -veined,

pubescent, dentate, 2-fid, obtuse, awned. Awn of lower sterile floret 2–4 mm long. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, pubescent, lobed, 2-fid, obtuse, awned. Awn of upper sterile floret geniculate, 4–8 mm long. Fertile lemma ovate, 5–8 mm long, cartilaginous, without keel, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 1-veined, without keels.

**Flower and Fruit.** Anthers 2 (bisexual) or 3 (male), 1.2 mm long. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, North America.

**Region.** Northern Europe, Eastern Europe.

**Country /Province /State.** : Finland, Norway, Svalbard, Sweden. North European Russia. Siberia, Russian far east, **China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva, West Siberia, Yakutiya. Kamchatka, Khabarovsk, Kuril Is, Primorye. Kazakhstan. Manchuria. Mongolia. Japan, Korea. Japan Hokkaido, or Honshu. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, Northeast USA.** Aleutian Is, Alaska, Yukon, Northwest Territories, Nunavut, Greenland. Alberta, British Columbia, Manitoba, Saskatchewan. Labrador, New Brunswick, Newfoundland, Nova Scotia, Prince Edward I, Quebec. Washington. Maine.

**TDWG4.**

**Anthoxanthum nitens** (Weber) Y. Schouten & Veldkamp. *Blumea*, 30(2): 348 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Hierochloe*).

**TYPE** from Germany. **Basionym or Replaced Name:** *Holcus odoratus* L., *Sp. Pl.* 2: 1048 (1753)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: Europe (LINN-1212.14, second specimen from the left). LT designated by Weimarck, *Bot. Not.* 124: 136 (1971).

**Recent Synonyms:** *Hierochloe odorata* (L.) Beauv., *Agrost.* t. 12. f. 5 (1812). *Poa nitens* Weber, *Prim. Fl. Holsat.* Suppl. 2: no. 6 (1787).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968), N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (523 (351), Pl.6 as *Hierochloe odorata*), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (220, Fig. 79 as *Hierochloe odorata*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (as *Anthoxanthum hirtum* & *A. nitens*), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 455).

**Derivation** (Clifford & Bostock 2007): *L. niteo*, shine. Spikelets or lemmas glossy at maturity.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect, 20–50 cm long. Ligule an eciliate membrane, 1.5–5(–6.5) mm long. Leaf-blades 18–30 cm long, 4–10 mm wide, aromatic. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 4–11 cm long. Primary panicle branches spreading, 2–4.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma, shiny. Lower glume ovate, 4–6 mm long, 1 length of upper glume, membranous, 1-keeled, 1–3-veined. Lower glume apex obtuse. Upper glume ovate, 4–6 mm long, 1.2–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1–3-veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 3.5–4.5 mm long, 1.2 length of fertile lemma, membranous, 1-keeled, 5-veined, puberulous, ciliolate on margins, obtuse. Palea of lower sterile floret scabrous. Fertile lemma ovate, 3 mm long, cartilaginous, shiny, without keel, 3–5-veined, 0–3-veined or more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 0.8 length of lemma, 1-veined, without keels.

**Flower and Fruit.** Lodicules 2. Anthers 2 (bisexual) or 3 (male), 1–3 mm long (bisexual 1–2mm, male 2–3mm). Stigmas plumose. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid. Embryo 0.5 length of caryopsis. Hilum linear.

**Distribution (TDWG). Continent.** Europe, Temperate Asia, North America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, and Eastern Europe.

**Country /Province /State.** : Great Britain. : Germany. Belarus, Baltic States, Central European Russia, North European Russia, South European Russia, Moldova, Ukraine. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia,** and **Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva, West Siberia, Yakutiya. Kamchatka, Khabarovsk, Kuril Is, Primorye, Sakhalin. Kazakhstan. China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, Xinjiang. Mongolia. Japan, Korea. **Subarctic America, Eastern Canada,** and **Northeast USA.** Nunavut. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia.

**TDWG4.** Gansu, Hebei, Shaanxi, Shandong, Shanxi. Henan. Guizhou, Sichuan, Yunnan.

**Anthoxanthum nivale** K. Schum. *Engl. Pflanzenw. Ost-Afr. C* 107. (1895).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Volkens 975*, Tanzania: Mount Kilimanjaro (K). ST: *Volkens 1154*, Tanzania (B).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (131, Fig. 55), R.M.Phill, F.T.E.A., *Gramineae* (1(1970):78, Fig. 26).

**Derivation** (Clifford & Bostock 2007): L. nix, snow; -ale, pertaining to. Growing near to permanent snow line.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Butt sheaths papery, persistent and investing base of culm, with soft dead sheaths. Culms erect, 25–90 cm long. Leaves mostly basal. Ligule an eciliate membrane, 5 mm long. Leaf-blades 8–25 cm long, 4–10 mm wide, aromatic. Leaf-blade surface glabrous or pubescent, hairy on both sides. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or oblong, continuous or interrupted, 5–15 cm long, 1–1.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, pubescent.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 4–5 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume elliptic, 7–9 mm long, 3–4 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein smooth or scabrous. Upper glume apex acuminate.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 3.5–5 mm long, 1.5–2 length of fertile lemma, membranous, without keels, 5 -veined, pilose, lobed, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, arising 0.6 way up back of lemma, 1–3 mm long. Lemma of upper sterile floret oblong, 3.5–5 mm long, 1 length of lower sterile floret, membranous, pilose, lobed, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.33 way up back of lemma, geniculate, 5–8 mm long. Fertile lemma orbicular, 2.5 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2–4.5 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp, ellipsoid. Embryo 0.33 length of caryopsis. Hilum punctiform.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Rwanda, DRC. Kenya, Tanzania, Uganda.

**Anthoxanthum occidentale** (Buckl.) J.F. Veldkamp. *Blumea*, 30(2): 348 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *Hierochloe odorata*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Hierochloe odorata*).

**TYPE** from USA. **Basionym or Replaced Name:** *Hierochloe occidentalis* Buckley, *Proc. Acad. Nat. Sci. Philadelphia* 14: 100 (1862)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Nuttall s.n.*, USA: Oregon: Columbia woods (PH; IT: US- (fragm. ex PH & photo 63; fragm. ex PH & photo rt 62)).

**Recent Synonyms:** *Hierochloe occidentalis* Buckl., *Proc. Acad. Sc. Philad.* 1862 :100 (1863). *Hierochloa odorata* (L.) Beauv. (1812).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (763).

**Derivation** (Clifford & Bostock 2007): L. occident, west; -ale, pertaining to.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms 60–90 cm long. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3–6 mm long, pubescent on abaxial surface, erose, obtuse or acute. Leaf-blades 20–40 cm long, 7–12 mm wide, aromatic. Leaf-blade venation prominent, with distinct cross veins. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 8–13 cm long, bearing few spikelets. Primary panicle branches drooping. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile floret, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, shiny. Lower glume ovate, 4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume ovate, 4 mm long, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 4.5 mm long, 0.9 length of fertile lemma, chartaceous, 1-keeled, 5 -veined, puberulous, ciliate on margins, dentate, 2 -fid, obtuse, muticous or mucronate. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, pubescent, ciliate on margins, lobed, 2 -fid, obtuse, muticous or mucronate. Fertile lemma ovate, 4.5 mm long, cartilaginous, shiny, without keel, more than 3-veined. Lemma surface puberulous, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 1 -veined, without keels.

**Flower and Fruit.** Anthers 2 (bisexual) or 3 (male), 2.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, Southwestern USA. Oregon, Washington. California.

### **Anthoxanthum odoratum** L. *Sp. Pl.* 28. (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**Basionym or Replaced Name:** *Hierochloa odorata*, . T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Anon.*, (LINN-46.1). LT designated by Cope in Jarvis et al., *Regnum Veg.* 127: 19 (1993).

**Recent Synonyms:** *Hierochloe hirta* (Schrank.) Borb., *A Balaton Floraja* :315 (1900).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (270 & 374), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (62, Fig. 12), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (222, Fig. 80), K.M.Matthew, *Flora Palni Hills* (1996) (782, Pl 782), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (501, Fig. 56), H.J.Noltie, *The Grasses of Bhutan* (2000) (591, Fig. 23), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (201, Fig. 150), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (27, Pl. 6), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (123), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (100), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (123, Fig. 19), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (148, Fig. 22), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1497, Pl. 219), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (761), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (143, Fig. 90), S.A.Renvoize, *Gramineas de Bolivia* (1998)

(171, Fig. 41), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (212, Fig. 62), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (564, Fig. 121 & 565, Fig. 122), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (49, Fig. 11), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (190, Fig. 51), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (291, Fig. 187), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 456 as *Anthoxanthum odoratum* ssp. *odoratum* & *A. odoratum* ssp. *alpinum*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:16(1980)).

**Illustrations (Journals):** *Ruizia* (13:166, Fig 18d-f (1993)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);.

**Derivation** (Clifford & Bostock 2007): *L. odora*, fragrance; -ata, possessing. Strongly scented with coumarin.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths papery, withering. Culms erect or geniculately ascending, 10–75(–100) cm long, 1–3 -noded. Lateral branches lacking. Leaves mostly basal. Ligule an eciliate membrane, 1–5(–7) mm long. Leaf-blades 1–12(–30) cm long, 1.5–5(–9) mm wide, aromatic. Leaf-blade surface glabrous or pubescent, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong or ovate, continuous or interrupted, 1–12 cm long, 0.6–1.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.5–1 mm long, pubescent.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 7–9.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 3.7–5.2 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex acuminate. Upper glume elliptic, 7–9.5 mm long, 3–5 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein smooth. Upper glume surface pubescent. Upper glume apex acuminate.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 2.8–3.6 mm long, 1.5–2 length of fertile lemma, membranous, without keels, 4–5 -veined, pilose, emarginate, awned. Awn of lower sterile floret dorsal, arising 0.6 way up back of lemma, 2–4 mm long. Lemma of upper sterile floret oblong, 3–3.5 mm long, 1 length of lower sterile floret, membranous, pilose, emarginate, awned. Awn of upper sterile floret dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 6–9 mm long. Fertile lemma orbicular, 1.7–2.4 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, (2.9–)3.5–4.8(–5.5) mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp, ellipsoid, 2 mm long. Embryo 0.33 length of caryopsis. Hilum punctiform.

$N = 4$  (4 refs TROPICOS).  $2n = 10$  (2 refs TROPICOS), or 20 (13 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Great Britain, Iceland, Ireland, Norway, Sweden. : Austria, Czechoslovakia, Germany, Netherlands, Poland, Switzerland. : France. : Italy. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa, Macaronesia, Southern Africa** (\*), **Middle Atlantic ocean, Western Indian ocean.** Algeria, Morocco, Tunisia. Azores, Madeira. Kwazulu-Natal, Eastern Cape. St Helena. Madagascar. Siberia, Russian far east, **Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Kuril Is, Sakhalin. Kazakhstan. Iran. Manchuria, China Southeast, Xinjiang. Mongolia. Japan, Korea, Taiwan (\*). Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent.** Assam, Eastern Himalaya, Pakistan, Sri Lanka. **Australia, New Zealand.** New South Wales (\*), A.C.T. (\*), Queensland (\*), South Australia (\*), Tasmania (\*), Victoria (\*), Western Australia (\*), Lord Howe-Norfolk Is (\*). Chatham Is, Kermadec Is, New Zealand North I, New Zealand South I, Stewart Is, Campbell Is, Auckland Is. **South-central Pacific** (\*), **North-central Pacific** (\*). Marquesas. Hawaii (\*). **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA.** Aleutian Is,

Alaska, Yukon, Northwest Territories, Nunavut, Greenland. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Kansas, North Dakota, Nebraska, South Dakota. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Nevada. New Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Costa Rica. Haiti, Jamaica. Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Southeast, Brazil South. Argentina Northeast, Argentina South, Chile Central, Chile South, Juan Fernandez Is, Uruguay. **Subantarctic islands.** Falkland Is (Malvinas), Macquarie Is, Tristan de Cunha.

**TDWG4.** Jiangxi. Darjeeling. Meghalaya. Tamilnadu, Uttah Pradesh. Himachal Pradesh. South-West. Southern. South East. Coast, Tablelands. Buenos Aires. Neuquén, Río Negro, Tierra del Fuego. Maule, Biobio, La Araucania. Los Lagos, Magallanes. Distrito Federal, Mexico State. Coahuila, Chihuahua, Durango, Hidalgo. Oaxaca. Chiapas.

**Anthoxanthum ovatum** Lag. *Elench.* 2. n. 15. (1816).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ovum*, egg; -ata, possessing. Inflorescences, spikelets, or leaf-blades ovate in outline.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 25–55 cm long. Lateral branches lacking. Leaves mostly basal. Ligule an eciliate membrane, 0.7–3 mm long. Leaf-blades 7–50 cm long, 1–5 mm wide. Leaf-blade surface pilose. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, ovate, 1–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 2.7–4 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate or ovate, 4.5–7 mm long, 2.5–3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 3.5–4.1 mm long, 1.5–2 length of fertile lemma, scarious, without keels, pilose, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, 4–5 mm long. Lemma of upper sterile floret oblong, 3.5–4.1 mm long, 1 length of lower sterile floret, scarious, pilose, dentate, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, geniculate, 8–11 mm long. Fertile lemma ovate or orbicular, 1.5–1.7 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2.3–3.5 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp, ellipsoid, 1.5–1.6 mm long. Hilum punctiform.

$2n = 10$ .

**Distribution (TDWG). Continent.** Europe.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al).

**Anthoxanthum pallidum** (Hand.-Mazz.) Tzvelev. *Rast. Centr. Azii, Mater. Bot. Inst. Komarov* 4: 35 (1968).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Basionym or Replaced Name:** *Hierochloe pallida* Hand.-Mazz., *Anz. Akad. Wiss. Wien*, 57: 273 (1920).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pale-colored*. Spikeletes or grain pale-green.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 7–16 cm long. Culm-nodes bearded. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades convolute, 2–5 cm long, 1–2 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 2.5–4 cm long, 0.4–0.5 cm wide. Primary panicle branches 1–2-nate, 0.5–1 cm long, bearing 1–5 fertile spikelets on each lower branch. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets obovate, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 1.5 mm long, 0.5–0.6 length of upper glume, membranous, pallid, 1-keeled, 3 -veined. Lower glume surface pubescent. Lower glume apex acute. Upper glume ovate, 3 mm long, 2 length of adjacent fertile lemma, membranous, pallid, 1-keeled, 3 -veined. Upper glume surface pubescent. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret linear, membranous, light brown, without keels, scaberulous, puberulous, dentate, 2 -fid. Lemma of upper sterile floret linear, membranous, scabrous, pubescent, dentate, 2 -fid, awned. Awn of upper sterile floret dorsal, 1 mm long. Fertile lemma ovate, 1.5 mm long, cartilaginous, dark brown, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 3 mm long. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Sichuan, Yunnan.

**Anthoxanthum pauciflorum** Adam. *Denkschr. Akad. Wien, Math. Nat.* 74: 116. (1904).

Regarded by K as a synonym (*A. hookeri*).

**Accepted by:** T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Hierochloa pauciflora*).

**TYPE** from ?China. **Basionym or Replaced Name:** *Hierochloe pauciflora*. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Montium* Babuna-Planina et Kajmakcalan (Nidze-Planina), *Dom Pilcz s.n.*

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. paucus*, few; *flos*, flower. Florets few per spikelet.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, 15–30 cm long. Culm-internodes smooth or scaberulous. Leaves mostly basal, much reduced on the culm. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades 10–20 cm long, 1–2 mm wide, aromatic. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 1.5–3 cm long, bearing few spikelets. Primary panicle branches appressed, bearing 1–2 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, shiny. Lower glume ovate, 2.5 mm long, 0.75 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3.5–4.5 mm long, 0.9 length of adjacent fertile lemma, hyaline, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 1 length of fertile lemma, membranous, 1-keeled, 5 -veined, scabrous, entire, acute, muticous or mucronate. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, membranous, scabrous, entire, acute, muticous or mucronate. Fertile lemma ovate, 4–5 mm long, cartilaginous, without keel, more than 3-veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 3 -veined, without keels.

**Flower and Fruit.** Anthers 2 (bisexual) or 3 (male). Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe.

**Region.** Eastern Europe.

**Country /Province /State.** North European Russia. Siberia, **Middle Asia. Subarctic America, Eastern Canada.**

**Anthoxanthum pluriflorum** (Koidz.) J.F. Veldkamp. *Blumea*, 30(2): 349 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*).

**TYPE** from Japan. **Basionym or Replaced Name:** *Hierochloe pluriflora* Koidz, *Bot. Mag. (Tokyo)* 31: 136 (1917)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: topo T: *Ohwi J.* 8 5155, Jul 1934, Japan: Jeso: Mt. Yubari (LE). HT: *Koidzumi s.n.*, 1916, Japan: Hokkaido: Prov. Ishikari, Mt. Yubaridake (KYO).

**Recent Synonyms:** *Hierochloe pluriflora* Koidz., *Bot. Mag., Tokyo*, 31: 136 (1917).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. plus, several; flos, flower. Florets several per spikelet.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes elongated. Culms 18–40 cm long, 1–1.2 mm diam. Ligule a ciliolate membrane. Leaf-blades involute, 25–40 cm long, 4–6 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 2–3 cm long, 1–1.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 5–6 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex obtuse. Upper glume ovate, 5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 4.5–5.5 mm long, chartaceous, 1-keeled, 5 -veined, pubescent, ciliate on margins, obtuse, mucicous or mucronate or awned. Awn of lower sterile floret 0–2 mm long. Lemma of upper sterile floret oblong, 4.5–5.5 mm long, chartaceous, pubescent, ciliate on margins, mucicous or mucronate or awned. Fertile lemma ovate, 4–5 mm long, cartilaginous, without keel, more than 3-veined. Lemma surface pubescent, hairy at base. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 1 -veined, without keels.

**Flower and Fruit.** Anthers 2 (bisexual) or 3 (male). Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Japan. Japan Hokkaido.

**Anthoxanthum potaninii** (Tzvelev) S.M. Phillips & Z.L. Wu. *Novon* 15(3): 476. 2005.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Hierochloa*).

**TYPE** from China. **Basionym or Replaced Name:** *Hierochloe potaninii* Tzvelev, *Rast. Tsentr. Asii* 4:35 (1968). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: W Gansu: Li-Dsha-Pu, 20 June 1885, *G. Potanin s.n.* (HT: LE).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 455).

**Derivation** (Clifford & Bostock 2007): In honor of Grigorij Nikolajevic Potanin (1835–1920) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes short. Culms erect, 50–120 cm long. Culm-internodes smooth. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 4–8 mm long. Leaf-blades flat, 8–15 cm long, 6–14 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 12–22 cm long, 2–6 cm wide. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-



flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 2–4 mm long, 0.5–0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth, glabrous. Lower glume apex obtuse or acute. Upper glume lanceolate, 3–6 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein smooth. Upper glume surface glabrous. Upper glume apex obtuse or acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 4–6 mm long, chartaceous, 1-keeled, 5 -veined, scabrous, ciliolate on margins, emarginate. Lemma of upper sterile floret lanceolate, 4–6 mm long, chartaceous, scabrous, ciliate on margins, emarginate, awned. Awn of upper sterile floret 2–4 mm long. Fertile lemma lanceolate, 3 mm long, cartilaginous, shiny, without keel. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea 1 -veined, without keels.

**Flower and Fruit.** Lodicules 2. Anthers 2 (bisexual) or 3 (male), 2–3.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** China. China North-Central.

**TDWG4.** Gansu.

### **Anthoxanthum pusillum** (Dusen) J.F. Veldkamp. *Blumea*, 30(2): 349 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. **Basionym or Replaced Name:** *Hierochloe pusilla* Hack. ex Dusén, *Ark. Bot.* 7(2): 4, t. 1, f. 7 (1907). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Dusen 5999*, Argentina: Santa Cruz: Río Chico, Río Fósiles, 900 m (S; IT: BAA (fragm. ex S), US (fragm. ex W), W).

**Recent Synonyms:** *Hierochloe pusilla* Hackel ex Dusen, *Arkiv Bot. Stockh.* 7 No. 2, 4 (1907).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. very small. Plants of small stature.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 5–10 cm long. Leaf-sheaths inflated, pubescent. Ligule an eciliate membrane, erose, truncate. Leaf-blades curved, flat or conduplicate, 1–3 cm long, 2–3 mm wide. Leaf-blade surface puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle pubescent above. Panicle spiciform, oblong, 1–2 cm long, 0.7–1 cm wide, bearing few spikelets. Panicle axis smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent, hairy at tip.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 4.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 4.5–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein extending to apex. Lower glume apex obtuse. Upper glume ovate, 4.5–5 mm long, membranous, 1-keeled, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 5 mm long, chartaceous, 1-keeled, 5 -veined, scaberulous, rough above, truncate or obtuse, muticous. Palea of lower sterile floret 3.5 mm long. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, scabrous, truncate or obtuse, muticous. Fertile florets female. Fertile lemma ovate, 3–3.5 mm long, cartilaginous, light brown, without keel, 5 -veined, more than 3-veined. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea linear, 1 -veined, without keels.

**Flower and Fruit.** Anthers 3, 2.5 mm long. Staminodes two present. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Southern South America. Argentina South, Chile South.

**TDWG4.** Santa Cruz, Tierra del Fuego, Magellanes.

### **Anthoxanthum rariflorum** (Hook. f.) J.F. Veldkamp. *Blumea*, 30(2): 349 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*).

**TYPE** from Australia. **Basionym or Replaced Name:** *Hierochloe rariflora* Hook. f., *Fl. Antarct.* 1: 93 (1844)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Hooker s.n.*, Australia (K).

**Recent Synonyms:** *Hierochloe rariflora* Hook. f., *Fl. Antarct.* 93. (1844).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. rarus*, far apart; flos, flower.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rootstock evident. Cataphylls evident. Basal innovations extravaginal. Culms geniculately ascending or decumbent, 60–100 cm long, wiry. Lateral branches ample. Ligule an eciliate membrane, 1 mm long. Leaf-blades deciduous at the ligule, flat or convolute, 10–20 cm long, 2–9 mm wide, aromatic. Leaf-blade apex acuminate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 4–10 cm long, 3–8 cm wide. Primary panicle branches branching divaricately. Panicle branches capillary, puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 2.5 mm long, 1 length of upper glume, herbaceous, 1-keeled, 3 -veined. Lower glume margins ciliate. Lower glume apex obtuse. Upper glume oblate, 2.5 mm long, 0.5 length of adjacent fertile lemma, herbaceous, 1-keeled, 3 -veined. Upper glume margins ciliate. Upper glume apex obtuse.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 4.5–5 mm long, 1 length of fertile lemma, membranous, 1-keeled, 5 -veined, scaberulous, rough above, ciliolate on margins, obtuse, mucous. Fertile lemma ovate, 4.5–5 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 1 -veined, 1-keeled.

**Flower and Fruit.** Lodicules 2. Anthers 2 (bisexual) or 3 (male). Stigmas plumose. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland, New South Wales, A.C.T., Victoria, Tasmania.

**Anthoxanthum redolens** (Vahl) P. van Royen. *Alp. Fl. New Guinea*, 2: 1185 (1979).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Tierra del Fuego. **Basionym or Replaced Name:** *Holcus redolens* Vahl, *Symb. Bot.* 2: 102 (1791)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: [*J.R. & G. Forster*] *Fabricius [misit]*, 20 Dec. 1774 – 3 Jan. 1775, Terra del Fuego (C; IT: BM-FORST, K (p.p. Tierra del Fuego)). "Vahl index card: Habitat in terra del fuego Prof Fabricius." This is a Forster collection sent to Vahl by Dr. Fabricius, of Kiel. See Hansen & Wagner, *Allertonia* 7: 345 (1998). The province of the C specimen has been argued to be New Zealand by Zotov [who saw a photo] (1973), or Fuegian by De Paula (1975).

**Recent Synonyms:** *Hierochloe redolens* (Vahl) Roem. & Schult., *Syst.* 2: 514. (1817).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. redoleo*, give off an odor. Inflorescences smell of coumarin.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations extravaginal. Culms erect, 50–100 cm long, 4–5 -noded. Culm-nodes glabrous. Lateral branches lacking. Ligule an eciliate membrane, 4–9 mm long, obtuse. Leaf-blades 15–45 cm long, 5–12 mm wide, stiff, aromatic. Leaf-blade surface ribbed (deeply), scaberulous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 10–20 cm long. Primary panicle branches 2 -nate, 5–10 cm long. Panicle branches capillary, pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–7 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 5–8 mm long, 1 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 5–8 mm long, 1.1–1.8 length of adjacent fertile lemma, hyaline, 1-keeled, 3 -veined. Upper glume apex obtuse or acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 6.5 mm long, 1.5 length of fertile lemma, chartaceous, 1-keeled, 5 -veined, scaberulous, ciliolate on margins, obtuse, awned. Awn of lower sterile floret dorsal. Fertile lemma ovate, 4.5 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 1 -veined, 1-keeled.

**Flower and Fruit.** Lodicules 2. Anthers 2 (bisexual) or 3 (male), 1.5–3.5 mm long. Stigmas plumose. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia, Australasia, South America, Antarctica.

**Country /Province /State. Malesia, Papuaasia.** New Guinea PNG, or West Papua (Irian Jaya). New Guinea. **Australia, New Zealand.** New South Wales, A.C.T., Victoria, Tasmania. Chatham Is, New Zealand North I, New Zealand South I. **Western South America, Southern South America.** Bolivia, Colombia. Argentina South, Chile Central, Chile South. **Subantarctic islands.** Falkland Is (Malvinas).

**TDWG4.** Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Coquimbo, Biobio. Los Lagos, Aisen, Magellanes.

**Anthoxanthum repens** (Host) J.F. Veldkamp. *Blumea*, 30(2): 349 (1985).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online (as *Hierochloe*).

**TYPE** from Austria. **Basionym or Replaced Name:** *Holcus repens* Host, *Icon. Descr. Gram. Austriac.* 3: 3 (1805)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Host 2386*, Austria: Pannonia (W). LT designated by Weimarck, *Bot. Not.* 124: 154 (1971).

**Recent Synonyms:** *Hierochloe repens* (Host) Beauv., *Agrost.* 62 (1812). *Anthoxanthum longifolium* (Reeder) P. van Royen, *Alp. Fl. New Guinea* 2: 1191 (1979).

*Hierochloe moorei* dePaula de Brooks, *Bol. Soc. Argent. Bot.* 15(4): 393 (1974).

*Hierochloe sorianoi* dePaula de Brooks, *Bol. Soc. Argent. Bot.*, 15(4): 396 (1974).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. repo, crawl. Rhizome well developed.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, mat forming. Rhizomes elongated. Butt sheaths grey. Culms 20–50 cm long. Ligule an eciliate membrane, 2–3.5 mm long. Leaf-blades 7–9 mm wide, pruinose, aromatic.

**Inflorescence.** Inflorescence a panicle, comprising 120–160 fertile spikelets. Panicle open, ovate, 6.5–10 cm long. Primary panicle branches 1–2 -nate. Panicle axis 11–12 noded. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous, hairy at tip, with 0.1–0.3 mm long hairs.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 3.4–4.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.3–0.6 mm long.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 3.4–4.2 mm long, 1 length of upper glume, membranous, 1-keeled. Lower glume apex acute. Upper glume ovate, 3.4–4.7 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 3.3–3.8 mm long, chartaceous, 1-keeled, 5 -veined, ciliate on margins, entire or dentate, 2 -fid, mucronate or awned. Awn of lower sterile floret terminal or subapical, 0.2–0.5 mm long. Lemma of upper sterile floret oblong, 3.3–3.8 mm long, chartaceous, ciliate on margins, entire or dentate, 2 -fid, mucronate or awned. Awn of upper sterile floret terminal or subapical, straight, 0.2–0.5 mm long. Fertile lemma ovate, 2.5–3.5 mm long, cartilaginous, without keel, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea 1 -veined, without keels.

**Flower and Fruit.** Anthers 2 (bisexual) or 3 (male), 1.6–2.7 mm long. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region. Middle Europe, Southeastern Europe, Eastern Europe.**

**Country /Province /State.** : Austria, Czechoslovakia, Hungary. : Bulgaria, Romania. Central European Russia, East European Russia, Northwest European Russia. **Caucasus.** North Caucasus.

**Anthoxanthum sikkimense** (Maxim.) Ohwi. *Bull. Tokyo Sci. Mus.*, No. 18, 8 (1947).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Basionym or Replaced Name:** *Hierochloe sikkimensis* Maxim., *Bull. Acad. Sci. St. Petersburg*. 32: 626 (1888). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sikkim: 3353–3658 m, *J.D. Hooker 1* (HT: ?; IT: L).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (591, Fig. 23).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Sikkim.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms weak, 15–30 cm long. Lateral branches lacking. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2 mm long, erose. Leaf-blades 5–10 cm long, 1–2 mm wide, flaccid, aromatic. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 2–5.5 cm long, 1 cm wide. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 3 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 5.5 mm long, 1.5 length of adjacent fertile lemma, membranous, with scarious margins, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate, mucronate.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 5 mm long, chartaceous, without keels, 5 -veined, pubescent, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, 2–4 mm long. Lemma of upper sterile floret oblong, 5 mm long, chartaceous, pubescent, dentate, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 9 mm long. Fertile lemma oblong, 3.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex emarginate. Palea oblong, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 3. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya, Nepal.

**TDWG4.** Yunnan. Sikkim.

**Anthoxanthum submuticum** (F.v.M.) J.F. Veldkamp. *Blumea*, 30(2): 349 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*).

**TYPE** from Australia. **Basionym or Replaced Name:** *Hierochloe submutica* F. Muell. *Trans. & Proc. Victorian Inst. Advancem. Sci.* 1855: 48 (1855)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Mueller s.n.*, Australia: Victoria: Cobberas Mts (MEL; IT: K).

**Recent Synonyms:** *Hierochloe submutica* F. Muell., *Trans. Vict. Inst.* 1: 48 (1855).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. sub, almost; mutica, blunt.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations extravaginal. Culms erect, 30–60 cm long. Culm-nodes glabrous. Lateral branches lacking. Ligule an eciliate membrane, 4–9 mm long, erose, truncate. Leaf-blades 5–25 cm long, 4–8 mm wide, stiff, aromatic. Leaf-blade surface ribbed (lightly), scaberulous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 5–18 cm long. Primary panicle branches 2-nate. Panicle branches capillary, pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 5–6 mm long, 1 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 5–6 mm long, 1.1–1.8 length of adjacent fertile lemma, hyaline, 1-keeled, 3 -veined. Upper glume apex obtuse or acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 5.5 mm long, 1.5 length of fertile lemma, chartaceous, 1-keeled, 5 -veined, scaberulous, ciliolate on margins, obtuse, mucous or mucronate. Fertile lemma ovate, 3.5 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea elliptic, 1 -veined, 1-keeled.

**Flower and Fruit.** Lodicules 2. Anthers 2 (bisexual) or 3 (male). Stigmas plumose. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, A.C.T., Victoria, Tasmania.

**Anthoxanthum tibeticum** (F.v.M.) J.F. Veldkamp. *Blumea*, 30(2): 350 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Hierochloe tibetica* Bor, *Kew Bull.* 8(2): 271–272 (1953)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Xizang: Kongbo Province, Pero La, 5000 m, 19 July 1935, *Ludlow, Sherriff & Taylor 5188* (HT: BM).

**Recent Synonyms:** *Hierochloe tibetica* Bor, *Kew Bull.* 1953, 271 (1953).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Tibet.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 9–18 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–2.5 mm long, truncate. Leaf-blades flat or involute, 3–5 cm long, 2 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle, comprising 10 fertile spikelets. Panicle open, dense, 2.5 cm long, 1 cm wide, bearing few spikelets. Panicle branches pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or cuneate, laterally compressed, truncate, 5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 5 mm long, 1 length of upper glume, membranous, much thinner above, purple, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume elliptic, 5 mm long, 1.2 length of adjacent fertile lemma, membranous, much thinner above, purple, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 4 mm long, 1 length of fertile lemma, membranous, glabrous or pubescent, bearing yellow hairs, lobed, 2 -fid, obtuse. Palea of lower sterile floret pubescent (at apex). Lemma of upper sterile floret oblong, 4 mm long, 1 length of lower sterile floret, membranous, pubescent, lobed, 2 -fid, awned. Awn of upper sterile floret 3 mm long. Fertile lemma elliptic or oblong, 2.5 mm long, cartilaginous, without keel. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma hairs yellow. Lemma apex obtuse or acute. Palea 1 -veined, without keels.

**Flower and Fruit.** Lodicules 2. Anthers 2 (bisexual) or 3 (male), 1–1.25 mm long. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Tibet.

**Anthoxanthum tongo** (Trin.) Stapf. Dyer, *Fl. Cap.* 7: 466. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from ?South Africa. **Basionym or Replaced Name:** *Ataxia tenuis* Trin., *Mem. Acad. Petersb.* 5: 78 (1840).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (91, Fig. 62).

**Derivation** (Clifford & Bostock 2007): on account of it having the scent of the tongo bean (*Diptery xodorata*).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, mat forming or caespitose. Culms decumbent or rambling, weak, 10–40 cm long. Ligule an eciliate membrane. Leaf-blades filiform, 2–10(–17) cm long, 1–2 mm wide, aromatic.

**Inflorescence.** Inflorescence a panicle or composed of racemes, comprising 3–30 fertile spikelets. Panicle contracted, linear or oblong, 1–3.5 cm long, bearing few spikelets. Racemes single, lanceolate, paucilateral, 1–2 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, 4.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume apex acute, mucronate. Upper glume oblong, 5–7 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, dissimilar, barren (or lower male), without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 4–5 mm long, 2 length of fertile lemma, chartaceous, without keels, 5 -veined, pubescent, lobed, 2 -fid, obtuse, awned. Awn of lower sterile floret dorsal, 2–4 mm long. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, pubescent, lobed, 2 -fid, obtuse, awned. Awn of upper sterile floret dorsal, geniculate, 10–13 mm long. Fertile lemma orbicular, 2.5 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex obtuse. Palea oblong, 1 length of lemma, 1 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2. Stigmas 2, protogynous, pubescent. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Western Cape.

**Anthoxanthum utriculatum** (R. & P.) Y. Schouten & J.F. Veldkamp. *Blumea* 30(2): 350 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. **Basionym or Replaced Name:** *Torresia utriculata* Ruiz & Pav., *Syst. Veg. Fl. Peruv. Chil.* 1: 251 (1798). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Ruiz & Pavon s.n., 16 Mar 1778–1788, Chile: Prov. Concepción (MA; IT: BAA (fragm. ex BAA)).

**Recent Synonyms:** *Hierochloe utriculata* (Ruiz & Pav.) Kunth, *Rev. Gram.* 1: 193. t. 8. (1830).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (*Fl. Pat.* 3: 284, Fig. 186 (1978) as *Hierochloe*).

**Derivation** (Clifford & Bostock 2007): L. utriculus, little belly; -ata, possessing. Seed fertile floret enclosed in remains of male florets.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Basal innovations extravaginal. Culms erect, robust, 70–130 cm long, 3–5 -noded. Culm-nodes brown, glabrous. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, obtuse. Leaf-blades 20–50 cm long, 5–14 mm wide. Leaf-blade venation with continuous uniform subepidermal sclerenchyma layer on the underside. Leaf-blade surface scabrous, rough on both sides, glabrous or pubescent, hairy adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle spiciform, linear, interrupted, 9–25 cm long, 1.2–3.3 cm wide. Primary panicle branches appressed. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-

flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 5–6 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume apex obtuse. Upper glume ovate, 5.5–6.5 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex obtuse.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 5–6 mm long, chartaceous, 1-keeled, 5 -veined, scabrous, ciliolate on midvein, obtuse, awned. Awn of lower sterile floret terminal, 0.5–1.5 mm long. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, chartaceous, scabrous, ciliolate on midvein, obtuse, awned. Awn of upper sterile floret terminal, straight, 0.5–1.5 mm long. Fertile florets female. Fertile lemma ovate, 4 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma margins convolute, covering most of palea. Lemma apex acute, muticous or mucronate. Palea linear, 1 -veined, without keels.

**Flower and Fruit.** Anthers 3, 2.5–4 mm long. Staminodes two present. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina South, Chile South.

**TDWG4.** Neuquén. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Aisen.

**Anthoxanthum wendelboi** (Weimarck) J.F. Veldkamp. *Blumea* 30(2): 350 (1985).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Hierochloe*).

**TYPE** from Afghanistan. **Basionym or Replaced Name:** *Hierochloe wendelboi* G. Weimarck, *Publ. Cairo Univ. Herb.* 7–8: 299 (1977). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Wendelbo & Ekberg W-9669*, 15 Jul 1969, Afghanistan: Laghman, Alishang, 2900–3200 m (GB).

**Recent Synonyms:** *Hierochloe wendelboi* G. Weimarck, *Publ. Cairo Univ. Herb.*, 78: 299 (1977).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Per Erland Berg Wendelbo (1927–1981) Norwegian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–60 cm long. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades 3–12 cm long, 3.5–9 mm wide, aromatic.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or ovate, dense, 3.5–7.5 cm long. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 3–5.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume ovate, 3–5.5 mm long, 1–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 3.5–5 mm long, 1.2–1.3 length of fertile lemma, membranous, 1-keeled, 5 -veined, ciliolate on margins, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret 0.5–2 mm long. Fertile lemma ovate, 3–4 mm long, cartilaginous, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea, ciliolate. Lemma apex acute, muticous or mucronate. Palea elliptic, 1 -veined, 1-keeled.

**Flower and Fruit.** Lodicules 2. Anthers 2 (bisexual) or 3 (male). Stigmas plumose. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Pakistan.

**Antinoria agrostidea** (DC.) Parl. *Fl. Palerm.* 1: 95 (1845).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from France. **Basionym or Replaced Name:** *Poa agrostidea* DC., *Syn. Gall.* 132 (1808). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: France: In littoribus Ligeris [Loire] prope Nannetes [Nantes], *Delaroche s.n.*.

**Illustrations (Books):** F.W.Gould, *The Grasses of Texas* (1975) (as *Aira elegans*), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (as *Aira elegans*).

**Derivation** (Clifford & Bostock 2007): Gk. -idea, resembling. Similar to *Agrostis* in habit or inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived. Culms geniculately ascending or decumbent, 5–30 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths smooth. Ligule an eciliate membrane, 3 mm long, lacerate. Leaf-blades 2–12 cm long, 1–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 1–10 cm long, 0.5–7 cm wide. Primary panicle branches branching divaricately. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, glabrous, tip pyriform.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.5–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume ovate, 1.5–2 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume apex obtuse. Upper glume ovate, 1.5–2 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, 0.7–0.8 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 3 -fid, truncate. Palea linear, 1 length of lemma.

**Flower and Fruit.** Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp, obovoid, dorsally compressed, plano-convex.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Southwestern Europe, Eastern Europe.

**Country /Province /State.** : France, Portugal, Spain. Krym, Ukraine. **Northern Africa.** Algeria, Libya, Morocco, Tunisia.

**TDWG4.**

**Antinoria insularis** Parl. *Fl. Palerm.* 1: 94 (1845).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Sicily. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Sicily, Ddingoli: Gussone (NAP syn).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 26).

**Derivation** (Clifford & Bostock 2007): L. insula, island; -are, pertaining to. Island species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or decumbent, 5–30 cm long. Ligule an eciliate membrane, 1.5–3 mm long. Leaf-blades 2–12 cm long, 1–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 2–10 cm long, 0.5–7 cm wide. Primary panicle branches 1.5–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1.5–3.8 mm long, glabrous, tip pyriform.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 1.3–1.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume ovate, 1.3–1.6 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 1.3–1.6 mm long, 1.6 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, 0.8–1 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 3 -fid. Palea linear, 1 length of lemma.



**Flower and Fruit.** Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp, obovoid, dorsally compressed, plano-convex.

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Corsica, Sardinia. : Italy, Crete, Sicily. **Northern Africa.** Libya. **Western Asia.** Lebanon-Syria, Palestine, Israel & Jordan, Turkey.

**Apera baytopiana** M. Dogan. *Notes Roy. Bot. Gard. Edinburgh* 40(1): 79 (1982).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Turkey, Koycegiz to Gokova: *Leblebici, Secmen & Bekat 2857* (EGE holo, ISTE).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Asuman Baytop ( -) Turkish pharmacist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms erect or geniculately ascending, 16–41 cm long, 3–4 -noded. Culm-internodes smooth, distally glabrous. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 1.2–3.7 mm long, lacerate, acuminate. Leaf-blades flat or involute, 2.5–7 cm long, 0.7–1.5 mm wide. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 2.2–6.2 cm long, 0.5–1.7 cm wide. Primary panicle branches appressed, 0.4–1.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.3–1.1 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.4–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume linear, 1.9–2 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn terminal, awn 0.8–1.5 mm long. Upper glume lanceolate, 2.5–2.7 mm long, 1.3–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate, awned, 1 -awned, awn terminal, awn 0.4–0.7 mm long.

**Florets.** Fertile lemma lanceolate, 1.5–2.1 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, straight, 1–2.3 mm long overall. Palea 1.4–1.6 mm long, 2 -veined.

**Flower and Fruit.** Anthers 3, 1.4–1.8 mm long. Caryopsis with adherent pericarp.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Turkey.

**Apera intermedia** Hackel. *Ann. Nat. Hofmus. Wien*, 20: 430 (1905).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Turkey, Erdschias-Dagh: *Penther & Zederbauer* (WU syn).

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 46), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (298, Pl. 107).

**Derivation** (Clifford & Bostock 2007): L. intermediate. Having affinities with but distinct from other species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, slender, 10–60 cm long, 3–4 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–6 mm long, lacerate. Leaf-blades convolute, 2–12 cm long, 1–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 3–20 cm long, 0.75–1.5 cm wide. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.2–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume lanceolate, 2.3–2.7 mm long, 0.9–1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn terminal, awn 0.3–0.5 mm long. Upper glume lanceolate, 2.6–2.8 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate, awned, 1 -awned, awn terminal, awn 0.3–0.5 mm long.

**Florets.** Fertile lemma lanceolate, 2.2–2.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, flexuous, 9–10 mm long overall. Palea 0.9–1 length of lemma, 2 -veined.

**Flower and Fruit.** Anthers 3, 1.2–1.5 mm long. Caryopsis with adherent pericarp. Endosperm liquid.

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Northern Europe (\*), Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Turkey Europe. **Caucasus, Western Asia.** Transcaucasus. Iran, Iraq.

**TDWG4.**

### **Apera interrupta** (L.) Beauv. *Agrost.* 31. (1812).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from France. **Basionym or Replaced Name:** *Agrostis interrupta* L., *Syst. ed.* 10: 872 (1759). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *Giraudias s.n. [Kneucker, Gramineae Exsiccatae XVII, Lieferung 1905, no. 497]*, May-Jun 1902–1903, France: Loire, Orleans (BM). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 243 (2000).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (292), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (789), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (188, Fig. 52), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (350, Fig. 233).

**Derivation** (Clifford & Bostock 2007): L. not continuous. Spikelets or inflorescence branches clustered at intervals along an axis.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms erect or geniculately ascending, 10–70 cm long, 2–4 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades convolute, 5–12 cm long, 0.5–4 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, ovate, interrupted, 3–20 cm long, 0.4–1.5 cm wide. Primary panicle branches appressed or ascending, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–2 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume lanceolate, 1–2 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2–2.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 2–2.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, straight, 4–10 mm long overall. Palea 0.75 length of lemma, 2 -veined.

**Flower and Fruit.** Anthers 3, 0.3–0.4 mm long. Caryopsis with adherent pericarp, ellipsoid. Endosperm liquid.

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Great Britain, Sweden. : Austria, Czechoslovakia, Germany, Hungary, Switzerland. : France, Portugal, Spain. : Albania, Bulgaria, Italy, Romania, Turkey Europe, Yugoslavia. Krym, East European Russia, South European Russia. **Northern Africa, Macaronesia.** Algeria, Tunisia. Canary Is. **Middle Asia, Caucasus, Western Asia.** Kazakhstan, Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq. **Western Canada, Northwest USA, North-central USA.** British Columbia. Idaho, Oregon, Washington. Missouri. **Southern South America.** Argentina South, Chile Central.

TDWG4. Mendoza. Chubut, Neuquén, Río Negro. La Araucanía.

**Apera spica-venti** (L.) Beauv. *Agrost.* 32 (1812).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**Basionym or Replaced Name:** *Agrostis spica-venti* L., *Sp. Pl.* ed. I. 61 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Herb. A. Van Royen no. 912.356–53*, (L). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 243 (2000).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (290), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (789), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:17(1980)).

**Derivation** (Clifford & Bostock 2007): *L. spica*, thorn; *venti*, of the wind. Panicle branches long and thin enabling spikelets to wave in the breeze.

**Classification.** Subfamily Pooideae. Tribe: Poae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 20–100 cm long, 3–5-noded. Ligule an eciliate membrane, 3–12 mm long. Leaf-blades 7–25 cm long, 3–10 mm wide. Leaf-blade surface scabrous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–25 cm long, 3–15 cm wide. Primary panicle branches spreading, whorled at most nodes, profusely divided, 3–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume lanceolate, 2.2–2.5 mm long, 0.75–0.9 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 2.1–2.8 mm long, membranous, without keel, 5-veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex acute, awned, 1-awned. Principal lemma awn subapical, flexuous, 5–10 mm long overall. Palea 0.9–1 length of lemma, 2-veined.

**Flower and Fruit.** Anthers 3, 1–2 mm long. Caryopsis with adherent pericarp, ellipsoid. Endosperm liquid.  $2n = 14$  (6 refs TROPICOS).

**Distribution (TDWG).** Continent. Europe, Africa, Temperate Asia, North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Great Britain, Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : Corsica, France, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Romania, Turkey Europe, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa.** Algeria, Morocco. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Primorye. Kazakhstan, Tadjikistan. **North-central USA, Northeast USA, Southeastern USA.** Missouri. Connecticut, Maine, Massachusetts, Ohio, New Jersey, New York. Delaware, Maryland. **Western South America.** Colombia.

TDWG4.

**Apera triaristata** M. Dogan. *Notes Roy. Bot. Gard. Edinburgh*, 40(1): 81 (1982).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Turkey, Denizli: *Huber-Morath 12496*. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turkey, Denizli: Huber-Morath 12496.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. tres*, three; *arista*, bristle; *-ata*, possessing. Spikelets with lower glume two-awned and upper glume one-awned.

**Classification.** Subfamily Pooideae. Tribe: Poae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms erect, 15–23 cm long, 3-noded. Culm-internodes smooth, distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–5 mm long, lacerate. Leaf-blades 4.5–8 cm long, 1.5–2.5 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, dense, 2–10 cm long, 0.8–2.5 cm wide. Primary panicle branches ascending, 1–2.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.3–0.8 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.6–2.9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume lanceolate, 1.9–2.1 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1-awned, awn terminal, awn 2.2–2.9 mm long. Upper glume lanceolate, 2.4–2.6 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume apex acuminate, awned, 1-awned, awn terminal, awn 1.5–1.7 mm long.

**Florets.** Fertile lemma lanceolate, 2–2.4 mm long, membranous, without keel, 5-veined, more than 3-veined. Lemma surface granulose, rough above. Lemma apex acute, awned, 1-awned. Principal lemma awn subapical, straight or curved, 6.5–10 mm long overall. Palea 2 mm long, 2-veined.

**Flower and Fruit.** Anthers 3, 1.5–1.7 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Western Asia. Turkey.

**Aphanelytrum peruvianum** Sanchez Vega, P.M.Peterson, Soreng & Laegard. *Journ. Bot. Instit. Texas* 1: 842 (2007).

**TYPE** from Peru. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: prov. Cajamarca, Dist. Cajamarca, Cerro Akumullca, al SO de Cajamarca sobre la cima de la ladera occidental del Valle de Cajamarca, 7.14.15S 78.29.24S, 3300 m, 20 Mar 2003, *I. Sánchez Vega 11718* (HT: CPUN; IT: AAU, F, HAO, HUT, LOJA, MICH, MO, S, US).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. From Peru.

**Classification.** Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal. Culms geniculately ascending, 14–24 cm long. Culm-internodes 0.3–1.3 cm long. Leaf-sheaths longer than adjacent culm internode, keeled. Ligule an eciliate membrane, 2–3 mm long, erose or lacerate. Leaf-blades flat or involute, 3–7 cm long, 0.2–1.2 mm wide, 1.6 cm long at summit of culm. Leaf-blade apex hooded.

**Inflorescence.** Inflorescence a panicle, comprising 5–10 fertile spikelets. Panicle open, linear, 1.7–2.5 cm long. Primary panicle branches appressed, simple, bearing 2 fertile spikelets on each lower branch. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or cuneate, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.2–2 mm long.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume linear, 1–2 mm long, 1 length of upper glume, 1-veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1–2 mm long, 0.25–0.33 length of adjacent fertile lemma, 3(–4)-veined. Upper glume apex entire or dentate, 2-fid, acute.

**Florets.** Fertile lemma lanceolate, 2.2–3.5 mm long, herbaceous, keeled, 3–5-veined, 0–3-veined or more than 3-veined. Lemma apex dentate, 3-fid, with lobes 0.1–0.3 mm long. Palea 2–3.2 mm long. Palea keels scabrous. Palea apex dentate, 2-fid.

**Flower and Fruit.** Lodicules 2, lanceolate, 0.7–0.8 mm long. Anthers 3, 2–2.9 mm long, yellow. Ovary glabrous.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Peru.

**Aphanelytrum procumbens** (Hack.) Hack. *Oesterr Bot. Zeitschr.* 1902, 13. (1902).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Basionym or Replaced Name:** *Brachyelytrum procumbens* Hack., Engl. & Prantl, *Pflanzenf* 2(2):. Nachtr 42 (1897). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sodirol*, *s.n.*, Ecuador: Prov. unknown: 2000 m [En los bosques subandinos Canzacoto, á 2000 metros sobre el nivel del mar. Raro] (W; IT: US-865406 (fragm. ex W)). [see Hackel, *Oesterr. Bot. Z.* 52: 12 (1902)].

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (124, Fig. 30), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (278, Fig. 89).

**Derivation** (Clifford & Bostock 2007): *L. procumbo*, fall down. Culms creeping.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, mat forming. Culms prostrate, 30–50 cm long (long), rooting from lower nodes. Ligule an eciliate membrane, 2 mm long. Leaf-blades 3–10 cm long, 2–3 mm wide, flaccid.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, effuse, 6–22 cm long. Primary panicle branches whorled at most nodes, simple, bearing 2–3 fertile spikelets on each lower branch. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–2 mm long, eventually visible between lemmas.

**Glumes.** Glumes both absent or obscure (rarely to 1mm long).

**Florets.** Fertile lemma lanceolate, 4–9 mm long, herbaceous, keeled, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex setaceously acuminate. Palea keels eciliate.

**Flower and Fruit.** Anthers 3, 4 mm long. Ovary glabrous. Caryopsis with adherent pericarp. Hilum elliptic.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia, Colombia, Ecuador.

## ***Apluda mutica* L. Sp. Pl. 82. (1753).**

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from India. **Basionym or Replaced Name:** *Apluda pedicellata* Buse ex DeVriese, *Pl. Ind. Bat. Reinw.* 105 (1857). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: India (LINN-1213.1). LT designated by Cope in Jarvis et al., *Regnum Veg.* 127: 20 (1993).

**Illustrations (Books):** N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 69), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (509, Pl. 194), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (466, Fig 183), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (634), C-C Hsu, *Taiwan Grasses* (1975) (617, Pl. 1453), K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 804 & 805), H.J.Noltie, *The Grasses of Bhutan* (2000) (801, Fig. 57), H.B.Gilliland, *Grasses of Malaya* (1971) (274, Fig. 58), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (650), S-L Chen et al, *Flora of China*, *Illustrations*, Poaceae (2007) (Fig. 860).

**Images:** H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);

**Derivation** (Clifford & Bostock 2007): *L. blunt*. Lacking awns or lemmas and/or glumes truncate.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ISCHAEMINAE.

**Habit, Vegetative Morphology.** Perennial. Culms scandent or decumbent or prostrate, 30–300 cm long, rooting from lower nodes. Ligule a ciliolate membrane. Leaf-blade base tapering to the midrib. Leaf-blades 5–25 cm long, 2–10 mm wide. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Synflorescence compound, paniculate, 3–40 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole ovate, 3.5–10 cm long, membranous. Racemes 1, single, bearing a triad of spikelets. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, oblong, flattened, subequal, 2–4 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets rudimentary or well-developed (pair unequal), male, lanceolate, dorsally compressed, 2–5 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes herbaceous, acute, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets oblong, laterally compressed, 2–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong (bulbous), 0.5–2.5 mm long, base obtuse.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, much thinner above, without keels, keel-less except near apex, winged on keel, winged narrowly, 13 -veined. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, gibbous, chartaceous, 1-keeled, 5–9 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 0.9 length of spikelet, hyaline, 3 -veined, acute. Fertile lemma oblong, 4 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex entire or lobed, 2 -fid, incised 0.6 of lemma length, mucicous or awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 4–12 mm long overall, without a column or with twisted column. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.**  $N = 10$  (5 refs TROPICOS), or 30 (2 ref TROPICOS).  $2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America (\*), South America.

**Country /Province /State. Northeast tropical Africa.** Socotra. **Middle Asia, Western Asia, Arabian Peninsula, China, Eastern Asia.** Turkmenistan, Uzbekistan. Afghanistan, Iraq. Oman. China South Central, Hainan, China Southeast, Tibet. Nansei-Shoto, Ogosawara-shoto, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, Bangladesh, Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka, West Himalaya. Cambodia, Laos, Myanmar, Thailand, Vietnam. Borneo, Cocos (Keeling) Is, Java, Lesser Sunda Is, Malaya, Moluccas, Philippines, Sulawesi, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is. **Australia.** Queensland. **Southwestern Pacific.** New Caledonia, Vanuatu. Caroline Is. **Southeastern USA.** Maryland. **Caribbean, Western South America.** Jamaica (\*), Windward Islands (\*). Galapagos.

**TDWG4.** Fujian, Guangdong, Guangxi, Henan, Hunan, Jiangxi, Zhejiang. Guizhou, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. North.

**Apochiton burttii** C. E. Hubbard. *Hook. Ic. Pl.* 34: t. 3319 (1936).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kondoa Irangi District near Sambala: *B.D.Burt* 2602 (K holotype; iso BM, US 1646885).

**Illustrations (Books):** R.M.Phill, F.T.E.A., *Gramineae* (2(1974) :187, Fig. 59).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (3319 (1936)).

**Derivation** (Clifford & Bostock 2007): in honor of Burt who collected in Tanzania.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending or decumbent, 20–90 cm long, rooting from lower nodes. Leaves mostly basal. Ligule an eciliate membrane, 0.5 mm long, erose, truncate. Leaf-blades 4–30 cm long, 1.5–4 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or ovate, 3–20 cm long, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present, filiform or linear, 1–2 mm long.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

**Glumes.** Glumes persistent, similar, subequal in width, shorter than spikelet. Lower glume lanceolate, 4.5–5 mm long, 0.8–0.9 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate, mucronate or awned, 1 -awned, awn 0.2–2.5 mm long. Upper glume lanceolate, 5–6.5 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate, mucronate or awned, 1 -awned, awn 0.2–2.5 mm long.

**Florets.** Fertile lemma ovate, 4–5.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma surface pubescent, hairy below. Lemma apex acute, awned, 1 -awned. Principal lemma awn 2–3 mm long overall. Palea 0.5–0.7 length of lemma, 2 -veined. Palea keels ciliate, adorned below, with 0.5–0.7 of their length adorned. Palea apex dentate, 2 -fid, acuminate, awned, awns 2–3.5 mm long. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, entire, emarginate. Anthers 3, linear. Stigmas 2. Caryopsis with free soft pericarp, ellipsoid, isodiametric, trigonous. Embryo 0.3–0.4 length of caryopsis. Endosperm farinose. Disseminule comprising a floret.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa. Tanzania.

***Apochloa animara*** (S.A. Renvoize) Zuloaga & Morrone. *Systematic Botany* 33: 290 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum animarum* S.A. Renvoize, *Kew Bull.*, 32(2): 423 (1978). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: R.M. Harley et al. 15411, 22 Jan 1974, Brazil: Bahia: Rio de Contas, Pico de Almas, ca. 25 km WNW of town of Rio de Contas, 1500 m (K; IT: CEPEC, R, US-2967813).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (144, Fig.60 as *Panicum*).

**Derivation** (Clifford & Bostock 2007): from the Sierra de las Animas, Uruguay.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 80–110 cm long. Leaves without demarcation between sheath and blade. Leaf-sheaths glabrous on surface or pubescent, outer margin hairy. Ligule a ciliate membrane. Leaf-blades linear or lanceolate, 14–40 cm long, 7–11 mm wide, stiff. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or ovate, 12–15 cm long. Primary panicle branches profusely divided. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, 2–2.5 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, purple, without keels, 3–5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, purple, 5 -veined, acute. Fertile lemma elliptic, dorsally compressed, 2–2.5 mm long, indurate, pallid, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast.

**TDWG4.** Bahia.

***Apochloa bahiense*** (Renvoize) Zuloaga & Morrone. *Systematic Botany* 33: 290 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum bahiense* Renvoize, *Kew Bull.*, 32(2): 423 (1978). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: R.M. Harley et al. 15461, 23 Jan 1974, Brazil: Bahia: Rio de Contas, on lower slopes of Pico de Almas, ca. 25 km WNW of the town of Rio de Contas, 1500 m (K; IT: CEPEC, U, US-2967812).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (144, Fig. 60 as *Panicum*).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Bahia Province, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial. Culms 100 cm long. Leaves without demarcation between sheath and blade. Leaf-sheaths hirsute. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades lanceolate, 18–40 cm long, 8–12 mm wide, stiff. Leaf-blade surface pubescent. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 15–30 cm long, 6–12 cm wide. Primary panicle branches ascending, profusely divided. Panicle branches with scattered hairs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse, 1.5 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–0.66 length of spikelet, membranous, pallid, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, pallid, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, purple, 5 -veined, acute. Fertile lemma elliptic, dorsally compressed, 1.5 mm long, indurate, pallid, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.  
**Distribution (TDWG). Continent.** South America.  
**Country /Province /State. Brazil.** Brazil Northeast.  
**TDWG4.** Bahia.

**Apochloa chnoodes** (Trin.) Zuloaga & Morrone. *Systematic Botany* 33: 290 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum chnoodes* Trin., *Gram. Panic.* 211 (1826). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: V: *s.c.* 1465, Jan 25, [Brazil]: S[erra] da Carasa: in siccis graminosis (LE). *Pan. chnoides* Tr. var. *lorei*. HT: *G.H. von Langsdorff s.n.*, 1826, Brazil: Serra da Carassa (LE-TRIN-0635.01; IT: K, US-974667 (fragm.)).

**Recent Synonyms:** *Panicum curvifolium* Swallen, *Bull. Torrey Bot. Club* 58: 316 (1931)

. *Panicum vannum* Swallen, *Mem. New York Bot. Gard.* 9 (3): 261 (1957)

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004).

**Derivation** (Clifford & Bostock 2007): Gk. chnoos, fine down on a peach; -odes, resembling. Leaf-blades densely hairy.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 50–105 cm long. Leaves without demarcation between sheath and blade. Ligule absent. Leaf-blades 20–40 cm long, 5–10 mm wide. Leaf-blade surface glabrous or pubescent. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 10–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 2–2.5 mm long, falling entire.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex obtuse or acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma ovate, dorsally compressed, 1.5–2 mm long, indurate, pallid, shiny, without keel, more than 3-veined. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 1.25 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America, Brazil.** Guyana, Venezuela. Brazil Southeast, Brazil North.

**Apochloa cipoense** (Renvoize & T. Sendulsky) Zuloaga & Morrone. *Systematic Botany* 33: 291 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum cipoense* Renvoize & T. Sendulsky, *Kew Bull.*, 35(1): 229 (1980). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Minas Gerais: Serra do Cipó, 9 Dec 1971, *Sendulsky et al.* 419 (HT: SP; IT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Serra do Cipos, Minas Gerais, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect, 32–60 cm long. Leaves without demarcation between sheath and blade. Leaf-sheaths glabrous on surface or pilose, outer margin hairy. Ligule a ciliate membrane, 0.5 mm long. Leaf-blades flat or involute, 13–20 cm long, 2–3 mm wide, stiff. Leaf-blade surface pilose, densely hairy. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, dense, 6–11 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, flexuous, 3–12 mm long.



**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, 2–3 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.66 length of spikelet, membranous, without keels, 3 -veined. Lower glume surface pilose. Lower glume apex acuminate. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume surface pilose. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5–7 -veined, pilose, acute. Palea of lower sterile floret pilose. Fertile lemma elliptic, dorsally compressed, 2–3 mm long, indurate, pallid, without keel. Lemma margins involute. Palea involute, indurate. Palea surface pilose.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

### ***Apochloa eligulata*** (N. E. Br.) Zuloaga & Morrone. *Systematic Botany* 33: 291 (2008).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Panicum eligulatum* N. E. Br., *Trans. Linn. Soc. Ser. II.* 6: 74 (1901). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *McConnell & Quelch 675*, Venezuela: Mt. Roraima (K; IT: K, US-1039479 (fragm. ex K & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): e-, without; ligula, small tongue; -ata, possessing. Ligule lacking or very much reduced.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rootstock evident. Butt sheaths persistent and investing base of culm, with curly dead sheaths. Culms 50–75 cm long, with prop roots. Leaves mostly basal. Leaf-sheaths hirsute. Ligule absent. Leaf-blades flat or involute, 20–30 cm long, 7–13 mm wide, stiff. Leaf-blade surface scabrous, glabrous or hirsute. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Peduncle 10–15 cm long, glabrous. Panicle open, ovate or pyramidal, 10–15 cm long. Primary panicle branches ascending, not whorled or whorled at lower nodes. Panicle branches glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 2.7–3.3 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 1–1.5 mm long, 0.33–0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex obtuse or acute. Upper glume elliptic, 1 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma ovate, dorsally compressed, 1.5–2 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex acuminate. Palea involute, indurate.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America.** Guyana, Venezuela.

Minas Gerais, Rio de Janeiro, Espirito Santo.

### ***Apochloa euprepes*** S.A. Renvoize. *Systematic Botany* 33: 292 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum euprepes* S.A. Renvoize, *Kew Bull.*, 32(2): 422 (1978). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziou 17952*, 22 Nov 1888, Brazil: Minas Gerais: Serra d'Ouro Branco: prope S. Juliao (K; IT: US-1126937 (fragm. ex B), US-1280072).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (144, Fig. 60 as *Panicum*).

**Derivation** (Clifford & Bostock 2007): Gk. eu-, well; prepo, catch the eye; In contrast to *Andropogon* lacks pedicellate sterile spikelets.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 60–65 cm long. Leaves without demarcation between sheath and blade. Leaf-sheaths glabrous on surface or hirsute, outer margin hairy. Ligule a ciliate membrane. Leaf-blades involute, 12–40 cm long, 3–7 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or obovate, 9–15 cm long. Primary panicle branches ascending, moderately divided. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, 2 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma elliptic, dorsally compressed, 2 mm long, indurate, pallid, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Northeast, Brazil Southeast.

**TDWG4.** Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo.

### **Apochloa jauana** (G. Davidse) Zuloaga & Morrone. *Systematic Botany* 33: 292 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Panicum jauanum* G. Davidse, *Bol. Soc. Venezol. Cienc. Nat.*, 32 (132–133): 272 (1976). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: J. A. Steyermark, V. Carreño Espinoza & C. Brewer-Carias 109486, 22–28 Feb 1974, Venezuela: Bolívar: Meseta de Jaua, Cerro Jaua, cumbre, 4°48'50"N, 64°34'10"W, porción sur-este, selva de galería al borde del tributario del Río Marajano (MO-2192007).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (202, Fig. 155 as *Panicum jauanum*).

**Derivation** (Clifford & Bostock 2007): L. *-anum*, indicating connection. From Jaua Plateau, Bolivar State, Venezuela.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial. Culms 100–150 cm long. Leaf-sheaths pilose. Ligule a ciliate membrane, 0.3–2.3 mm long. Leaf-blades 20–40 cm long, 12–16 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 15 cm long, 9 cm wide. Primary panicle branches 5–11 cm long. Panicle branches glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 3.1–3.3 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 2.1–2.3 mm long, 0.66 length of spikelet, membranous, without keels, 3 -veined. Lower glume primary vein scabrous. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume primary vein scabrous.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined. Fertile lemma elliptic, dorsally compressed, 2.6–2.7 mm long, indurate, yellow, without keel. Lemma surface smooth. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 1.7 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

### **Apochloa lorea** (Trin.) Zuloaga & Morrone. *Systematic Botany* 33: 292 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum loreum* Trin., *Gram. Panic.* 211. (1826). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: G.H. von Langsdorff, Nov. 24, Brazil: Minas Gerais: S. da Lapa, in glareosis humidis (LE-TRIN-0799.01 (& fig.); IT: K, NY, US-974669 (fragm. ex LE)).

**Illustrations (Journals):** *Systematic Botany* (33: 292, fig.4 (2008)).

**Derivation** (Clifford & Bostock 2007): L. made of leather thongs. Leaf-blades coriaceous.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Culms erect, 100–200 cm long. Leaves without demarcation between sheath and blade. Ligule absent. Leaf-blades 30–60 cm long, 5–12 mm wide, glaucous. Leaf-blade surface scabrous, glabrous, hairless except near base. Leaf-blade margins glabrous or ciliate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate or pyramidal, 16–22 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 1.5–2 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.33–0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 3–5 -veined, acute. Fertile lemma elliptic, dorsally compressed, 1.5–2 mm long, indurate, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast. Minas Gerais, Rio de Janeiro, Espirito Santo.

### **Apochloa lutzii** (Swallen) Zuloaga & Morrone. *Systematic Botany* 33: 292 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum lutzii* Swallen, *Mem. Inst. Oswaldo Cruz*, 63: 301 (1965). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Lutz 687, Feb 1914, Brazil: Rio de Janeiro: Tijuca (US-2240718).

**Illustrations (Journals):** *Systematic Botany* (33: 293, fig.5(2008)).

**Derivation** (Clifford & Bostock 2007): in honor of Adolpho Lutz (fl. 1914) who collected in Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–50 cm long. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades flexuous, conduplicate, 15–30 cm long, 2–5 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 8–10 cm long, 1 cm wide. Primary panicle branches appressed, 2–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 1.8–2 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.66 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 3–5 -veined, obtuse. Fertile lemma elliptic, dorsally compressed, 1.6 mm long, indurate, light brown, without keel. Lemma margins involute. Lemma apex acute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast. Minas Gerais, Rio de Janeiro, Espirito Santo.

### **Apochloa molinioides** (Trin.) Zuloaga & Morrone. *Systematic Botany* 33: 293 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum molinioides* Trin., *Gram. Panic.* 238 (1826). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: 954, Nov 24, Brazil: Serra da Lapa

(LE). no.381 Trin. scrips.. HT: *G.H. von Langsdorff s.n.*, Nov 1824, Brazil: Minas Gerais: in glareosis humidiusculis S. da Lapa (LE-TRIN-0842.01; IT: K, US-974507 (fragm. ex LE)).

**Illustrations (Journals):** *Systematic Botany* (33: 293, fig.6 (2008)).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling *Molinia*.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 50–100 cm long. Leaves without demarcation between sheath and blade. Leaf-sheaths glabrous on surface or pubescent. Ligule absent. Leaf-blades lanceolate, 20–30 cm long, 8–15 mm wide. Leaf-blade surface glabrous or pubescent.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–30 cm long. Primary panicle branches spreading. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, 1.5–1.75 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, clasping, 0.5–0.66 length of spikelet, membranous, pallid or yellow, without keels, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, purple, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, purple, 5 -veined, acute. Fertile lemma elliptic, dorsally compressed, 1.5 mm long, indurate, pallid, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

***Apochloa poliophylla*** (S.A. Renvoize & F. Zuloaga) Zuloaga & Morrone. *Systematic Botany* 33: 293 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum poliophyllum* S.A. Renvoize & F. Zuloaga, *Kew Bull.*, 39(1): 193 (1984). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.S. Irwin, H. Maxwell & D.C. Wasshausen 19908*, 12 Feb 1968, Brazil: Minas Gerais: Serra do Espinhaço, Serra do Itabirito, ca. 45 km SE of Belo Horizonte, elev. ca. 1600 m, culms erect, to ca. 1.5 m tall, in thicket island in campo, upland campo and adjacent rocky slopes and outcrops (NY; IT: F, GH, MO-2046550, UB).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *polios*, gray; *phyllon*, leaf. Leaf-blades glaucous or grey-green.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 90–135 cm long. Leaf-sheaths keeled, pilose, outer margin hairy. Ligule a ciliate membrane. Leaf-blades linear or lanceolate, conduplicate or involute, 35–72 cm long, 6–12 mm wide, stiff, glaucous or grey-green. Leaf-blade surface glabrous or pilose. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or pyramidal, 20–26 cm long, 7–18 cm wide. Primary panicle branches ascending or spreading, whorled at most nodes, profusely divided. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 2–2.5 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma elliptic, dorsally compressed, 2–2.5 mm long, indurate, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

***Apochloa sipapoense*** (Swallen) Zuloaga & Morrone. *Systematic Botany* 33: 293 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Panicum sipapoense* Swallen, *Mem. N. Y. Bot. Gard.* 9: 261 (1957). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Maguire, L. Politi* 28364, 14 Jan 1949, Venezuela: Amazonas: infrequent, rocks, Caño Profundo, Cerro Sipapo (US-2040188; IT: NY).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Sipapo, Venezuela.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations flabellate. Culms erect, 60–80 cm long. Leaves without demarcation between sheath and blade. Leaf-sheaths without keel, hirsute. Ligule a ciliate membrane, 0.2–0.6 mm long. Leaf-blades flat or involute, 10–30 cm long, 2–6 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 9–13 cm long, 10–14 cm wide. Primary panicle branches spreading. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 2.7–2.8 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex obtuse. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined, obtuse. Palea of lower sterile floret pubescent, adorned on keels. Fertile lemma elliptic, dorsally compressed, 2.2–2.4 mm long, indurate, yellow, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

***Apochloa steyermarkii*** (Swallen) Zuloaga & Morrone. *Systematic Botany* 33:294 (2009).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Panicum steyermarkii* Swallen, *Mem. N. Y. Bot. Gard.* 9: 402 (1957). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.A. Steyermark, J.J. Wurdack* 954, 20 Feb 1955, Venezuela: Bolívar: Chimanta Massif, Torono-tepuí, Caño Mojado, E of N escarpment, below upper falls of Caño Mojado, frequent along banks of Caño Mojado, 1895–1910 m (US-2182133; IT: F, NY).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (205, Fig. 159).

**Illustrations (Journals):** *Systematic Botany* (33: 294, fig.7 (2008)).

**Derivation** (Clifford & Bostock 2007): in honor of Julian Alfred Steyermark (1909–1988) United States botanist who worked principally in Venezuela.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms geniculately ascending, 40–85 cm long, wiry. Leaves mostly basal. Leaf-sheaths loose, glabrous on surface. Leaf-sheath auricles erect. Ligule a fringe of hairs or absent, 0–1 mm long. Leaf-blades erect, flat or involute, 20–25 cm long, 5–6 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex attenuate, pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 6–9 cm long. Primary panicle branches ascending, 2–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acute or acuminate, 3.5–4 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, acute. Fertile lemma elliptic, dorsally compressed, 3 mm long, indurate, without keel. Lemma margins involute. Lemma apex acuminate. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America.** Venezuela.

***Apochloa subtiramulosa*** (S.A. Renvoize & F. Zuloaga) Zuloaga & Morrone. *Systematic Botany* 33: 294 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum subtiramulosum* S.A. Renvoize & F. Zuloaga, *Kew Bull.*, 39(1): 187 (1984). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.S. Irwin, R. Souza & R. Reis dos Santos 8682*, 26 Sep 1965, Brazil: Distrito Federal: Córrego Gama, between Gama and Brasília, near road to Anápolis, elev. 1175 m, caespitose, the culms to 60 cm tall, inflorescence cream, creek margin, creek valley (NY; IT: MO, UB, US-2528701, US-2369457).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. subtilis*, delicate; *ramus*, branch; *-ula*, diminutive; *-osum*, abundance. Inflorescence branches are delicate and thread-like.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 6–70 cm long. Ligule a ciliate membrane. Leaf-blades aciculate, terete, 40–50 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 11 cm long, 5–7.5 cm wide. Primary panicle branches spreading, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, 4 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.33–0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute, mucronate. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined, ciliate on margins, acute. Fertile lemma elliptic, dorsally compressed, 4 mm long, indurate, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central.

**TDWG4.** Goias.

***Apochloa tijucae*** (S.A. Renvoize) Zuloaga & Morrone. *Systematic Botany* 33: 294 (2008).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Panicum tijucae* S.A. Renvoize, *Kew Bull.*, 32(2): 422 (1978). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziou 6967*, 3 Jun 1874, Brazil: Rio de Janeiro: Pico de Tijuca (K; IT: US-1280019, US-1126940).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L.* from Pico de Tijuca, near Rio de Janeiro, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Butt sheaths pubescent. Basal innovations flabellate. Culms erect, 50 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades lanceolate, 30–40 cm long, 5–8 mm wide, stiff, glaucous. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 6–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, 3 mm long, falling entire.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5–1 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma elliptic, dorsally compressed, 2.5 mm long, indurate, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.  
Minas Gerais, Rio de Janeiro, Espirito Santo.

### **Apoclada diversa** McClure & L. B. Smith. *Fl. Illustr. Catar.*, Pt. 1, *Gramin.*, *Supl. Bambus.* 59 (1967).

Regarded by K as a synonym (*A. simplex*).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.R. Swallen 8271*, 22 Jan 1946, Brazil: Santa Catarina: Cagador, rio Cagador, lugares zmidos (US-2383418; IT; US-2152479).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (123, Fig. 26).

**Illustrations (Journals):** *Smithsonian Contributions to Botany* (9: 14, Fig. 4 (1973)).

**Derivation** (Clifford & Bostock 2007): *L. variable*. Stamen number variable.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500–800 cm long, woody. Culm-internodes terete, thick-walled, glaucous, distally pubescent. Lateral branches dendroid. Branch complement several, in a horizontal line, with 3 branches dominant, thinner than stem. Culm-sheaths present, deciduous. Leaves cauline. Ligule an eciliate membrane.

**Inflorescence.** Synflorescence simple.

Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, exserted. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 10–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 40–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes curved, 4 mm long, scaberulous.

**Glumes.** Glumes both absent or obscure.

**Florets.** Fertile florets decreasing in size upwards. Fertile lemma lanceolate, 5–15 mm long, chartaceous, yellow, keeled, more than 3-veined. Lemma surface scaberulous. Lemma apex attenuate. Palea lanceolate. Palea keels ciliolate. Palea surface scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, membranous, veined. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil South.  
Catarina, Rio Grande do Sul.

### **Apoclada simplex** McClure & L. B. Smith. *Fl. Illustr. Catar.*, Pt. 1, *Gramin.*, *Supl. Bambus.* 59 (1967).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Reitz & R. Klein 16355*, 27 Dec 1963, Brazil: Santa Catarina (US-2434535; IT: HBR, NY, US-2434538, US-2434536, US-2434539, US-2434537).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (123, Fig. 26).

**Illustrations (Journals):** *Smithsonian Contributions to Botany* (9: 16, Fig. 5 (1973)), *Systematic Botany* (20: 214, Fig.4 (1995)).

**Images:** E.J.Judziewicz, E.J., *American Bamboos* (1999);

**Derivation** (Clifford & Bostock 2007): *L. simple*. Culms or inflorescences unbranched.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500–800 cm long, 25–50 mm diam., woody. Culm-internodes terete, thick-walled, distally pubescent. Culm-nodes glabrous. Lateral branches dendroid. Branch complement several, in a

horizontal line, with 3 branches dominant, thinner than stem. Culm-sheaths present, persistent, antrorsely scabrous, without auricles, ciliate on shoulders. Culm-sheath ligule 0.5–1 mm high. Culm-sheath blade triangular, erect, glabrous on surface, acuminate. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, erect. Ligule an eciliate membrane, 0.2–0.5 mm long, erose, truncate. Collar with external ligule. Leaf-blades linear, convolute, 5–8 cm long, 1–2 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Synflorescence simple.

Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, subtended by an unspecialized leaf-sheath, embraced at base by subtending leaf. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 8–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 20–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent.

**Glumes.** Glumes both absent or obscure.

**Florets.** Fertile lemma ovate, 18–22 mm long, chartaceous, keeled, 9–11 -veined, more than 3-veined. Lemma surface puberulous, hairy on veins. Lemma apex acuminate. Palea lanceolate, 0.8 length of lemma. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ovate, membranous, veined. Anthers 3(–5). Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil South.

**TDWG4.** Sao Paulo Parana, Catarina, Rio Grande do Sul.

### **Apocopsis anomalus** Bor. *Kew Bull.* 1957, 415 (1958).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Burma. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Mindat, 5,000 ft, a small grass coming up in the burnt and blackened pine forest along the Mindat ridge, 26 Apr 1956, *F. Kingdon-Ward 22155* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. anomalos, irregular. Diverging from the normal, often with respect to number of lemmas in the spikelet or otherwise unusual for the genus in some respect.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths glabrous. Culms 10–20 cm long, 2 -noded. Culm-nodes constricted, glabrous. Leaf-sheaths pilose, with tubercle-based hairs. Ligule an eciliate membrane, 1 mm long. Leaf-blades linear or lanceolate, flat or involute or revolute, 4–8 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough adaxially, pilose, sparsely hairy, hairy abaxially, with tubercle-based hairs. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 1.5–2.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs white. Rhachis internodes linear, 2.5–3 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 3–4 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, elliptic, dorsally compressed, 3 mm long, longer than fertile. Companion sterile spikelet glumes chartaceous, 3–5 -veined, pilose, truncate, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes, 1-awned (geniculately), with 5 mm long awn.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, truncate, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 4.5 mm long, 0.9 length of spikelet, chartaceous, much thinner above, without keels, 5 -veined. Lower glume lateral veins distinct. Lower glume surface pilose, hairy below. Lower glume hairs white. Lower glume apex erose, truncate. Upper glume oblong, 1 length of spikelet, chartaceous, with hyaline margins, 3 -veined. Upper glume surface pilose. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 4.5 mm long, 0.9 length of spikelet, hyaline, 0 -veined, without midvein, without lateral veins, pilose, hairy at apex, truncate. Fertile lemma oblong, 4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8 mm long overall, with twisted column. Column of lemma awn hispidulous. Palea hyaline, 2 -veined, without keels.



**Flower and Fruit.** Lodicules absent. Anthers 2, 1–2 mm long.  
**Distribution (TDWG). Continent.** Tropical Asia.  
**Country /Province /State. Indo-China.** Myanmar.

**Apocopsis breviglumis** Keng & S.L. Chen. *Acta Phytotax. Sin.* 13(1): 59–60, pl. 3. 1975.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 837).

**Derivation** (Clifford & Bostock 2007): *L. brevis*, short; *gluma*, husk. One or both glumes short with respect to the length of the spikelet.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms 25–50 cm long, wiry, 7–9 - noded. Leaf-sheaths pilose. Ligule an eciliate membrane, 1 mm long. Leaf-blades linear or lanceolate, 3–13 cm long, 2.5–6 mm wide. Leaf-blade surface pilose, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2, paired, 2.5–4.5 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs tawny. Rhachis internodes linear, 2 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 1 in number. Basal sterile spikelet lemmas awnless.

Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets obovate or cuneate, dorsally compressed, 3.5–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, attached transversely. Spikelet callus hairs tawny.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume obovate or cuneate, 0.9 length of spikelet, chartaceous, much thinner above (and red-brown), yellow, without keels. Lower glume primary vein falling short of apex. Lower glume lateral veins transversely connected at apex, all falling short of apex. Lower glume surface pilose, hairy at apex. Lower glume apex erose, truncate. Upper glume oblong, 1 length of spikelet, chartaceous.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, hyaline, pilose, hairy at apex, erose. Fertile lemma lanceolate or oblong, chartaceous, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 22–28 mm long overall, with twisted column.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Sichuan, Yunnan.

**Apocopsis burmanicus** Narayan. ex Bor. *Kew Bull.* 1951, 169 (1951).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Burma. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma: Rangoon Lake, December 1876, ..., *S. Kurz* 2749 (HT:K) see notes.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ica*, belonging to. From Burma, now Myanmar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Annual. Culms rambling, 10–20 cm long. Culm-nodes glabrous. Leaf-sheaths keeled, pilose, with tubercle-based hairs. Ligule an eciliate membrane, 0.75 mm long, lacerate. Leaf-blades 2–3.5 cm long, 2–4 mm wide, flaccid. Leaf-blade midrib keeled beneath. Leaf-blade surface scaberulous, pubescent, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scaberulous, tuberculate-ciliate. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 2, paired, 2–3 cm long. Rhachis fragile at the nodes, subterete, puberulous on surface, ciliate on margins. Rhachis hairs tawny. Rhachis internodes linear, 1.25 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 1.25 mm long, ciliate, with tawny hairs, with 2.5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, truncate, 3.5–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma, shiny. Lower glume oblong, 0.9 length of spikelet, coriaceous, much thinner above, much thinner on margins, dark brown, without keels, 7 -veined. Lower glume primary vein extending to apex. Lower glume lateral veins obscure, with some extending to apex. Lower glume surface glabrous or pilose, hairy below. Lower glume apex erose, truncate. Upper glume oblong, 1 length of spikelet, chartaceous, yellow or light brown, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex erose, truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic or oblong, 3 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire or dentate, 2 -fid, awned, 1 -awned. Principal lemma awn apical or from a sinus, geniculate, 18 mm long overall, with twisted column. Column of lemma awn 9 mm long, hispidulous. Palea 2 mm long, hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2–2.5 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Myanmar.

### **Apocopsis cochinchinensis** A. Camus. *Bull. Mus. Hist. Nat. Paris*, 25: 286. (1919).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from CochinChina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *J.B.L. Pierre s.n.*, no date, Vietnam (US-1062404).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Cochinchina, now included in Laos and Cambodia.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAININAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, slender, 20–40 cm long. Leaf-sheaths keeled, pilose, with tubercle-based hairs. Ligule an eciliate membrane, 0.5–1 mm long, lacerate. Leaf-blades 2–4 cm long, 2–4 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface glabrous or pilose, hairy abaxially, with tubercle-based hairs. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 2, paired, 1–2 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs yellow, 1.75 mm long. Rhachis internodes linear, 1.75 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 1.75 mm long, ciliate, with 2–2.5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, truncate, 4.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate or elliptic, 0.66 length of spikelet, coriaceous, much thinner above, much thinner on margins, yellow, without keels, 7 -veined. Lower glume primary vein extending to apex or falling short of apex. Lower glume lateral veins all falling short of apex. Lower glume apex erose, emarginate. Upper glume oblong, 1 length of spikelet, chartaceous, yellow, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate or oblong, 3.5 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma oblong, 4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20 mm long overall, with twisted column. Column of lemma awn 10 mm long, hispidulous. Palea 4 mm long, hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2–2.5 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Myanmar, Thailand, Vietnam.

**Apocopsis collinis** Balansa. Morot, *Journ. de Bot.* 4: 84. (1890).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *A. collinis*).

**TYPE** from CochinChina. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Mt. Purset: *Godefroy 389*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. collis*, a hill; -ina, belonging to. Mountain species.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 20–40 cm long, 3–4 -noded. Culm-nodes brown or purple. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliolate membrane, 1 mm long. Leaf-blades 3–5 cm long, 2–3.5 mm wide. Leaf-blade surface smooth, pubescent, hairy abaxially, with tubercle-based hairs. Leaf-blade margins cartilaginous, smooth or scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 1–2, single or paired, 2–4.5 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs tawny, 3 mm long. Rhachis internodes linear, 2 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 0.5–1.5 mm long, ciliate, with tawny hairs, with 4 mm long hairs.

**Sterile Spikelets.** Basal sterile spikelets well-developed, 1 in number.

Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5.5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 5.5–6 mm long, 1 length of spikelet, coriaceous, much thinner above, much thinner on margins, light brown, without keels, 7 -veined. Lower glume primary vein falling short of apex. Lower glume lateral veins all falling short of apex. Lower glume surface asperulous (granular). Lower glume margins ciliate. Lower glume apex truncate or obtuse. Upper glume lanceolate, 1 length of spikelet, chartaceous, 3 -veined. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate or ovate, 5 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma oblong, 4.5 mm long, hyaline, without keel, 0–1 -veined, 0–3 -veined, without veins or one-veined. Lemma apex erose, mucicous or mucronate. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2–3 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China, Malesia. Thailand, Vietnam. Borneo, Sulawesi.

**Apocopsis courtallumensis** (Steud.) Henrard. *Blumea*, 4: 524, (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Basionym or Replaced Name:** *Andropogon courtallumensis* Steud., *Syn. Pl. Gram.* 377 (1854). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: [IGS: type loc.: "Cortallum Ind. or."],.

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills* (1996) (783, Pl 783).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Courtallum, Madras State, India.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, 25–50 cm long. Leaf-sheaths striately veined, pilose, with tubercle-based hairs. Ligule an eciliate membrane, 1.5–2 mm long. Leaf-blades linear or lanceolate, 1–10 cm long, 3–6 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface scabrous, pilose, densely hairy, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 2, paired, 2–4 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs tawny, 1–2 mm long. Rhachis internodes linear, 2 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 2.5 mm long, ciliate, with tawny hairs, with 2 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume obovate, 4.5–5 mm long, 0.9–1 length of spikelet, coriaceous, dark brown, without keels, 7 -veined. Lower glume primary vein falling short of apex. Lower glume lateral veins all falling short of apex or with some extending to apex. Lower glume apex emarginate. Upper glume oblong, 1 length of spikelet, chartaceous, light brown, 3 -veined. Upper glume surface pubescent. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, 4.75 mm long, hyaline, 0 -veined, without midvein, without lateral veins, erose. Fertile lemma lanceolate or oblong, 4.5 mm long, chartaceous, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 18–20 mm long overall, with twisted column. Column of lemma awn 8 mm long, pubescent. Palea tightly convolute around flower, hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2.5–3.5 mm long.

*N* = 20 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent, Indo-China.** India. Laos, Thailand.

**TDWG4.** Tamilnadu.

### **Apocopsis floccosus** Bor. Kew Bull. 414 (1958).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Burma. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma: Taunggyi, fairly common on hillsides, 19 Jun 1948, *U Thein Lwin 531* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. floccus*, lock of wool; -osus, abundance. Basal leaf-sheaths densely hairy.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths thickened and forming a bulb, yellow, woolly. Culms 20–40 cm long. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a ciliate membrane, 5 mm long, lacerate. Leaf-blades 7–14 cm long, 3–6 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 3–4, digitate, erect or ascending, 3–6 cm long. Central inflorescence axis 1 cm long, pilose. Rhachis fragile at the nodes, subterete, pilose on surface, ciliate on margins. Rhachis hairs yellow. Rhachis internodes clavate, 2.5 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 4 mm long, ciliate, with 3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, truncate, 8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 6.5 mm long, 0.8 length of spikelet, coriaceous, without keels, 9–13 -veined. Lower glume primary vein falling short of apex. Lower glume lateral veins all falling short of apex. Lower glume surface pilose. Lower glume margins ciliate. Lower glume hairs white or yellow. Lower glume apex dentate, 3–5 -fid, truncate. Upper glume oblong, 0.8 length of spikelet, chartaceous, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume surface scabrous, rough above, pilose, hairy below. Upper glume margins ciliate. Upper glume hairs yellow. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, 6 mm long, hyaline, 0 -veined, without midvein, without lateral veins, obtuse. Palea of lower sterile floret 0.1 length of lemma. Fertile lemma linear, 8 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma surface scabrous, pilose. Lemma apex lobed, 2 -fid, with lobes 2 mm long, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15 mm long overall, with twisted column. Column of lemma awn 8 mm long, hispidulous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 3.5 mm long. Stigmas 2 or 3 (rarely).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indo-China.** Myanmar.

**Apocopsis intermedius** (A.Camus) Chaianan. *Thai Forest Bull., Bot.*, 6: 46 (1972).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Basionym or Replaced Name:** *Lophopogon intermedius* A.Camus, *Bull. Mus. Hist. Nat. Paris*, 25: 285 (1919).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 837).

**Derivation** (Clifford & Bostock 2007): *L. intermedius*. Having affinities with but distinct from other species.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central, China Southeast. **Indo-China.** Cambodia, Thailand, Vietnam.

**TDWG4.** Guangdong, Zhejiang, Yunnan.

**Apocopsis mangalorensis** (Hochst. ex Steud.) Henrard. *Blumea* 4: 523 (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from India. **Basionym or Replaced Name:** *Amblyachyrum mangalorensis* Hochst. ex Steud., *Flora*, 39: 26 (1856). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R.F. Hohenacker 231*, 1847, India (P; IT: US-865441 (fragm. ex P)).

**Illustrations (Books):** K.M.Matthew, Further Illustrations on the *Flora of Tamilnadu Carnatic* (1988) (Pl.710 & Pl 711).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Mangalore, Madras State, India.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, 6–30 cm long. Ligule an eciliate membrane. Leaf-blades 1–5 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2, paired, erect, 1–2.5 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs dark brown. Rhachis internodes linear. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 2 mm long, ciliate (brown hairs).

**Sterile Spikelets.** Basal sterile spikelets well-developed, 2–3 in number, barren, larger than fertile. Basal sterile spikelet lemmas awnless.

Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, truncate, 3–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, attached transversely. Spikelet callus hairs dark brown.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume cuneate, 1 length of spikelet, chartaceous to coriaceous, much thinner above, dark brown, without keels, 7 -veined. Lower glume primary vein falling short of apex. Lower glume lateral veins all falling short of apex. Lower glume surface glabrous or pilose. Lower glume apex emarginate or truncate. Upper glume chartaceous.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma linear, 2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–20 mm long overall, with twisted column. Column of lemma awn hispidulous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent, Indo-China.** India, Sri Lanka. Myanmar.

**TDWG4.** Kerala. Maharashtra, Tamilnadu.

**Apocopsis paleacea** (Trin.) Hochr. *Bull. N. Y Bot. Gard* 6: 262 (1910).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Basionym or Replaced Name:** *Ischaemum paleaceum* Trin., *Mem. Acad. Petersb. Ser. 6, 2*: 293 (1833).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (783, Fig. 54), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 809).

**Derivation** (Clifford & Bostock 2007): L. palea, chaff; -acea, indicating resemblance. Glumes or lemmas, papery.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths papery or scarious. Culms 40–80 cm long. Culm-nodes glabrous. Ligule an eciliate membrane, erose. Leaf-blades linear or lanceolate, 6–12 cm long, 5–10 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scaberulous. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4, paired or digitate, 1.5–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs dark brown. Rhachis internodes linear, 2 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, ciliate, with 2–3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or obovate, dorsally compressed, truncate, 4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong or obovate, 3.5–4.5 mm long, 0.8–1 length of spikelet, coriaceous, much thinner above, dark brown, without keels, 7 -veined. Lower glume primary vein extending to apex. Lower glume lateral veins transversely connected at apex, with some extending to apex (the outer pair). Lower glume surface asperulous. Lower glume apex truncate, mucronate (lateral veins excurrent). Upper glume oblong, 1 length of spikelet, chartaceous, dark brown, 3 -veined. Upper glume surface scabrous, rough above. Upper glume apex erose, truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 0.9 length of spikelet, hyaline, 1 -veined, without lateral veins, obtuse. Fertile lemma oblong, 3.5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4–10 mm long overall, with twisted column. Column of lemma awn hispidulous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central, Hainan, China Southeast. **Indian Subcontinent, Indo-China, Malesia.** Assam, Eastern Himalaya, India, Nepal. Laos, Myanmar, Thailand, Vietnam. Malaya.

**TDWG4.** Guangdong, Guangxi. Yunnan. Bhutan.

**Apocopsis peguensis** Bor. *Kew Bull.* 1949, 28 (1949).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Burma. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma. Roadside near Thitni (Old Forest Rest House) Salu reserve, Pegu Division, *U. Thein Lwin*, 59 (T:K ?; "typus in Herb. Kew et in Herb. Dehra Dun").

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Pegu, Myanmar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 50–90 cm long. Lateral branches ample. Leaf-sheaths keeled, pilose, with tubercle-based hairs. Ligule an eciliate membrane, 1.5 mm long, pubescent on abaxial surface, lacerate. Leaf-blades 10–20 cm long, 4–8 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface scabrous, pubescent, densely hairy, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 2, paired, 4–7 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs tawny, 4–5 mm long. Rhachis internodes cuneate, 1.5 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 2 mm long, ciliate, with tawny hairs, with 4–5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 7.25 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 6–7 mm long, 0.9 length of spikelet, coriaceous, dark brown, without keels, 7 -veined. Lower glume primary vein falling short of apex. Lower glume lateral veins all falling short of apex. Lower glume margins ciliate. Lower glume hairs 2–4 mm long. Lower glume apex truncate. Upper glume oblong, 1 length of spikelet, chartaceous, with hyaline margins, 3 -veined. Upper glume primary vein scabrous. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 5.5 mm long, hyaline, 1 -veined, without lateral veins, ciliate on margins, truncate. Fertile florets bisexual or female. Fertile lemma linear, 7 mm long, membranous, much thinner on margins, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma margins ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 30 mm long overall, with twisted column. Column of lemma awn hispidulous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 3 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indo-China.** Myanmar.

### **Apocopsis pulcherrimus** Bor. *Kew Bull.* 168 (1951).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Burma. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma: Tatkon, *D. Rhind* 959 (T: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. most beautiful. To be the most beautiful member of a genus.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Annual. Culms 10–20 cm long. Leaf-sheaths keeled, glabrous on surface. Ligule an eciliate membrane, 0.5–0.75 mm long. Leaf-blades 3–6 cm long, 3–5 mm wide, flaccid. Leaf-blade surface pubescent, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, subtended by an inflated leaf-sheath. Peduncle 3–5.5 cm long, glabrous. Racemes 2, paired, erect or ascending, 1.5–3 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs tawny. Rhachis internodes linear, 2 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 2 mm long, ciliate, with tawny hairs, with 3–3.5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels or rudimentary.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5.75 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 5–5.5 mm long, 0.9 length of spikelet, membranous, much thinner above, much thinner on margins, without keels, 7 -veined. Lower glume primary vein extending to apex. Lower glume lateral veins all falling short of apex. Lower glume margins ciliate. Lower glume apex emarginate. Upper glume oblong, 1 length of spikelet, membranous, with hyaline margins, 3 -veined. Upper glume margins ciliate. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 5 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma oblong, 5.5 mm long, chartaceous, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 40 mm long overall, with twisted column. Column of lemma awn 18 mm long, pubescent. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2.5 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indo-China.** Myanmar.

### **Apocopsis schmidianus** A. Camus. *Bull. Mus. Hist. Nat., Paris, Ser. 2*, 29: 187 (1957).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cambodia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cambodia: Plaine du Tonle Sap; route de Phnom Penh a Pursat, alt. 50 m., terrains sablonneux humides..

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Ludwig Bernhard Ehregott Schmid (1788–1859) German-born Indian missionary and plant collector.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending, 15–18 cm long. Culm-internodes distally glabrous. Lateral branches ample. Leaf-sheaths loose, mostly shorter than adjacent culm internode, keeled, striately veined, pilose. Ligule an eciliate membrane. Leaf-blades 1–2 cm long, 1.5–2 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 4–6 secondary veins. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2, paired, erect, 3 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis internodes linear. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets obovate, dorsally compressed, truncate, 4.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume obovate, 3.5–4 mm long, 0.7–0.8 length of spikelet, coriaceous, without keels, 7 -veined. Lower glume surface flat. Lower glume apex erose, truncate. Upper glume oblong, 5 mm long, 1 length of spikelet, chartaceous, light brown. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic, hyaline, truncate. Fertile lemma oblong, 2.8–3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 12–14 mm long overall, with twisted column.

**Flower and Fruit.** Lodicules absent. Anthers 2.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Cambodia.

**Apocopsis siamensis** A. Camus. Lecomte, *Not. Syst.* 3: 83 (1914).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Thailand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *C.C. Hosseus 145*, 1909, Thailand (US-2117589, US-1125870, L). 1909 or 14 Oct 1904 ?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Siam, now Thailand.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Annual. Culms slender, 20–45 cm long. Culm-nodes glabrous or pubescent. Leaf-sheaths hirsute, with tubercle-based hairs. Ligule an eciliate membrane, 0.75 mm long. Leaf-blades linear or lanceolate, 2–5 cm long, 2–3 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface hirsute, sparsely hairy, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, subtended by an inflated leaf-sheath. Peduncle 10 cm long, pilose above. Racemes 2, paired, 3–4 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs tawny, 2–4.5 mm long. Rhachis internodes linear, 1.5 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 2.5 mm long, ciliate, with tawny hairs, with 4.5 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, truncate, 4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 0.9 length of spikelet, coriaceous, dark brown, without keels, 7 -veined. Lower glume primary vein extending to apex. Lower glume lateral veins ribbed, excurrent. Lower glume surface scabrous, rough on veins. Lower glume apex erose, truncate. Upper glume oblong, 1 length of spikelet, chartaceous, dark brown, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume margins ciliate. Upper glume apex truncate.



**Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 4 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma oblong, 4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 25–30 mm long overall, with twisted column. Column of lemma awn 14 mm long, hispidulous. Palea 3–3.25 mm long, hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2–2.5 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Thailand.

**Apocopsis vaginata** Hack. *Oest. Bot. Zeitschr.* 41: 8. (1891).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hazaribagh: Clarke 33849j .

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. vagina*, sheath; -ata, possessing. Leaf-sheaths conspicuous.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 5–15 cm long. Leaf-sheaths inflated, pilose, with tubercle-based hairs. Ligule an eciliate membrane, lacerate. Leaf-blades linear or lanceolate, 2–3.5 cm long, 2–3 mm wide, flaccid. Leaf-blade midrib keeled beneath. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scaberulous, tuberculate-ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, subtended by a spatheole, enclosed. Peduncle glabrous. Racemes 2, paired, erect, 1–2 cm long. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis hairs tawny, 2.5 mm long. Rhachis internodes linear, 1.5 mm long. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 1.5 mm long, ciliate, with tawny hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 3.5–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 3.5 mm long, 0.9 length of spikelet, chartaceous, much thinner above, without keels, 7 -veined. Lower glume primary vein falling short of apex. Lower glume lateral veins all falling short of apex. Lower glume surface pilose. Lower glume hairs tawny. Lower glume apex truncate. Upper glume oblong, 1 length of spikelet, chartaceous, light brown, 3 -veined. Upper glume surface pilose. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma oblong, 3–4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 18–24 mm long overall, with twisted column. Column of lemma awn 8–12 mm long, puberulous. Palea hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules absent. Anthers 2, 0.75–1 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent, Indo-China. Myanmar.

**TDWG4.** Bihar, Jharkhand. Madhya Pradesh, Tamilnadu, Uttah Pradesh.

**Apocopsis wrightii** Munro. *Proc. Am. Acad.* 4: 363 (1865).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Robert Wight (1796–1872) Scots-born physician and sometime Superintendent, Botanic Gardens, Madras.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe GERMAINIINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths glabrous, persistent and investing base of culm, with compacted dead sheaths. Culms erect, robust, 50–100 cm long. Culm-nodes glabrous or bearded. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a ciliate membrane, 1 mm long. Leaf-blades 10–20 cm long, 2–

5 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2, paired, 2–4.5 cm long. Rhachis fragile at the nodes, flattened, ciliate on margins. Rhachis hairs dark brown, 3–4 mm long. Rhachis internodes linear, 1.5 mm long. Rhachis internode tip clavate. Spikelets appressed, in pairs. Fertile spikelets sessile or sessile and pedicelled, 1 in the cluster or 2 in the cluster (rarely), heteromorphic (when 2), the upper smaller (3–4 mm long, terete, female). Companion sterile spikelets pedicelled, 1 in the cluster or 0 in the cluster. Pedicels present, adnate at the base to lower glume of sessile spikelet, linear, 1.5 mm long, ciliate, with 2–3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets obovate, dorsally compressed, truncate, 4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, attached transversely. Spikelet callus hairs dark brown.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume obovate, 4.5 mm long, 1 length of spikelet, coriaceous, much thinner above, without keels, 7–9 -veined. Lower glume primary vein falling short of apex. Lower glume lateral veins transversely connected at apex, all falling short of apex. Lower glume surface puberulous, hairy at apex. Lower glume apex truncate. Upper glume oblong, 1 length of spikelet, chartaceous, without keels, 3 -veined. Upper glume surface scabrous, rough above, puberulous, hairy at apex. Upper glume apex truncate.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 4 mm long, 0.9 length of spikelet, hyaline, 0 -veined, without midvein, without lateral veins, pubescent, hairy above, bearing dark brown hairs, obtuse. Fertile lemma linear, 4.5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma margins ciliate. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 15 mm long overall, with twisted column. Column of lemma awn 10 mm long, hispidulous. Palea hyaline, without keels. Palea surface scabrous.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2.5 mm long.

**Distribution (TDWG), Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China. China South Central, China Southeast. **Indo-China.** Myanmar, Thailand, Vietnam.

**TDWG4.** Anhui, Guangdong, Guangxi, Jiangxi, Zhejiang, Yunnan.

**Arberella bahiensis** T.R. Soderstrom & F.O. Zuloaga. *Brittonia* 37(1): 23 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: C.E. Calderón & R.S. Pinheiro 2224, 17 Apr 1972, Brazil: Bahia: Ibirataia Mun: (CEPEC; IT: US-2722737).

**Illustrations (Journals):** *Brittonia* (37: 24, Fig.1, 26, Fig.2 (1985)).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Bahia Province, Brazil.

**Classification.** Subfamily Bambusoideae. Tribe: Olyreae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths absent. Culms erect or geniculately ascending, 20–50 cm long. Culm-internodes thin-walled. Lateral branches lacking. Leaves cauline, 5–9 per branch. Leaf-sheaths outer margin hairy. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole pilose. Leaf-blades drooping, lanceolate or ovate, 5.5–7 cm long, 21–26 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in the same inflorescence (or some all male).

**Inflorescence.** Inflorescence a panicle, comprising 1 fertile spikelets (and 8–10 male), terminal and axillary. Axillary inflorescences present throughout the plant. Panicle open, linear, 1.4–2.5 cm long, bearing few spikelets. Panicle branches hispid. Sexes segregated, on unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled, 2–3 in a cluster. Pedicels present, clavate, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, dorsally compressed, 13–14.5 mm long, 3 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent, truncate.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 13–14.5 mm long, 1.1 length of upper glume, membranous, pallid, without keels, 9 -veined. Lower glume lateral veins with cross-veins. Lower glume surface scabrous, rough above. Lower glume apex attenuate.

Upper glume elliptic, 12–13 mm long, 1.6 length of adjacent fertile lemma, membranous, pallid, without keels, 7–9 -veined. Upper glume lateral veins with cross-veins. Upper glume surface scabrous, rough above. Upper glume apex acute or acuminate.

**Florets.** Fertile florets female. Fertile lemma elliptic, dorsally compressed, 7.3–8.1 mm long, 2.5–2.9 mm wide, indurate, yellow or light brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins pubescent. Lemma apex acute. Palea indurate. Palea apex undifferentiated or papillose.

**Flower and Fruit.** Lodicules 3, 0.4 mm long, membranous. Anthers 3, 2 mm long. Stigmas 2. Caryopsis light brown. Hilum linear, 1 length of caryopsis.

Male spikelets distinct from female, 1 flowered, elliptic, 4–4.5 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America, Brazil.** Venezuela. Brazil Northeast.

**Arberella costaricensis** (Hitchcock) T.R. Soderstrom & C.E. Calderon. *Brittonia* 31 (4): 439 (1979).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. **Basionym or Replaced Name:** *Raddia costaricensis* Hitchcock, *Proc. Biol. Soc. Wash.* 40: 87 (1927). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Pittier* 10352, Nov 1896, Costa Rica: Limón, in forests of the valley of the Río Hondo near Madre de dios, 200 m (US-825690; IT: 979172).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (500, Fig. 189 as *Raddia*), E.J.Judziewicz et al, *American Bamboos* (1999) (266, Fig. 162).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Costa Rica.

**Classification.** Subfamily Bambusoideae. Tribe: Olyreae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths absent. Culms geniculately ascending, 20–40 cm long, wiry. Leaves cauline, distichous. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades spreading, lanceolate, 3.5–4.5 cm long, 4.5–9 mm wide. Leaf-blade surface pilose, densely hairy, hairy abaxially, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acute. Monoecious, with male and female spikelets in the same inflorescence.

**Inflorescence.** Inflorescence a panicle, comprising 1 fertile spikelets (and 5–10 male), terminal and axillary. Axillary inflorescences present in upper axils or in lower axils. Panicle open, lanceolate, 1.5–2 cm long, bearing few spikelets. Sexes segregated, on unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, dorsally compressed, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, woolly, truncate.

**Glumes.** Glumes deciduous, similar, with lower wider than upper, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 8–9 mm long, 1 length of upper glume, membranous, pallid, without keels, 11 -veined. Lower glume apex acuminate. Upper glume elliptic, 8–9 mm long, 1.5 length of adjacent fertile lemma, membranous, pallid, without keels, 9 -veined. Upper glume apex acuminate.

**Florets.** Fertile florets female. Fertile lemma elliptic, dorsally compressed, 5.5 mm long, indurate, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma apex acute. Palea 1 length of lemma, indurate, 6 -veined.

**Flower and Fruit.** Lodicules 3, membranous, truncate. Anthers 3. Stigmas 2, terminally exerted, sparsely hairy.

Male spikelets distinct from female, 1 flowered, lanceolate, 3–3.7 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Mesoamerica.** Costa Rica, Panama.

**Arberella dressleri** T.R. Soderstrom & C.E. Calderon. *Brittonia* 31 (4): 433 (1979).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Panama, Colon: *Calderon* 2085 (US holo, MO). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.E. Calderón* 2085, 9 Mar 1968, Panama: Colón (US-2641979; IT: MO, US-2641978).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Robert Louis Dressler (1927-) United States botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Olyreae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths absent. Culms erect, 30–35 cm long, 3–6 -noded. Culm-internodes solid. Culm-nodes constricted. Lateral branches lacking. Leaves cauline. Leaf-sheaths outer margin hairy. Ligule a ciliolate membrane, 0.8 mm long. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole pubescent. Leaf-blades lanceolate, 8–14 cm long, 15–30 mm wide. Leaf-blade surface glabrous. Leaf-blade margins serrulate, ciliate. Leaf-blade apex acute. Monoecious, with male and female spikelets in the same inflorescence (or some all male).

**Inflorescence.** Inflorescence a panicle, comprising 1 fertile spikelets (and 5–20 male), terminal and axillary. Axillary inflorescences present throughout the plant. Panicle open, linear, 4–8 cm long, bearing few spikelets. Sexes segregated, on unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled, 2 in a cluster. Pedicels present, clavate (female) or linear (male), scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, dorsally compressed, 13–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, truncate.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 13–22 mm long, 1 length of upper glume, membranous, pallid, without keels, 9–11 -veined. Lower glume lateral veins with cross-veins. Lower glume apex caudate. Upper glume elliptic, 13–22 mm long, 1.5 length of adjacent fertile lemma, membranous, pallid, without keels, 8–9 -veined. Upper glume lateral veins with cross-veins. Upper glume apex caudate.

**Florets.** Fertile florets female. Fertile lemma lanceolate or ovate, dorsally compressed, 8.5–10.3 mm long, indurate, pallid or mid-green, mottled with last colour, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above or below. Lemma margins pubescent, hairy below. Lemma apex apiculate. Palea lanceolate, indurate, 9–10 -veined. Palea surface pubescent, hairy on back, hairy above.

**Flower and Fruit.** Lodicules 3, 1.1–1.2 mm long, membranous. Anthers 3, 1.9–2 mm long. Stigmas 2.

Male spikelets distinct from female, 1 flowered, linear or lanceolate, 3.2–6.4 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined, awned, with 1 mm long awn.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Mesoamerica. Panama.

**Arberella flaccida** (Doell) T.R. Soderstrom & C.E. Calderon. *Brittonia* 31 (4): 443 (1979).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Olyra flaccida* Doell, *Mart. Fl. Bras.* 2(2): 326 (1877)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Spruce* 2649, Oct 1852-Jan 1853, Brazil: prope Panuré (K; IT: F, GH, US-1126095, US-1445715, US-2603499, US-132869).

**Illustrations (Books):** E. Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (60, Fig. 7).

**Derivation** (Clifford & Bostock 2007): L. unable to support its own weight. Inflorescence branches long and thin and so droop.

**Classification.** Subfamily Bambusoideae. Tribe: Olyreae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths absent. Culms geniculately ascending, 15–27 cm long, 3–4 -noded. Culm-internodes solid. Culm-nodes constricted. Lateral branches lacking. Leaves cauline, 5–8 per branch. Leaf-sheaths ribbed. Ligule a ciliolate membrane, 0.4–0.6 mm long, truncate. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.1 cm long, petiole glabrous. Leaf-blades lanceolate or ovate, 4–5 cm long, 8–10 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate. Leaf-blade apex acute. Monoecious, with male and female spikelets in the same inflorescence (or some all male).

**Inflorescence.** Inflorescence a panicle, comprising 1 fertile spikelets (and 5–8 male), terminal and axillary. Axillary inflorescences present throughout the plant. Panicle open, linear, 4–5 cm long, bearing few spikelets. Sexes segregated, on unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled, 1–2 in a cluster. Pedicels present, clavate (female) or linear (male).

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or obovate, dorsally compressed, 8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, truncate.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma, incurved at apex. Lower glume elliptic, 8.5 mm long, 1.05 length of upper glume, membranous, pallid, without keels, 5–6 -

veined. Lower glume lateral veins with cross-veins. Lower glume apex attenuate. Upper glume elliptic, 8 mm long, 1.6 length of adjacent fertile lemma, membranous, pallid, without keels, 5–6 -veined. Upper glume lateral veins with cross-veins. Upper glume apex attenuate.

**Florets.** Fertile florets female. Fertile lemma elliptic or ovate, dorsally compressed, 5 mm long, indurate, pallid, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface pubescent, hairy at base. Lemma margins pubescent. Lemma apex acute. Palea indurate.

**Flower and Fruit.** Lodicules 3, 0.5 mm long, membranous. Anthers 3, 1.8–2 mm long. Stigmas 2.

Male spikelets distinct from female, 1 flowered, linear or lanceolate, 3.7–4 mm long. Male spikelet glumes absent. Male spikelet lemma 5 -veined.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. French Guiana, Guyana, Surinam. Colombia. Brazil North, Brazil South.

Amazonas, Acre, Rondonia.

**Arberella grayumii** G. Davidse. *Novon* 2(2): 94 (1992).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica, Piedras Blancas to Rincon de Osa: *Grayum et al.* 3402 (MO holo, CR, US). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *M.H. Grayum, J. Jacobs, G. Schatz, J. Kress & P. Sleeper* 3402, 2 Jul 1984, Costa Rica: Puntarenas (MO; IT: CR, US-3215620).

**Illustrations (Journals):** *Novon* (2: 95, Fig. 6 (1992)).

**Derivation** (Clifford & Bostock 2007): in honor of Michael Howard Grayum (1949-) United States botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Olyreae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths absent. Culms erect or geniculately ascending, 35–50 cm long, 4–5 -noded. Culm-internodes terete, thin-walled, glandular (spot near node). Culm-nodes black, glabrous. Lateral branches lacking. Culm-sheaths present. Leaves cauline, 5–8 per branch, distichous. Leaf-sheaths hirsute. Ligule a ciliolate membrane, 0.2–0.4 mm long. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long, petiole pilose. Leaf-blades elliptic or oblong, 5–10 cm long, 16–30 mm wide. Leaf-blade surface pilose, sparsely hairy or moderately hairy, hairy abaxially or on both sides. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in the same inflorescence (or some all male).

**Inflorescence.** Inflorescence a panicle, comprising 1 fertile spikelets (and 8–16 male), terminal and axillary, with 1–5 peduncles per sheath. Axillary inflorescences present in upper axils. Panicle open, linear, 1.5–4 cm long, bearing few spikelets. Sexes segregated, on unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled, 2 in a cluster. Pedicels present, linear (male) or clavate (female).

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, dorsally compressed, 13.5–15 mm long, 2.5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, glabrous, truncate.

**Glumes.** Glumes deciduous, similar, with lower wider than upper, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 13.5–15 mm long, 1 length of upper glume, membranous, pallid, without keels, 7 -veined. Lower glume lateral veins with cross-veins. Lower glume apex attenuate. Upper glume lanceolate, 13.5–15 mm long, 1.6 length of adjacent fertile lemma, membranous, pallid, without keels, 7 -veined. Upper glume lateral veins with cross-veins. Upper glume apex attenuate.

**Florets.** Fertile florets female. Fertile lemma elliptic or oblong, dorsally compressed, 8.7 mm long, 2.3 mm wide, indurate, pallid, shiny, without keel. Lemma surface with distinct germination flap, pubescent, hairy below. Lemma margins ciliate. Lemma apex acute. Palea 1 length of lemma, indurate, 4 -veined.

**Flower and Fruit.** Lodicules 3, 1 mm long, membranous, veined. Anthers 3, 1.2–1.6 mm long. Stigmas 2.

Male spikelets distinct from female, 1 flowered, linear or lanceolate, 3.8–5.2 mm long, glabrous. Male spikelet glumes absent. Male spikelet lemma 3 -veined, awned, with 0.1–0.5 mm long awn.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica. Costa Rica.

**Arberella lancifolia** T.R. Soderstrom & F.O. Zuloaga. *Brittonia* 37(1): 25 (1985).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Panama, El Llano: *Dressler 4276* (PMA holo, K, MO, NY, SI, US). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R.L. Dressler 4276*, 20 Feb 1973, Panama: Panama (PMA; IT: K, MO, NY, SI, US-2850469).

**Illustrations (Journals):** *Brittonia* (37: 28, Fig.3 (1985)).

**Derivation** (Clifford & Bostock 2007): *L. lanceus*, lance; folium, leaf. Leaf-blade lanceolate.

**Classification.** Subfamily Bambusoideae. Tribe: Olyreae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths absent. Culms erect or geniculately ascending, 30–40 cm long, 3–4 -noded. Culm-internodes thin-walled. Culm-nodes brown. Lateral branches lacking. Leaves cauline, 4–8 per branch. Leaf-sheaths outer margin hairy. Ligule a ciliate membrane, 0.5–0.7 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole pilose. Leaf-blades linear or lanceolate, 10–14.5 cm long, 8–13 mm wide. Leaf-blade surface pubescent, hairy on both sides. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in the same inflorescence (or some all male).

**Inflorescence.** Inflorescence a panicle, comprising 1 fertile spikelets (and 8–10 male), terminal and axillary. Axillary inflorescences present in upper axils or in lower axils. Panicle open, linear, 1.5–2 cm long, bearing few spikelets. Panicle branches pubescent. Sexes segregated, on unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled, 2 in a cluster. Pedicels present, clavate (female) or linear (male), ciliate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, dorsally compressed, 18–20 mm long, 2.1–2.9 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, truncate.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 18–20 mm long, 1.1 length of upper glume, membranous, pallid, without keels, 9 -veined. Lower glume lateral veins with cross-veins. Lower glume surface scabrous, rough at apex. Lower glume apex acuminate. Upper glume elliptic, 16–18 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, pallid, without keels, 9–10 -veined. Upper glume lateral veins with cross-veins. Upper glume apex acuminate.

**Florets.** Fertile florets female. Fertile lemma lanceolate, dorsally compressed, 10.8–12.6 mm long, 2.5 mm wide, indurate, pallid, shiny, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins pubescent. Lemma apex acuminate. Palea indurate, 8–9 -veined. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Lodicules 3, 1 mm long, membranous. Anthers 3, 1.7 mm long. Stigmas 2.

Male spikelets distinct from female, 1 flowered, lanceolate, 5–6.7 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica. Panama.

***Arberella venezuelae*** E.J. Judziewicz & G. Davidse. *Novon* 1(2): 76 (1991).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela, Salto Yureba: *Guánchez 1667* (MO holo, VEN). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Venezuela: Amazonas: Dept. Atabapo: 2 km abajo del Salto Yureba del Bajo [Río] Ventuari, 4.03N 66.02W, localmente frecuente en el sotobosque, 100–200 m, 24 Mar 1982, *Guánchez 1667* (HT: MO; IT: VEN).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (29, Fig. 11).

**Illustrations (Journals):** *Novon* (1:77, Fig.1 (1991)).

**Derivation** (Clifford & Bostock 2007): from Venezuela.

**Classification.** Subfamily Bambusoideae. Tribe: Olyreae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths absent. Culms erect or geniculately ascending, 40–60 cm long. Culm-internodes thin-walled, distally glabrous or pubescent. Culm-nodes pubescent. Lateral branches lacking. Leaves cauline, 5–7 per branch. Leaf-sheaths striately veined, glabrous on surface or hispid, outer margin hairy. Ligule a ciliate membrane, 0.5 mm long. Leaf-blade base cuneate, asymmetrical, with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole pubescent. Leaf-blades lanceolate or ovate, 8–10.5 cm long, 25–35 mm wide. Leaf-blade venation with 6–10 secondary veins. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in the same inflorescence.

**Inflorescence.** Inflorescence a panicle, comprising 1 fertile spikelets (and 3–5 male), terminal and axillary, embraced at base by subtending leaf, with 3–6 peduncles per sheath. Panicle contracted, linear, 1–2 cm long, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose. Sexes segregated, on

unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled. Pedicels present, clavate (female) or filiform (male).

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, dorsally compressed, 9–12.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4–0.7 mm long, truncate.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–12.5 mm long, 1.1 length of upper glume, chartaceous, pallid, without keels, 7–9 -veined. Lower glume apex attenuate, awned, 1 -awned, awn 1–3 mm long. Upper glume lanceolate, 8–10 mm long, 1.3–1.5 length of adjacent fertile lemma, chartaceous, pallid, without keels, 5–7 -veined. Upper glume apex acuminate.

**Florets.** Fertile florets female. Fertile lemma elliptic, dorsally compressed, 6–6.7 mm long, 2.3–2.5 mm wide, indurate, pallid, shiny, without keel. Lemma surface pubescent, hairy above and at base. Lemma margins pubescent. Lemma apex acute. Palea indurate. Palea surface glabrous or puberulous, hairy above.

**Flower and Fruit.** Lodicules 3, 0.3 mm long, membranous. Anthers 3, 2–2.5 mm long. Stigmas 2.

Male spikelets distinct from female, 1 flowered, linear or lanceolate, 4–5 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Northern South America. Venezuela.

**Arctagrostis arundinacea** (Trin.) Beal. *Grasses N. Amer.* 2: 317 (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**Basionym or Replaced Name:** *Vilfa arundinacea* Trin., *Gram. Unifl.* 157 (1824).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. arundo*, reed; -acea, like. Culm tall, thereby resembling a reed.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 100–150 cm long, with 0.5 of their length below uppermost node. Culm-internodes distally glabrous. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades 7–8 mm wide. Leaf-blade surface scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 10–20 cm long, 3–5 cm wide. Primary panicle branches 8–10 cm long, bearing 15–20 fertile spikelets on each lower branch, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.75 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.4–3.6 mm long, 0.75–0.9 length of adjacent fertile lemma, hyaline, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.4–3.6 mm long, membranous, much thinner above, keeled, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma lateral veins obscure, less than two thirds length of lemma. Lemma surface scaberulous, hispidulous. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Palea surface puberulous.

**Flower and Fruit.** Anthers 3, 1–2.4 mm long. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. Temperate Asia, North America.

**Country /Province /State.** Siberia, Russian far east. Chita, Krasnoyarsk. Magadan. **Subarctic America.** Alaska.

**TDWG4.**

**Arctagrostis latifolia** (R.Br.) Griseb. *Ledeb. Fl. Ross.* 4: 434 (1852).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**Basionym or Replaced Name:** *Colpodium latifolium* R. Br., Parry, *1st Voy. Suppl.* p. 186 (1824).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (677 as ssp. *arundinacea* & ssp. *latifolia*).

**Derivation** (Clifford & Bostock 2007): L. latus, broad; folium, leaf. Leaf-blades broad or relatively broad with respect to related species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms 15–120 cm long. Ligule an eciliate membrane, 2–5 mm long, lacerate. Leaf-blades 10–15 cm long, 6–12 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, 3–10 cm long. Primary panicle branches 3–5 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 2.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.75 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.75 length of adjacent fertile lemma, hyaline, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2.5–6 mm long, membranous, much thinner above, purple, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins obscure, less than two thirds length of lemma. Lemma surface scaberulous. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Palea apex obtuse.

**Flower and Fruit.** Anthers 3, 2 mm long, purple. Ovary glabrous.

$2n = 56$  (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, North America.

**Region. Northern Europe, Eastern Europe.**

**Country /Province /State.** : Finland, Norway, Svalbard. North European Russia. Siberia, Russian far east, Mongolia. Buryatiya, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Magadan. **Subarctic America, Western Canada, Eastern Canada.** Aleutian Is, Alaska, Yukon, Northwest Territories, Nunavut, Greenland. Alberta, British Columbia, Manitoba. Labrador, Quebec.

**TDWG4.**

### **Arctophila fulva** (Trin.) Anders. *Gram. Scand.* 10 :49 (1852).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**Basionym or Replaced Name:** *Poa fulva* Trin., *Mem. Acad. Petersb. Ser.* 6(1) 378. (1831).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (606).

**Derivation** (Clifford & Bostock 2007): L. brown, deep yellow. Usually a reference to spikelet color.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 15–80 cm long. Ligule an eciliate membrane. Leaf-blades 5–20 cm long, 2–13 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal or ovate, 4–17 cm long. Primary panicle branches ascending or drooping or reflexed. Panicle branches capillary, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear or oblong.

**Fertile Spikelets.** Spikelets comprising 2–6 fertile florets, without rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or ovate, laterally compressed, 2.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.75 length of upper glume, membranous, 1-keeled, (1–)3 -veined. Lower glume apex acute. Upper glume ovate, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 2–4 mm long, membranous, much thinner above, yellow, keeled, lightly keeled, 3 -veined, 0–3 -veined. Lemma lateral veins obscure, less than two thirds length of lemma. Lemma apex erose, acute. Palea 0.75 length of lemma, 2 -veined. Palea keels smooth. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum elliptic.

$2n = 42$  (3 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia, North America.

**Region. Northern Europe, Eastern Europe.**



**Country /Province /State.** : Finland, Svalbard, Sweden. North European Russia. Siberia, Russian far east. Krasnoyarsk. Kamchatka, Magadan. **Subarctic America, Western Canada, Eastern Canada.** Aleutian Is, Alaska, Yukon, Northwest Territories, Nunavut, Greenland. Manitoba. Labrador, Ontario, Quebec.

**TDWG4.**

**Arctopoa alexeji** (Sofieva & Vorosch.) Prob. *Komarov Memorial Lectures* 49: 91 (2003).

**Arctopoa eminiens** (J. Presl) Prob. *Novosti Sist. Vyssh. Rast.*, 11: 50 (1974).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Canada. **Basionym or Replaced Name:** *Poa eminens* J. Presl, *Reliq. Haenk.* 1(4–5): 273. 1830.

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, Canada: Notka-Sund (PR; IT: LE-TRIN-2628.09a, US-89666 (fragm.)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (599).

**Derivation** (Clifford & Bostock 2007): *L. emineo*, stand out. Conspicuous with respect to inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes elongated. Culms erect, robust, 50–130 cm long, 3–6 mm diam. Culm-internodes terete, smooth. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.2–3 mm long. Leaf-blades 10–25 cm long, 4–11 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, elliptic, 9–24 cm long. Primary panicle branches ascending, bearing spikelets almost to the base. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 7–11.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes smooth. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 5–6 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume elliptic, 7–8 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, oblong in profile, 7–8 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface puberulous to pilose. Lemma margins ciliate. Lemma apex acute. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 2.3–4 mm long. Caryopsis with adherent pericarp. Hilum punctiform.

*N* = 21 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, North America.

**Country /Province /State.** Russian far east, **China, Eastern Asia.** Kamchatka, Khabarovsk, Kuril Is, Magadan, Primorye, Sakhalin. Inner Mongolia, Manchuria. Japan. Japan Hokkaido. **Subarctic America, Western Canada, Eastern Canada.** Aleutian Is, Alaska, Yukon. British Columbia. Labrador, New Brunswick, Newfoundland, Quebec.

**TDWG4.** Nei Mongol.

**Arctopoa schischkinii** Tsvelev. *Novosti Sist. Vyssh. Rast.*, 13: 41 (1976).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Altai Mountains. **Basionym or Replaced Name:** *Poa schischkinii* Tsvelev, *Novosti Sist. Vyssh. Rast.*, 11: 32 (1974). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *B.K.Shishkin*, 30 Jul 1937, Altai Mts.: Kashagachskij aimak: Chujskaya stepp: Ak-tal (LE). Orig.label:"Altai: Ojrotiya: Kashagachskij aimak: chujskaya step': uroch. Ak-tal: lug".

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Boris Konstantinovich Shishkin (1886–1963) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 25–70 cm long. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 2.5–6 mm wide, stiff, grey-green.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–20 cm long. Panicle branches scaberulous, rough distally. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 6.5–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, 1-keeled. Lower glume apex acute. Upper glume ovate, membranous, 1-keeled. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 3.5–5.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex acute. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 2–3 mm long. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, **China, Mongolia, Russia.** Altay. Inner Mongolia, Qinghai, Xinjiang. Mongolia.

**TDWG4.**

**Arctopoa tibetica** (Munro ex Stapf) Prob. *Novosti Sist. Vyssh. Rast.*, 11: 52 (1974).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from China. **Basionym or Replaced Name:** *Poa tibetica* Munro ex Stapf, *Hook. f. Fl. Brit. Ind.* 7: 339 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: (LE (fragm.)). LT: *Strachey & Winterbottom*, China: Xizang: plains n. of Kumaon, 5000 m LT designated by Bor B.N.H.S.J. 51: 96 (1952), without indication of herb..

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 362 as *P. tibetica* var. *tibetica*).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Tibet.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Butt sheaths herbaceous, persistent and investing base of culm, with fibrous dead sheaths. Culms erect or geniculately ascending, 17–65 cm long. Culm-internodes terete, smooth. Lateral branches lacking. Leaves mostly basal. Ligule an eciliate membrane, 2–4.5 mm long, lacerate. Leaf-blades conduplicate or convolute, 6–20 cm long, 4–5 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–12 cm long. Primary panicle branches appressed, 2–4 -nate. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or oblong, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes smooth. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate or elliptic, 2.8–4.5 mm long, 0.8 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex erose, acute. Upper glume lanceolate or elliptic, 3.5–5.5 mm long, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex erose, acute.

**Florets.** Fertile lemma ovate, elliptic in profile or oblong in profile, 4–5.25 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface asperulous. Lemma margins ciliate. Lemma apex acute. Palea 0.9 length of lemma. Palea keels scabrous or spinulose, adorned below (spinulose). Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.5–2.5 mm long. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** Siberia, **Middle Asia, Western Asia, China, Mongolia, Russia.** Altay, Irkutsk, Tuva. Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan. Iran. Inner Mongolia, China North-Central, Qinghai, Tibet, Xinjiang. Mongolia. **Indian Subcontinent.** Eastern Himalaya, Nepal, Pakistan.

**TDWG4.** Gansu. Uttah Pradesh. Himachal Pradesh.

**Arctopoa trautvetteri** Tzvelev. *Novosti Sist. Vyssh. Rast.*, 11: 51 (1974).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. **Basionym or Replaced Name:** *Poa trautvetteri* Tzvelev, *Fl. Arct. URSS, Pasc.* 2, 122 (1964). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Checkanowski*, 25 Jul 1875, Russia: [Siberia], ad Lenam inferiorem prope pag. Goworowo (LE; IT: LE).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Ernst Rudolf Trautvetter (1809–1889) Russian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 17–65 cm long. Culm-internodes terete, smooth. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths tubular for much of their length. Ligule an eciliate membrane, 2–4.5 mm long. Leaf-blades conduplicate or convolute, 6–20 cm long, 4–5 mm wide. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, dense, 5–15 cm long, 1–7 cm wide. Primary panicle branches appressed, 2–4 -nate. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or oblong, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes smooth. Floret callus glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate or elliptic, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex erose, acute. Upper glume lanceolate or elliptic, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex erose, acute.

**Florets.** Fertile lemma ovate, 4–5.25 mm long, membranous, keeled, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface asperulous, pilose, hairy on veins. Lemma margins ciliate. Lemma apex acute. Palea 0.9 length of lemma. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.5–2.5 mm long. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia. Krasnoyarsk.

**TDWG4.**

**Arctopoa Genus** (Griseb.) Prob.

. *Novosti Sist. Vyssh. Rast.*, 11: 49 (1974).

**Aristida abnormis** Chiov. *Annuario Reale Ist. Bot. Roma* 8(1): 48, t. 6. 1903.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Eritrea. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *Terracciano 2667*, 11–12 Mar 1892, Eritrea: Arcipelago: Dahalak, Isola Dahalak Cumbeibak (FI). ST: *Riva / schweinfurth 375 pro parte*, 15–18 Feb 1892, Eritrea: Samhar: Saati (FI). ST: *Pappi 2667*, 24 Mar 1892, Eritrea: Assaorta: Uaafi Kebir (FI). ST: *Pappi 2668*, 13 Apr 1892, Eritrea: Assaorta: Aleita (FI, US (photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ab-*, away from; *norma*, model. Differing from the expected.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 10–30(–40) cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 5–10 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 5–10 cm long, with spikelets clustered towards branch tips. Primary panicle branches appressed or ascending, 1–2 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–10(–14) mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5.5–10 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary

vein scaberulous. Lower glume apex setaceously acuminate. Upper glume lanceolate, 5.5–10 mm long, 0.7–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 7–10(–14) mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 1 -awned or 3 -awned. Principal lemma awn curved or 3-branched, with (7.5–)15–25 mm long limb, with twisted column, persistent. Column of lemma awn 3.5–10 mm long. Lateral lemma awns absent or present, 0–15 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** **Northeast tropical Africa.** Djibouti, Eritrea, Somalia. **Western Asia, Arabian Peninsula.** Iran. Gulf States, Oman. **Indian Subcontinent.** Pakistan.

**Aristida achalensis** Mez. *Repert. Spec. Nov. Regni Veg.*

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Hieronymus s.n.*, 24–25 Mar 1875, Argentina: Csrdo: Sierra de Achala, Paso de la Higuera al pie de la Cuesta de Arjel (B; IT: US-81028 (fragm. ex B / photo)).

**Illustrations (Journals):** *Darwiniana* (41: 158, fig.1 & 160, fig.2 (2003)).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Sierra Achala, Argentina.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms 55–70 cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.1 mm long. Collar glabrous. Leaf-blades curled (lower) or straight (upper), flat (lower) or conduplicate (upper), 20–25 cm long, 1.5–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, smooth.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, 12–16 cm long. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, (0.5–)0.6 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower longer than upper, rarely subequal). Lower glume lanceolate, 11–14 mm long, 1 -veined. Lower glume surface asperulous, rough generally. Lower glume apex acuminate (shortly awned), mucicous. Upper glume lanceolate, 10.2–12.5 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acuminate (shortly awned).

**Florets.** Fertile lemma subterete, 4–5 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above, with a median groove (ventral, longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 16–20 mm long limb, with twisted column. Column of lemma awn 2–3.2 mm long. Lateral lemma awns present, ascending, 14–16.5 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** **Brazil, Southern South America.** Argentina Northeast.

**TDWG4.** Catamarca, Jujuy, La Rioja, Salta, Tucuman. Cordoba.

**Aristida acuta** S. T. Blake. *Proc. Roy. Soc. Queensl.* 51: 169 (1940).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Queensland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Moreton District: near Villeneuve, on upper hill slope in cleared Eucalyptus forest on grey podzolised soil 400 ft., *S. T. Blake 13960* (HT: BRI; IT: BRI, K, MEL).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (126), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(17)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 182, Fig.8 (1992)), *Proc.Roy.Soc.Qld.* (51:176,Pl.4 (1940)).

**Derivation** (Clifford & Bostock 2007): *L. acuo*, sharpen; glumes sharp-pointed.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 40–125 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral

hairs ciliate, 3–4 mm long. Ligule a fringe of hairs, 0.5 mm long. Collar glabrous or pubescent. Leaf-blades filiform, involute, 7–13 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear or elliptic, 15–30 cm long, 1–10 cm wide. Primary panicle branches 3–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7.7–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, hairy on the surface or on the margins, acute.

**Glumes.** Glumes deciduous, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7.7–15 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or obscure. Lower glume apex acute or acuminate, awned, 1 -awned, awn 1–3 mm long. Upper glume lanceolate, 6.5–14 mm long, 1–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate, awned, 1 -awned, awn 1–3 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 7–9 mm long, coriaceous, pallid or light brown, concolorous or mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea, without distinctive roughness. Lemma apex acute, awned, 3 -awned. Principal lemma awn flat below, with 13–22 mm long limb, without a column, persistent. Lateral lemma awns present, 9–18 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 4.5–6 mm long. Hilum linear, 0.2 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland, New South Wales.

**TDWG4.** North, Central, South East. Coast, Tablelands.

**Aristida adoensis** Hochst. In sched., Schimp. *Iter Abyss.* 3:1806 (1844).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Schimper 1806*, 10 Oct 1840, Ethiopia: in planitie montana Shire (K).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 357 as *A. coerulescens*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (79, Fig 33).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Ado, Ethiopia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 25–60(–120) cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades involute, 5–25 cm long, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or oblong, continuous or interrupted, 5–20 cm long, 1 cm wide. Panicle branches pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–11 mm long, 0.9–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, muticous or mucronate or awned, awn 0–2 mm long. Upper glume lanceolate, 8–11 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, muticous or mucronate or awned, 1 -awned, awn 0–2 mm long.

**Florets.** Fertile lemma elliptic, subterete, 6–8 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 15–22 mm long limb, without a column, persistent. Lateral lemma awns present, 15–22 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Burundi, Rwanda, DRC. Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda.

**Aristida adscensionis** L. Sp. Pl. 82. (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980) (& as *A. coerulescens*), N.Tsvelev, *Grasses of the Soviet Union* (1983), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

**TYPE** from Ascension Is. **Basionym or Replaced Name:** *Aristida paniculata* Forsk., *Fl. Aegypt.-Arab.* 25 (1775). *Aristida caerulescens*. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ascension I.: *Osbeck* (LINN holo).

**Recent Synonyms:** *Aristida gigantea* Linn. f., *Suppl.* 113 (1781). *Aristida peruviana* A.A. Beetle, *Phytologia* 30(5): 348 (1975).

*Aristida coerulescens* Desf., *Fl. Atlant.* i. 109 (1798).

*Aristida interrupta* Cav.,  *Ic. v. 45. t. 471. f. 2.* (1799). T: *L. Nie s.n.*, Mexico: Mixico: cerca de Chalma (MA).

*Aristida depressa* Retz., *Obs.* iv. 22 (1786). HT: *Kvnig s.n.*, India: in sterilioribus Malabariae (S; IT: B-W, M).

*Aristida luzoniensis*, Cav.,  *Ic. v. 45. t. 470.* (1799). Habitat in insula Luzon altera ex Philippicis, floretque Aprili et Maio, (HT: herb. Ludovic. Nie) According to Henrard, *Meded. Rijks-Herb.* 54(A): 318 (1927), the specimen was mislabeled and really originated in Argentina.

*Aristida elatior* Cav.,  *Ic. vi. 65* (1801). Habitat in aridis et saxosis prope mare Albateram et Callosam oppida Orcellitana Regni Valentini. Augusto floridam, *D. Marianus Lagasca s.n.*.

*Aristida racemosa*, Spreng., *Mant.* i. 35. (1807). Ex insula St. Helenae,.

*Aristida canariensis* Willd., *Enum. Hort. Berol.* 99 (1809). HT: *Broussonet s.n.*, Canary Islands: habitat in Teneriffe (B-W).

*Aristida festucoides* Poir.,  *Encyc. Suppl.* i. 453. (1810). HT: *Dupuis s.n.*, Senegal (P?; IT: C).

**Illustrations (Books):** F.N.Hepper, *F.W.T.A.* 3(2) (1972) (380, Fig.427), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (313, Fig. 279 as *A. curvata*), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (105, Fig. 30), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 358), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (79, Fig 33), L.Boulos, *Flora of Egypt* 4 (2005) (239, Pl. 70), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (385, Pl. 146), N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (408, Fig 43), K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (Pl. 712, as var. *adscensionis*), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982), H.J.Noltie, *The Grasses of Bhutan* (2000) (645, Fig. 31), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (331), F.W.Gould, *The Grasses of Texas* (1975) (403, Fig. 214), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (89, Fig. 53), S.A.Renvoize, *Gramineas de Bolivia* (1998) (275, Fig 55), S.A.Renvoize, *The Grasses of Bahia*, 1984 (55, Fig. 19), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (211, Fig 76 as var. *condensata*), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 41, Fig. 7 (1997)), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 634), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:18(1980)).

**Illustrations (Journals):** *Ruizia* (13:233, Fig 26f (1993)).

**Images:** L.Boulos, *Flora of Egypt* 4 (2005);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): from Ascension Island in the Atlantic Ocean.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual or perennial. Culms erect or geniculately ascending or decumbent, 10–100 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 5–20 cm long, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, elliptic, 10–30 cm long, evenly furnished or contracted about primary branches. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, 0.8 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex emarginate or acute, muticous or mucronate. Upper glume lanceolate, 5–10 mm long, 0.75–1 length of adjacent fertile lemma, scarious, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma elliptic, laterally compressed, 5–13 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 7–25 mm long limb, persistent. Lateral lemma awns present, 5–25 mm long, subequal to principal or shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

$N = 11$  (4 refs TRPOICOS).  $2n = 22$  (3 refs TRPOICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Pacific, North America, South America.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Spain. : Greece, Italy, Crete, Sicily. **Northern Africa, Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Middle Atlantic ocean, Western Indian ocean.** Algeria, Egypt, Libya, Morocco, Tunisia. Canary Is, Cape Verde, Madeira. Benin, Burkina, Ghana, Ivory Coast, Mali, Nigeria, Senegal, Niger. Burundi, Equatorial Guinea, Annobon, Principe & Sao Tome, Rwanda, DRC. Eritrea, Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. Ascension. Mauritius, Madagascar, Rodrigues, Seychelles. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia.** Kazakhstan, Turkmenistan. Iran. Gulf States, Oman. China South Central, Inner Mongolia, China North-Central, Qinghai, Xinjiang. **Indian Subcontinent, Indo-China, Malesia.** Assam, Bangladesh, Eastern Himalaya, India, Laccadive Is, Pakistan, West Himalaya. Myanmar, Thailand, Vietnam. Lesser Sunda Is. **North-central Pacific.** Marquesas. Hawaii (\*). **North-central USA, Southwestern USA, South-central USA, Mexico.** Kansas, Nebraska, Oklahoma, South Dakota. Arizona, California. New Mexico, Texas. Central Mexico, Northeast Mexico, Gulf (Mexico), Pacific Is (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Guatemala, Honduras, Nicaragua. Aruba, Bahamas, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico, Venezuelan and Netherlands Antilles. Venezuela. Bolivia, Colombia, Ecuador, Galapagos. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North. Argentina Northeast, Argentina Northwest, Chile North, Chile Central, Paraguay.

**TDWG4.** Gansu, Hebei, Shaanxi, Shandong, Shanxi. Sichuan, Yunnan. Bhutan. Kerala. Maharashtra, Punjab, Rajasthan, Uttah Pradesh. Catamarca, Jujuy, La Rioja, Mendoza, Salta, Santiago del Estero, San Juan, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, Formosa, La Pampa. Tarapaca, Antofagasta, Atacama. Coquimbo, Valparaiso, Santiago. Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo Leon, Queretaro, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Guadalupe Is, Roscas Alijos, Revillagigedo Is. Baja California, Baja California Sur, Sinaloa, Sonora. Guerrero, Michoacan, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

**Aristida aemulans** Melderis. *Bol. Soc. Brot.*, Ser. 2, 44: 285 (1970).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Zaire. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Zaire, Elizabethville: *Gathy* 1165 (K holo, SRGH).

**Illustrations (Books):** G.V.Pope et al., *Flora Zambesiaca* 10 (1(1971):103, t. 30).

**Derivation** (Clifford & Bostock 2007): *L. aemulor*, come near to. Rather similar to another species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–70 cm long, 2–3 -noded. Culm-internodes distally glabrous. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades curled, 20–40 cm long, 2–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, sparsely hairy, hairy adaxially. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, interrupted, 13–20 cm long. Primary panicle branches 1 -nate, 3–5 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3–0.4 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–4 mm long, 0.6–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume

apex emarginate or obtuse or acute, mucronate. Upper glume lanceolate, 6–7 mm long, 1.7–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface smooth or asperulous, rough above. Upper glume apex emarginate or obtuse or acute, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 3.5–4 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex rostrate, with a short cylindrical neck, with this appendage 0.5–1 mm long, awned, 3 -awned. Principal lemma awn 3-branched, with 12–15 mm long limb, persistent. Lateral lemma awns present, 8–10 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, South tropical Africa. DRC. Zambia.

**Aristida aequiglumis** Hack. ex Schinz. Bull. Herb. Boiss. 3: 381. (1895).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa, Kuduspoort: *Rehmann* 4696.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. aequus*, equal; gluma, husk. Glumes subequal.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 30–40 cm long, 3–4 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 5–15 cm long, 1–1.5 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or oblong, 6–15 cm long. Primary panicle branches 1–2 -nate, 2–4 cm long, bearing 1–3 fertile spikelets on each lower branch. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5.5–9.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets or reaching apex of florets, thinner than fertile lemma, parallel to lemmas or recurved at apex. Lower glume lanceolate, 5–9 mm long, 0.9–1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acuminate, awned, 1 -awned, awn 0.5–1.5 mm long. Upper glume lanceolate, 5.5–9.5 mm long, 1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 6–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 15–25 mm long limb, with twisted column, persistent. Column of lemma awn 2–8 mm long. Lateral lemma awns present, 13–20 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Zambia, Zimbabwe. Limpopo, North-West, Gauteng, Mpumalanga.

**Aristida alpina** L. Liou. Fl. Xizangica, 5: 82 (1987).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 635).

**Derivation** (Clifford & Bostock 2007): *L. alpes*, high mountain; *-ina*, belonging to. Species growing at high altitudes.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 12–22 cm long, 0.5–1 mm diam., 1–2 -noded. Leaves mostly basal. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs. Leaf-blades involute, 10–30 cm long, 1–2 mm wide, glaucous.



**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 3.5–7.5 cm long. Primary panicle branches 1–2-nate, bearing 2–4 fertile spikelets on each lower branch. Panicle axis scaberulous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 1–10 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse. Floret callus hairs 0.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–12 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acuminate. Upper glume lanceolate, 12 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 10 mm long, coriaceous, dark brown or black, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn straight, with 10 mm long limb, persistent. Lateral lemma awns present, 3–5 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Tibet.

**Aristida amazonensis** H.M. Longhi-Wagner. *Kew Bull.* 49(4): 817 (1994).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Amazonas: Estrada do Estanho, road to Igarapi Preto, ca. 60 km SE of Transamazon Highway, 2 Jul 1979, *Caldern, Monteiro & Guedes 2739* (HT: K; IT: BR, NY, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Amazonas, Brazil.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 35–47 cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.1 mm long. Collar glabrous. Leaf-blades straight, conduplicate, 10–14 cm long, 1.8–2 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, sparsely hairy, hairy adaxially. Leaf-blade apex obtuse, smooth.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (or subcontracted), 15–29 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.8 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower longer than upper sometimes subequal). Lower glume lanceolate, 6.5–8 mm long, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acute (shortly awned), muticous or mucronate. Upper glume lanceolate, 6.2–7(–7.8) mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute (shortly awned).

**Florets.** Fertile lemma subterete, 8–9 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight (or slightly bent), ascending or spreading, simple at base, with 16.5–20 mm long limb, without a column. Lateral lemma awns present, ascending, 14.2–18 mm long, shorter than principal (slightly).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil West Central, Brazil North.

**Aristida ambongensis** A. Camus. *Bull. Soc. Bot. France*, 78: 435. (1926).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar cent.: Stompiku (Ambongo) sables trhs secs et dicouverts, *Perrier de la Bathie 11092*.

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (101, Fig. 28).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Ambongo, Madagascar.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect or geniculately ascending, 40–75 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches sparse. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 15–20 cm long, 1–3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–15 cm long, 1 cm wide. Primary panicle branches appressed, 1–3-nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 15–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–3 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 15–17 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 17–19 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 0–10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 35–45 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 8–13 mm long. Lateral lemma awns present, 30–35 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Aristida amplexifolia** E. Sanchez. *Darwiniana* 19(3–4): 413 (1975).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Argentina: Jujuy: Dpartamento Yavi: Cerro Colorado, 21 Feb 1971, B.J. Ruthsatz IX-25 (HT: BAF; IT: BAA).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. amplexus*, encircling; *folium*, leaf. Leaf-blades cordate and amplexicaule.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms erect, 20–30 cm long, 3 -noded. Culm-internodes elliptical in section. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate, 3 mm long. Ligule a fringe of hairs. Collar pubescent. Leaf-blades straight or curved or flexuous, conduplicate, 8–17 cm long, 0.5–1 mm wide. Leaf-blade surface ribbed, grooved adaxially, scaberulous, rough on both sides. Leaf-blade margins scaberulous. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 8–12 cm long. Panicle axis scaberulous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 7.5–11 mm long, 0.75 length of upper glume, membranous, 3 -veined. Lower glume primary vein ciliolate. Lower glume surface asperulous, rough on veins. Lower glume apex entire or dentate, 2 -fid, mucronate. Upper glume linear or lanceolate, 10–13 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex entire or dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma linear, subterete, 8.5–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 17–20 mm long limb. Lateral lemma awns present, 13–15 mm long, shorter than principal. Palea 1.5 mm long, 0.15 length of lemma, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, 1 mm long. Anthers 3, 2 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northwest.

TDWG4. Jujuy.

**Aristida anaclasta** T.A. Cope. *Kew Bull.*, 39(4): 833 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Socotra. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Socotra: *Radcliffe-Smith / Lavranos* 605 (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *ana*, not; *klastos*, broken in pieces. Awn without an articulation.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 25–35 cm long. Ligule a fringe of hairs. Leaf-blades curled, aciculate, involute, 2–5 cm long, 1 mm wide, coriaceous, stiff.

**Inflorescence.** Inflorescence a panicle, comprising 6–7 fertile spikelets. Panicle open, ovate, 5–7 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–10.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 7–8 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, mucronate. Upper glume lanceolate, 8.5–9 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 10–10.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 12–16 mm long limb, without a column, persistent. Lateral lemma awns present, spreading less than principal, 9–10 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Socotra.

**Aristida anisochaeta** W. D. Clayton. *Kew Bull.* 23: 211 (1969).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Ethiopia, Uardere: *Ellis* 38 (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. *anisos*, unequal; *chaete*, bristle. Central branch of trifold awn much longer than the two laterals.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40–60 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades convolute, 3–9 cm long, 0.5–1.5 mm wide, stiff, glaucous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 8–10 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–12.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1 mm long, pubescent, with longer hairs above, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5–7 mm long, 0.4–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume linear, 10–12.5 mm long, 3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3.5–4 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 45–65 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 5 mm long. Lateral lemma awns present, 8–12 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Eritrea, Somalia.

**Aristida annamensis** Henrard. *Meded. Herb. Leid.* No. 54, 28 (1926).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Annam now included within Vietnam.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long, 1–2 mm diam. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–35 cm long, 1–1.5 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins cartilaginous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 25–50 cm long, 10–20 cm wide, with spikelets clustered towards branch tips. Primary panicle branches 2–3 -nate. Panicle axis scabrous. Panicle branches flexuous, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 11.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 11.5 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 2 mm long. Upper glume lanceolate, 10.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 2 mm long.

**Florets.** Fertile lemma linear or lanceolate, subterete, 9 mm long, coriaceous, without keel. Lemma surface punctate. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 20 mm long limb, without a column or with a straight or slightly twisted column, persistent. Column of lemma awn 0–1 mm long. Lateral lemma awns present, 13 mm long, shorter than principal. Palea absent or minute.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Vietnam.

**Aristida annua** B.K. Simon. *Austrobaileya* 2(1): 87 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Leichardt Dist.: Gindie via Springsure, 29 Mar 1958, *P. J. Skerman s.n.* (HT: BRI-11772).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (115, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 211, Fig.15 (1992)).

**Derivation** (Clifford & Bostock 2007): *L. annua*. Annuals.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms 25–50 cm long, 2–3 -noded. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Ligule a fringe of hairs, 1 mm long. Leaf-blades 7–15 cm long, 1–1.5 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 10–20 cm long, 5–12 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute. Floret callus hairs 1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6.5–7.5 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral

veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acute or acuminate, awned, 1 -awned, awn 1–1.5 mm long. Upper glume lanceolate, 7–8.5 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous or scabrous. Upper glume apex acute or acuminate, awned, 1 -awned, awn 1–1.5 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 5.5–6.5 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 8–12 mm long limb, without a column, persistent. Lateral lemma awns present, 8–12 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Queensland.

**TDWG4.** Central.

**Aristida anthoxanthoides** (Domin) Henrard. *Meded. Herb. Leid.* No. 54, 10, 29 (1926).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Aristida adscensionis* var. *anthoxanthoides* Domin, *Bibliotheca Botanica* 85(2): 343, t. 15, f. 9–12 (1915). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *M. Koch 305*, Oct 1899, Australia: South Australia: Mt. Lyndhurst, Flinders Ranges station (K; IT: BRI (photo, frag.)).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (318, Fig 248), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (167, Pl 49), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (126), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(35)), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (82, Fig 14), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.15 as *A.adscensionis* var. *anthoxanthoides*).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 182, Fig.8 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): Gk. *-oides*, resembling. Similar to *Anthoxanthum*.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms 15–30 cm long, 2–3 -noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs, 0.5 mm long. Collar glabrous. Leaf-blades 4–9 cm long, 1.5 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, 8 cm long, 2.5–4 cm wide. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex emarginate or acute or acuminate. Upper glume lanceolate, 4–7 mm long, 0.8–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex acute or acuminate, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 5–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins involute, covering most of palea, without distinctive roughness. Lemma apex acute, awned, 3 -awned. Principal lemma awn flat below, with 10–15 mm long limb, without a column, persistent. Lateral lemma awns present, 10–15 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 5–6 mm long. Hilum linear, 0.2–0.3 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

**TDWG4.** Eremean. Central Australia. NW & Lake Eyre, Southern. North, Central, Inland. Western Plains.

**Aristida antoniana** Steud. ex Doell. Mart., *Fl. Bras.* 2,3:19 (1878).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Aristida enodis* E.Hackel, *Fedde, Repert.* 11: 21 (1912). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Lechler 1774*, Peru (BR; IT: K, M, MO (fragm. ex US), US-81016 (fragm. ex K), US-81016 (fragm. ex BR, M & photo), W). LT designated by Henrard, *Meded. Rijks-Herb.* 54: 31 (1926).

**Illustrations (Journals):** *Darwiniana* (41: 164, fig.3 (2003)).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating location. From San Antonio, Puno Province, Peru.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–30 cm long, 0 -noded. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades convolute, 2–12 cm long, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 3–7 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 10–11 mm long, 1 length of upper glume, membranous. Lower glume primary vein ciliolate. Lower glume surface scabrous. Lower glume apex acute, muticous or mucronate. Upper glume linear, 10–11 mm long, 1.1 length of adjacent fertile lemma, membranous. Upper glume primary vein ciliolate. Upper glume surface scabrous. Upper glume apex acute, muticous or mucronate.

**Florets.** Fertile lemma linear, subterete, 8–10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 12–18 mm long limb. Lateral lemma awns present, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia, Peru. Argentina Northeast.

**TDWG4.** Jujuy, Salta, Tucuman.

**Aristida appressa** Vasey. *Contrib. U. S. Nat. Herb.* 1: 282. (1893).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Palmer s.n.*, 1885, Mexico: Jalisco: Guadalajara (US-745676; IT: L (fragm.), W). Collection date in error for 1886.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. appressed. Lateral branches of panicle held erect.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with curly dead sheaths. Culms 30–60 cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or involute, 10–35 cm long, 1–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, equilateral or nodding, 10–25 cm long. Primary panicle branches appressed or ascending, 2–10 cm long. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–11 mm long, 0.75 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate, muticous or awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate,

12–14 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate, muticous or awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma linear, subterete, 8–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 15–22 mm long limb, with twisted column. Column of lemma awn (2–)4–8 mm long. Lateral lemma awns present, 15–22 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Northeast Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica.** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama.

**TDWG4.** Distrito Federal, Mexico State, Morelos, Puebla. Guanajuato, Zacatecas. Guerrero, Jalisco, Michoacan, Nayarit. Chiapas, Yucatan.

**Aristida arida** B.K. Simon. *Austrobaileya* 2(1): 87 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Northern Territory: Central Southern Region, 20.5 mi SE of Alice Springs, 17 Aug 1956, *M. Lazarides* 5725 (HT: BRI-21231; IT: CANB, MEL, NSW, NT, PERTH).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (319, Fig. 249), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (115, Fig. 20).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. dry. Growing in arid places.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40–80 cm long, 2–4 -noded. Culm-internodes smooth, distally glabrous. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades involute, 10–20 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 11–40 cm long, 1–3 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute. Floret callus hairs 1–1.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–11 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute or acuminate, awned, 1 -awned, awn 1 mm long. Upper glume lanceolate, 8–13 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7–11 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn flat below, with 11–24 mm long limb, without a column, persistent. Lateral lemma awns present, 11–24 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Northern Territory, South Australia.

**TDWG4.** Central Australia. NW & Lake Eyre, Southern.

**Aristida arizonica** Vasey. *Bull. Torrey Bot. Club.* 13 :27 (1886).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *G.R. Vasey s.n.*, 1881, USA: New Mexico: near Las Vegas (US-81015). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 22(7): 568 (1924).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (336).

**Derivation** (Clifford & Bostock 2007): L. *-ica*, belonging to. From Arizona, USA.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths withering or persistent and investing base of culm, with curly dead sheaths. Culms erect, 30–100 cm long. Leaf-sheaths without keel, outer margin glabrous or hairy. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades flat, 10–25 cm long, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–25 cm long, bearing few spikelets. Primary panicle branches appressed, 2–6 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 13–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pubescent, pungent.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 12–17 mm long, 0.9–1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 13–18 mm long, 1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 13–16 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 20–35 mm long limb, with twisted column. Column of lemma awn 3–6 mm long. Lateral lemma awns present, 15–30 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, North-central USA, Southwestern USA, South-central USA, Mexico. Colorado. Oklahoma. Arizona, Nevada. New Mexico, Texas. Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico.

Distrito Federal, Mexico State, Morelos, Puebla. Coahuila, Chihuahua, Durango, Guanajuato, Neuvo Leon, San Luis Potosi, Zacatecas. Baja California. Guerrero, Jalisco, Michoacan, Oaxaca.

**Aristida arubensis** Henrard. *Meded. Herb. Leid.* No. 54, 41 (1926).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Netherlands Antilles. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *W.F.R. Suringar HERB. LUGD. BAT. 908.84–423*, 4 Feb 1885, Netherlands Antilles (L-908.84–423 (photo, US-81024), L-908.64–422; IT: US-81014 (fragm. ex L)). Note: 908.84–422 in Chase Index. possible type fragment.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Aruba, a Caribbean island.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect, 20–30 cm long. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, smooth. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades curved, convolute, 10–20 cm long, 2 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, linear or lanceolate, 5–10 cm long, 1 cm wide, contracted about primary branches. Primary panicle branches 1–2-nate. Panicle axis smooth. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.75 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 11–12 mm long, 1.5 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 8 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 6.5–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 20–25 mm long limb. Lateral lemma awns present, 17–20 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.



**Distribution (TDWG).** Continent. South America.  
**Country /Province /State.** Caribbean. Aruba.

**Aristida asplundii** Henrard. *Meded. Herb. Leid.* No. 54, 42 (1926).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolivia: Dep. La Paz: Prov. Pacajes: prope Ulloma, circa 3800 m. s. m., 20 Feb 1921, *Erik Asplund 2525* (HT: UPS).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (276, Fig. 56), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 45, Fig. 8 (1997)).

**Illustrations (Journals):** *Darwiniana* (41: 167, fig.4 (2003) as var. *pauciflora*).

**Derivation** (Clifford & Bostock 2007): L. in honor of Erik Asplund (1888–1974) Swedish botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms geniculately ascending, 10–15 cm long. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, striately veined, smooth. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Collar pubescent. Leaf-blades filiform, convolute, 2–4 cm long, 1 mm wide, stiff, glaucous. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins unthickened.

**Inflorescence.** Inflorescence a panicle, exerted or embraced at base by subtending leaf. Peduncle pubescent above. Panicle open, oblong, 7–8 cm long. Primary panicle branches spreading, 1–2 -nate. Panicle branches scabrous, pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, obtuse or acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 10 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume apex acuminate to setaceously acuminate. Upper glume linear, 10 mm long, 2 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acuminate to setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 14–15 mm long limb, with twisted column. Column of lemma awn 3–4 mm long. Lateral lemma awns present, 9–11 mm long, shorter than principal. Palea hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, 1.5 mm long. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia, Ecuador. Argentina Northwest.

**TDWG4.** Jujuy, Salta, Tucuman.

**Aristida australis** B.K. Simon. *Austrobaileya* 2(1): 88 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: South Australia: Southern Lofty: Adelaide Plains near Queenstown, 8 May 1967, T. Smith s.n. (HT: AD-96737133(photo, BRI); IT: BRI-279005).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (319, Fig. 250), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (115, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 211, Fig.15 (1992)).

**Derivation** (Clifford & Bostock 2007): L. of the south. From the south in general as from Africa, America, Europe or elsewhere.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–65 cm long, 3–4 -noded. Culm-internodes glaucous, smooth, distally glabrous. Lateral branches ample. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades flexuous, 5–10 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 8–24 cm long, 0.2–0.3 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, acute. Floret callus hairs 1.8 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or obscure. Lower glume apex acute or acuminate, awned, 1 -awned, awn 1 mm long. Upper glume lanceolate, 13 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate, awned, 1 -awned, awn 1 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 9–10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 14–17 mm long limb, without a column, persistent. Lateral lemma awns present, 14–17 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** Australia. South Australia.

**TDWG4.** NW & Lake Eyre, Southern.

### **Aristida balansae** Henrard. Fedde, *Repert.* 17: 397 (1921).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Vietnam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Balansa s.n.*, 31 Oct 1886, Viet Nam: Bienhoa, Cu Due (L-908.83–940).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Benjamin Balansa (1825–1892) French botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms robust, 100–120 cm long. Lateral branches lacking or sparse. Ligule a fringe of hairs. Leaf-blades filiform, flat or involute, 25–60 cm long, 3–4 mm wide, coriaceous. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 45–55 cm long. Primary panicle branches appressed. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, bearded, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–9 mm long, 0.75 length of upper glume, membranous, 1-keeled. Lower glume primary vein scaberulous. Lower glume apex setaceously acuminate. Upper glume lanceolate, 10–12 mm long, 1 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled. Upper glume surface asperulous. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 3 mm long.

**Florets.** Fertile lemma linear, subterete, 12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 20–40 mm long limb, with twisted column. Column of lemma awn 4–5 mm long. Lateral lemma awns present, 15–30 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. Tropical Asia.

**Country /Province /State.** Indo-China. Laos, Thailand, Vietnam.

### **Aristida barbicollis** Trin. / Rupr. *Mem. Acad. Petersb. Ser.* 6, 7: 152. (1842).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Ecklon s.n.*, South Africa: Cape: in saxosis siccis altit. II inter flumina Konabrivier et Katrivier in territorio "Ceded" LT designated by Henrard, *Meded. Rijks-Herb.* 54: 50 (1926).

**Illustrations (Books):** R.M.Pollhill, F.T.E.A., *Gramineae* (1(1970):158, Fig. 50), G.V.Pope et al., *Flora Zambesiaca* 10 (1(1971):130, t. 33), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (Pl. 9), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (as *A. congesta* subsp. *barbicollis*).

**Derivation** (Clifford & Bostock 2007): *L. barba*, beard; collum, neck. Orifice of leaf-sheath bears long hairs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 20–90 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths keeled. Leaf-sheath oral hairs lacking or bearded. Ligule a fringe of hairs. Leaf-blades curled, conduplicate or involute, 3–20 cm long, 1–3 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 7–20 cm long, with spikelets clustered towards branch tips. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–7 mm long, 0.4–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acute, awned, 1 -awned, awn 0.8–2 mm long. Upper glume lanceolate, 7–11 mm long, 1.8–2.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 1 mm long.

**Florets.** Fertile lemma elliptic, subterete, 4–5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 12–28 mm long limb, with twisted column, deciduous, abscising from top of column. Column of lemma awn 2–4 mm long. Lateral lemma awns present, 12–28 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG), Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean. DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania. Mozambique, Zambia, Zimbabwe. Swaziland, Kwazulu-Natal, Northern Cape. Madagascar.

**Aristida basiramea** Vasey. *Coult. Bot. Gaz.* 9: 76. (1884).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Warren Upham s.n.*, Sep 1883, USA: Minnesota: Minneapolis (US-745517; ILT: L, US-745518, US-745515, US-990530). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 22(7): 533 (1924), but without specifying the specific sheets at US, but US-745517 was the only sheet annotated by Hitchcock for his 1924 revision of *Aristida*.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (329).

**Derivation** (Clifford & Bostock 2007): *L. basis*, base; *ramus*, branch. Culms much branched at the base.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 30–50 cm long. Culm-internodes smooth or scaberulous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or involute, 7–15 cm long, 0.7–1.5 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle, terminal and axillary. Axillary inflorescences enclosed. Panicle open, linear, 5–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 10–12 mm long, 0.8 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume linear, 12–15 mm long, 1.2–

1.5 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma linear, subterete, 10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, ascending or briefly coiled at base of limb, with 10–15 mm long limb. Lateral lemma awns present, spreading as much as principal, 5–10 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Eastern Canada, Northwest USA, North-central USA, Northeast USA, South-central USA, Southeastern USA. Ontario. Illinois, Iowa, Kansas, Minnesota, Missouri, Oklahoma, Wisconsin. Maine, New Hampshire. New Mexico, Texas.

**Aristida batangensis** Z. X. Tang & H. X. Liu. *J. Sichuan Univ., Nat. Sci. Ed.* 29 : 423 (1992).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Batang Xian, 2600–2700 m.,

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 50–70 cm long, 3–4 -noded. Leaf-sheaths loose, scaberulous. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight or curved, involute, 3–15 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear. Primary panicle branches appressed. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse. Floret callus hairs 0.2–0.8 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex emarginate or obtuse. Upper glume lanceolate, 8.5–9 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate or obtuse.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn straight, with 7 mm long limb, persistent. Lateral lemma awns present, 5–6 mm long, shorter than principal. Palea 7–8 mm long, 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Anthers 3, 3 mm long, yellow.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Sichuan.

**Aristida behriana** F. Muell. *Trans. Vict. Inst.* 1:44. (1855).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *F. Mueller s.n.*, Australia: South Australia: Murray River (K (photo, BRI); ILT: MEL). LT designated by Henrard, *Meded. Rijks-Herb.* 54: 52 (1926).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (320, Fig. 251), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (551, Fig. 109), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (126), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (101, Fig. 18), D.Sharp & B.K.Simon, *AusGrass*. *Grasses of Australia*. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.14).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 209, Fig.14 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. *Grasses of Australia*. CD-Rom Version 1.0. (2002); K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Hans Hermann Behr (1818–1904), German-born, Australian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 22–43 cm long, 1-noded. Culm-internodes antrorsely scabrous, distally glabrous. Lateral branches lacking. Leaf-sheaths scaberulous. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.3 mm long. Collar pubescent. Leaf-blades 10–25 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle terete. Panicle contracted, linear, 8–13.5 cm long. Primary panicle branches 0.4–0.8 cm long, bearing spikelets almost to the base. Panicle branches scaberulous or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15–19.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.7–1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–11.6 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1-awned, awn 0.2–0.5 mm long. Upper glume lanceolate, 15–19 mm long, 1.6–2.1 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute or acuminate, awned, 1-awned, awn 1–2.5 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 7–12 mm long, coriaceous, without keel, 3-veined, 0–3-veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3-awned. Principal lemma awn spreading, flat below, with 16–66 mm long limb, without a column, persistent. Lateral lemma awns present, 13–53 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 1.1–1.4 mm long. Caryopsis with adherent pericarp, 6.6–8 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, A.C.T., South Australia, Victoria.

**TDWG4.** NW & Lake Eyre, Southern. Tablelands, Western Slopes, Western Plains.

**Aristida benthamii** Henrard. *Meded. Herb. Leid.* No. 58 A. 246 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *F. Mueller s.n.*, Australia: Queensland: Moreton Dist.: Brisbane River (K; ILT: BRI (fragm.)). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 706 (1933).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (126), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(38)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 179, Fig.7 (1992).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): in honor of George Bentham (1800–1884) English botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 50–90 cm long, 2–3-noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath oral hairs pubescent or ciliate. Ligule a fringe of hairs, 0.3 mm long. Collar pubescent. Leaf-blades filiform or linear, flat or involute, 20–25 cm long, 3 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 14–30 cm long, 1–2 cm wide. Primary panicle branches 4–11.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5.5–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.4 mm long, pubescent, acute. Floret callus hairs 0.2–1 mm long.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.5–9 mm long, 1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acute or acuminate, mucicous or mucronate. Upper glume lanceolate, 5.5–9 mm long, 1.3–1.6 length of adjacent fertile lemma, membranous, 1-

keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous or scabrous. Upper glume apex emarginate or obtuse, mucous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 3.5–7 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea, without distinctive roughness or scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 8–15 mm long limb, without a column, persistent. Lateral lemma awns present, 6–12 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 3–4 mm long. Hilum linear, 0.25 length of caryopsis.

**Distribution (TDWG). Continent.** Europe (\*), Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia.** New South Wales, Queensland, Tasmania. **TDWG4.** North, Central, South East, Inland. Coast, Tablelands, Western Slopes.

### **Aristida beyrichiana** Trin. & Rupr. *Mem. Acad. Petersb.* Ser. 6, 7: 104. (1849).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.C. Beyrich s.n.*, 1834, USA: Georgia: Effingham Co.: Ebenezer, in pinitis (LE-TRIN-1262.01; IT: L-908.83–1016, MO-2874410, US-81011 (fragm. ex LE)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ana*, indicating connection. In honour of Heinrich Carl Beyrich (1796–1834) German-born United States botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–120 cm long. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.05–0.3 mm long. Leaf-blades flexuous, involute, 20–40 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 15–30 cm long. Primary panicle branches appressed, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8.5–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4–0.6 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 7–10 mm long, 0.9 length of upper glume, membranous, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 1.5–2.5 mm long. Upper glume linear, 8.5–11 mm long, membranous, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume hairs 2 mm long. Upper glume apex dentate, awned, 1 -awned, awn 1.5–2.5 mm long.

**Florets.** Fertile lemma linear, subterete, 6–8 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, with 7–14 mm long limb. Lateral lemma awns present, spreading as much as principal, 6–12 mm long, shorter than principal.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southeastern USA.** North Carolina.

### **Aristida biglandulosa** J. M. Black. *Trans. & Proc. Roy. Soc. S. Austral.* 57: 146. (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *R. Tate s.n.*, Jun 1894, Australia: Northern Territory: Central Australia: Glen Hellen (AD). LT designated by Simon, *Austr. Syst. Bot.* 5: 177 (1992).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (321, Fig. 252), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(37)), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (91, Fig. 16), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 176, Fig6 (1992)).

**Derivation** (Clifford & Bostock 2007): *L. bis*, twice; *glans*, acorn; *-ula*, diminutive; *-osa*, possession. There are two swellings at the pedicel bases.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms robust, 60–120 cm long, 3–4 -noded. Culm-internodes glaucous, smooth, distally glabrous. Leaf-sheaths smooth or antrorsely scabrous, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule a fringe of hairs, 0.5 mm long. Collar pubescent. Leaf-blades 15–30 cm long, 3–5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 20–30 cm long, 2–3 cm wide. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–16 mm long, 1 length of upper glume, membranous, 1-keeled, 5 -veined. Lower glume apex acuminate or cuspidate. Upper glume lanceolate, 10–16 mm long, 1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume apex emarginate, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 11–12 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea, without distinctive roughness or scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn flat below, with 22–36 mm long limb, without a column, persistent. Lateral lemma awns present, 17–31 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 7–8 mm long. Hilum linear, 0.25–0.33 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, South Australia.

**TDWG4.** Central Australia. NW & Lake Eyre. North, Central, Inland.

## **Aristida bipartita** (Nees) Trin. & Rupr. *Mem. Acad. Petersb.* 6, *Sci. Nat.* 5, 1:144 (1842).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. **Basionym or Replaced Name:** *Chaetaria bipartita* Nees, *Fl. Afr. Austr.* 1: 187 (1841). T: <Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Drhge s.n.* [3878], South Africa: Cape: Fort Beaufort distr.: near the Katrivier (B; IT; BM, G, G, K, OXF, P, PRE, SAM, W).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (307, Fig. 273).

**Images:** F. van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. bis*, twice; *partia*, divide. Inflorescence branches regularly dividing into two.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 30–65 cm long, 1–3 -noded. Culm-internodes distally glabrous or pubescent. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades curled, conduplicate, 5–20 cm long, 1–2 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–25 cm long, 6–13 cm wide, with spikelets clustered towards branch tips. Primary panicle branches spreading, 1 -nate, 2–10 cm long. Panicle branches glandular (in axils), scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4–0.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6.5–8 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume lanceolate, 6–7 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex emarginate or acute, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 5–6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 7–14 mm long limb, persistent. Lateral lemma awns present, 7–14 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Angola, Mozambique. Botswana (?), Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Eastern Cape.

**Aristida bissei** Catasz. *Novosti Sist. Vyssh. Rast.* 20: 7 (1983).

More checking of status required.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Isla de la Juventud (Isla del Pinos): suelo calizo, 18 Oct 1975, *L. Catasz* 859 (HT: HAC).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honour of Johannes Bisse (1935–1984) who collected in Cuba.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Aristida blakei** B.K. Simon. *Austrobaileya* 2(1): 88 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Queensland: Warrego Dist.: Morven, 2 Apr 1936, *S.T. Blake 11000* (HT: BRI-254115; IT: AD, CANB, K, L, MEL, MO, NSW, NT, PERTH, PRE).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (127), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (115, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 216, Fig.16 (1992)).

**Derivation** (Clifford & Bostock 2007): in honor of Stanley Thatcher Blake (1911–1973), Queensland botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–90 cm long, 3–5 -noded. Culm-internodes smooth, distally glabrous. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades involute, 11–20 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 10–34 cm long, 4.5–7.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.8–1 mm long, pubescent, acute. Floret callus hairs 1–1.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–14 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acute or acuminate, awned, 1 -awned, awn 1 mm long. Upper glume lanceolate, 9–15 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate, awned, 1 -awned, awn 1 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8–12 mm long, coriaceous, pallid or light brown or purple, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 16–28 mm long limb, without a column, persistent. Lateral lemma awns present, 16–28 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.



**Country /Province /State.** Australia. Northern Territory, Queensland, Western Australia.  
**TDWG4.** Central Australia. North, Central, Inland. Western Slopes, Western Plains.

**Aristida boninensis** Ohwi & Tuyama. *Bot. Mag., Tokyo*, 51: 126. (1937).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bonin Is.: Kawate.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Bonin Islands, now known as Ogasawara-shot.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Culms 10–30 cm long, 0.3–0.6 mm diam., 1–2 -noded. Culm-internodes smooth. Leaves mostly basal. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades conduplicate, 5–12 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 5–8 cm long, 2–4 cm wide. Primary panicle branches ascending, 1–2 -nate. Panicle axis smooth. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.3–1.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–9 mm long, 0.66 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 9–12 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 6–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 40–60 mm long limb, with twisted column. Column of lemma awn 6–7 mm long. Lateral lemma awns present, 15–20 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Ogasawara-shoto.

**Aristida brainii** Melderis. *Bol. Soc. Brot., Ser. 2*, 44: 279 (1970).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Zimbabwe. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Victoria Falls: *Brain* 8866 (K holotype, SRGH).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of C. K. Brain (1930–42) who collected in Southern Rhodesia (now Zimbabwe).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending, 25–50 cm long, 3–4 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades 5–16 cm long, 1–1.7 mm wide. Leaf-blade surface ribbed, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 10–20 cm long. Primary panicle branches 1–2 -nate, branching divaricately, bearing 1–3 fertile spikelets on each lower branch. Panicle branches glandular (in axils), scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8.5–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–7.5 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, obtuse, mucronate. Upper glume lanceolate, 8.5–10 mm

long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 10–15 mm long limb, persistent. Lateral lemma awns present, 10–15 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa. Zimbabwe.

**Aristida brasiliensis** H.M. Longhi-Wagner. *Novon* 2(1): 36 (1992).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Minas Gerais: ca. 12 km from Barco de Cocais, base of Serra do Carac]7a, 28 Jan 1971, *H. S. Irwin et al.* 29325 (HT: SP; IT: MO, NY, UB)

**Illustrations (Journals):** *Novon* (2: 37, Fig. 1 (1992)).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Brazil.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 65–120 cm long. Lateral branches lacking. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades curled (lower) or straight (upper), flat (lower) or convolute (upper), 25–50 cm long, 2.5–3.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, 16–23 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1 mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 15.5–20 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex setaceous acuminate. Upper glume lanceolate, 23.5–28 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceous acuminate.

**Florets.** Fertile lemma subterete, 9–10 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface smooth, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 47–59 mm long limb, with twisted column. Column of lemma awn 23–29 mm long. Lateral lemma awns present, ascending, 40–53 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Southeast, Brazil South.

**Aristida brevissima** L. Liou. *Fl. Xizangica* 5: 80 (1987).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Xizang: mountain slopes, 3000–3100 m, (HT: ?).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 635).

**Derivation** (Clifford & Bostock 2007): *L. brevis*, short; -issima, most. Leaf-blades very short?.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–40 cm long, 0.5–1 mm diam., 1–2 -noded. Culm-nodes glabrous. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades involute, 5 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 10 cm long. Primary panicle branches 3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pilose, obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 12 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma elliptic, subterete, 10–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn straight, with 2 mm long limb, persistent. Lateral lemma awns present, 0.4 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central, Tibet.

**TDWG4.** Yunnan.

**Aristida brevisubulata** (Maire) Maire. *Bull. Soc. Hist. Nat. Afr. Nord* 2: 219 (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Guinea. **Basionym or Replaced Name:** *Aristida longiflora* var. *brevisubulata* Maire, *Contr.* :2600 (1938).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. brevis*, short; *subula*, awl; *-ata*, possessing. Glumes or lemma shortly awned.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived, caespitose, clumped loosely. Culms erect or geniculately ascending, 30–60 cm long. Culm-internodes distally glabrous. Culm-nodes purple, glabrous. Lateral branches ample. Leaf-sheaths loose or inflated, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades involute, 3–20 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–15 cm long. Primary panicle branches 2–3 -nate, indistinct the panicle almost racemose or simple, bearing 1–2 fertile spikelets on each lower branch. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, pubescent, acute.

**Glumes.** Glumes dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume linear, 20 mm long, 3.3 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma linear, subterete, 6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 50–55 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 12–25 mm long. Lateral lemma awns present, 50–55 mm long, subequal to principal. Palea 1.5 mm long, 0.25 length of lemma.

**Flower and Fruit.** Lodicules 2, oblong, 2 mm long, ciliate, hairy across the apex, truncate. Anthers 3, 3 mm long. Caryopsis with adherent pericarp, linear, 4 mm long. Embryo 0.25 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. Northern Africa.** Algeria.

**Aristida brittonorum** Hitchcock. *Contrib. U. S. Nat. Herb.* 22: 584 (1924).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *N.L. Britton, E.G. Britton & P. Wilson 14169*, 13 Feb 1916, Cuba: Isla de la Juventud: vicinity of Los Indios, white sand (US-907560; IT: CM, L (fragm.), NY-71004).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Nathaniel Lord and Elizabeth Gertrude Britton, United States botanists.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, robust, 60–100 cm long. Ligule a fringe of hairs. Leaf-blades involute, 15–30 cm long, 1–2.5 mm wide, stiff.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, interrupted, 20–30 cm long. Primary panicle branches appressed, 2–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, pungent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–10 mm long, 0.7–0.8 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 10–12 mm long, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, with this appendage 1 mm long, awned, 3 -awned. Principal lemma awn spreading, with 15–20 mm long limb. Lateral lemma awns present, spreading as much as principal or gyrate, 15–20 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Aristida burbidgeae** B.K. Simon. *Austrobaileya* 2(1): 89 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Western Australia: Fortescue District: Mount Edgar, SE from Marble Bar. 11 Jun 1941, N. T. Burbidge 1111 (HT: PERTH(photo, BRI); IT: PERTH).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (115, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 211, Fig.15 (1992)).

**Derivation** (Clifford & Bostock 2007): in honor of Nancy Tyson Burbidge (1912–1977) Australian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms 20–45 cm long, 3 -noded. Culm-internodes smooth, distally glabrous. Ligule a fringe of hairs, 0.4 mm long. Leaf-blades flexuous, 5–10 cm long, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 8–17 cm long, 0.5–1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.6 mm long, pubescent, acute. Floret callus hairs 1.5 mm long.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 9 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous or scabrous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 8 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea, scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 13 mm long limb, without a column, persistent. Lateral lemma awns present, 11 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** Ereman. Darwin & Gulf.

**Aristida burraensis** B.K. Simon. *Austrobaileya* 2(1): 89 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Queensland: North Kennedy District: Burra Range, 25 km W of Pentland, July 1975, A. D. Chapman 1314 (HT: BRI-238092; IT: CANB, K, L).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (115, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 211, Fig.15 (1992)).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From the Burra Range, Queensland, Australia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40–80 cm long, 1–3 -noded. Culm-internodes scaberulous, distally glabrous. Leaf-sheaths scaberulous. Ligule a fringe of hairs, 0.4 mm long. Leaf-blades filiform, involute, 7–14 cm long, 1 mm wide. Leaf-blade surface scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 16–28 cm long, 2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6.6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.6 mm long, pubescent, acute. Floret callus hairs 1.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6.6–8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 6.5–8 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn subterete below, with 10 mm long limb, without a column, persistent. Lateral lemma awns present, 10 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** North, Inland.

**Aristida calcicola** Hitchcock & Ekman. *N. Am. Fl.* 17: 405 (1935).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *E.L. Ekman 15774*, 25 Nov 1922, Cuba: Oriente: Guantanamo, U.S. Naval Station, limestone terraces (US-1387435).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *calx*, lime; *-cola*, dweller. Growing on limestone.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, slender, 30–50 cm long, wiry, 2 -noded. Lateral branches lacking or sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades filiform or linear, flat or involute, 5–10 cm long, 0.5–1 mm wide. Leaf-blade surface puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–15 cm long. Primary panicle branches appressed, bearing 1–3 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 8–9 mm long, 0.8–0.9 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 10 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 8–10 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 15–30 mm long limb. Lateral lemma awns present, gyrate, 15–30 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba, Dominican Republic.

### **Aristida californica** Thurb. ex Wats. *Bot. Calif.* 2:289 (1880).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Schott s.n.*, USA: Colorado Desert ST: *J.G. Cooper 2217*, no date, USA: California: Fort Mohave (NY, US-81008). nom. nud., Thurb. in Boland., *Trans. Calif. State Agric. State Soc.* 134 (1864).

**Recent Synonyms:** *Aristida glabrata* (Vasey) Hitchcock, *Contrib. U. S. Nat. Herb.* 22: 522 (1924).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (322 as var. *californica* & *glabrata*).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From California, USA.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 15–30 cm long, wiry. Culm-internodes distally pubescent. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades filiform, involute, 2–5 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 2–9 cm long, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose or simple. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2 mm long, pubescent, pungent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–8 mm long, 0.5 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 10–16 mm long, 2 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 5–7 mm long, coriaceous, purple, without keel, 3 -veined, 0–3 -veined. Lemma surface asperulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 25–45 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 15–20 mm long. Lateral lemma awns present, spreading as much as principal, 25–45 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

$2n = 22$ .

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA, Mexico. California. Northwest Mexico. Baja California, Baja California Sur, Sonora.

### **Aristida calycina** R. Br. *Prod.* 1: 173. (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Brown 6198*, 14 Aug 1802, Australia: Queensland: Port Curtis Dist.: Keppel Bay (K; IT: BM, BRI, E.). LT designated by Henrard, *Meded. Rijks Herb.* 54: 71 (1926).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (551, Fig. 109), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (127), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(40) & 104(18) as *A. armata*), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (153, Fig. 23 as var. *calycina*), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 168, Fig.5 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): Gk. *kalyx*, cup; -*ina*, belonging to.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped moderately or densely. Culms erect, 33–128 cm long. Culm-internodes mid-green or glaucous, smooth or scaberulous or papillose, distally glabrous. Lateral branches sparse. Leaf-sheaths smooth to antrorsely scabrous, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.3–1 mm long. Collar glabrous or pubescent. Leaf-blades filiform or linear, involute, 20–25 cm long, 1–4 mm wide. Leaf-blade surface smooth or scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear to elliptic, 12–31 cm long, 2–20 cm wide. Primary panicle branches 2.5–6 cm long. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5.5–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.5–14.8 mm long, 0.75–1.1 length of upper glume, membranous, 1-keeled, 1–7 -veined. Lower glume lateral veins absent or distinct. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate, mucicous or mucronate. Upper glume lanceolate, 5.5–20 mm long, 1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex emarginate to acuminate, mucicous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 4–14 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea, without distinctive roughness or scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn flat below, with 10–31 mm long limb, without a column, persistent. Lateral lemma awns present, 8–27 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 3–5 mm long. Hilum linear, 0.3–0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Northern Territory, Queensland, Victoria, Western Australia.

**TDWG4.** Eremean. Darwin & Gulf. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

**Aristida canescens** Henrard. Meded. Herb. Leid. No. 54 A. 376 (1927).

Regarded by K as a synonym (*A. nemorivaga*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Angola. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Angola, Huilla to Quihila Mission: Pearson 2634 (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Images:** F. van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. canesco*, grow white. Leaf-blades or leaf-sheaths densely invested with white or grey hairs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long, 4 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades curled, 10–20 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins cartilaginous, scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, elliptic, interrupted, 10–20 cm long, with spikelets clustered towards branch tips. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.5–8 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex emarginate or obtuse, mucronate. Upper glume lanceolate, 8–11 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate or truncate, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 7–11 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness or scaberulous. Lemma margins convolute, covering most of

palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 9–15 mm long limb, persistent. Lateral lemma awns present, 7–13 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

$2n = 48$  (1 ref TRPOICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Zambia, Zimbabwe. Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Free State, Kwazulu-Natal, Northern Cape, Eastern Cape.

**Aristida capillacea** Lam. *Illustr.* 1: 156. (1791).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from French Guiana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Richard s.n.*: Cayenne (P-LA; IT: C, G-Del, US-81033 (fragm. ex G-Del, P-LA)).

**Illustrations (Books):** R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983), S.A.Renvoize, *Gramineas de Bolivia* (1998) (276, Fig. 56), S.A.Renvoize, *The Grasses of Bahia*, 1984 (51, Fig. 17), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (32, Fig. 14), W.Burger, *Flora Costaricensis* 15, *Gramineae: Fieldiana Botany New Series* 4 (1980) (52, Fig. 12), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 41, Fig. 7 (1997)), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (67, Fig. 8).

**Illustrations (Journals):** *Ruizia* (13:233, Fig 26a-b (1993)).

**Derivation** (Clifford & Bostock 2007): *L. capillis*, a hair; -acea, indicating resemblance. inflorescence with capillary branches.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms 11–24 cm long. Leaf-sheath oral hairs scanty or bearded (sparsely). Ligule a ciliolate membrane, 0.2 mm long. Collar glabrous. Leaf-blades straight, conduplicate, 2.1–6 cm long, 0.8–0.9 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open (capillaceous branches), 6–10 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.2 mm long, pilose, obtuse.

**Glumes.** Glumes dissimilar (lower shorter than upper). Lower glume lanceolate, 2.5–3.5 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex acute or acuminate, muticous. Upper glume lanceolate, 3.2–3.9 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute or acuminate.

**Florets.** Fertile lemma subterete, 2–3.6 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 7–8 mm long limb, with twisted column. Column of lemma awn 1–2 mm long. Lateral lemma awns present, ascending, 6–7 mm long, subequal to principal.

**Flower and Fruit.**  $2n = 22$ .

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Central Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. Mesoamerica, Northern South America, Western South America, Brazil, Southern South America. Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

**TDWG4.** Roraima, Para, Amapa, Amazonas, Acre, Rondonia, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo. Distrito Federal, Mexico State. Veracruz. Sinaloa. Colima, Jalisco, Nayarit, Oaxaca. Chiapas.

**Aristida capillifolia** Henrard. *Meded. Herb. Leid.* No. 58 A. 298 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).



**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *R. Helms* 70, 18 Jun 1891, Australia: South Australia: Victoria dessert near Tarcoola, Gairdner-Torrens (L (photo, BRI); ILT: AD, BRI, K, NSW, MEL). LT designated by Simon, *Austral. Syst. Bot.* 5: 220 (1992).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (322, Fig. 253), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (113, Fig. 19), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 218, Fig.17 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. capillis*, hair; *folium*, leaf. Leaf-blades hair-like.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 20–80 cm long, 2 mm diam., 3 -noded. Culm-internodes smooth, distally glabrous. Lateral branches ample. Leaf-sheaths longer than adjacent culm internode, smooth or scaberulous. Leaf-sheath oral hairs pubescent, 0.3–0.4 mm long. Ligule a fringe of hairs, 0.3–0.5 mm long. Collar glabrous. Leaf-blades filiform, involute, 3–10 cm long, 0.5–1 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 6–25 cm long, 0.5–2 cm wide. Primary panicle branches 0.5–1 cm long. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 3.5–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.6–1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.6–8 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scabrous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 5.3–8.5 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth or scabrous. Upper glume lateral veins absent. Upper glume apex emarginate or obtuse, mucous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 6.4–7.4 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn curved, spreading, flat below, with 8–16 mm long limb, without a column, persistent. Lateral lemma awns present, spreading as much as principal, 8–14 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 4–5.8 mm long. Hilum linear, 0.5–0.7 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, South Australia, Western Australia.

**TDWG4.** Kimberley. Central Australia. NW & Lake Eyre.

### **Aristida caput-medusae** Domin. *Biblioth. Bot.* 55: 344 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K. Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: auf den Sandhgel'n dew Dividing Range bei Jericho (PR; IT: BRI, L).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (127), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(24)), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (153, Fig. 23), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.14).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 197, Fig.11 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): *L. caput*, head; Medusa, monster with snakes for hair. Inflorescence a spike-like panicle and the spikelets with long trifid, twisted awns.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 33–85 cm long. Culm-internodes smooth or scaberulous, distally glabrous. Culm-nodes glabrous. Lateral branches ample. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate, 0.5–2.5 mm long. Ligule a fringe of

hairs, 0.5 mm long. Leaf-blades involute, 2–4 cm long, 0.5–1 mm wide. Leaf-blade surface scabrous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate or ovate, 3.9–8 cm long, 1–5 cm wide. Primary panicle branches 4–8 cm long, bearing spikelets almost to the base. Panicle branches scaberulous or scabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–9.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.8–1.1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2.7–5 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex obtuse to acuminate. Upper glume lanceolate, 4–8 mm long, 0.66–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex obtuse to acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6–9.5 mm long, coriaceous, pallid or light brown, concolorous or mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scabrous, rough generally. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn spreading, flat below, with 7–13 mm long limb, without a column, persistent. Lateral lemma awns present, spreading as much as principal, 6–12 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 1.3 mm long. Caryopsis with adherent pericarp, 4–6.1 mm long. Hilum linear, 0.4 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland.

**TDWG4.** North, Central, South East, Inland. Western Slopes, Western Plains.

### **Aristida chapadensis** Trin. *Bull. Sc. Acad. Petersb.* 1: 68. (1836).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *L. Riedel 1045*, May, Brazil: Serra da Chapada, in siccis arenosis (LE-TRIN-1268.02; IT: G, P, US-81004 (fragm. ex G, LE)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Serra da Chapada, Brazil.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 90–106 cm long. Lateral branches lacking. Leaf-sheath oral hairs scanty or bearded (sparsely). Ligule a ciliate membrane, 0.2 mm long. Collar glabrous. Leaf-blades straight, flat or convolute (sometimes upper), 20–50(–60) cm long, 4–7 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 30–40 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1.5–1.8 mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, (16–)17–19(–22) mm long, 1 -veined. Lower glume primary vein scaberulous. Lower glume surface asperulous, rough generally. Lower glume apex setaceously acuminate. Upper glume lanceolate, 14–16(–19) mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate.

**Florets.** Fertile lemma subterete, 8–10 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above, with a median groove (ventral,longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with (35–)45–56 mm long limb, with twisted column. Column of lemma awn (13–)16–25 mm long. Lateral lemma awns present, ascending, 28–46 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil West Central, Brazil Northeast, Brazil North.

**Aristida chaseae** Hitchcock. *Contrib. U. S. Nat. Herb.* 22: 575 (1924).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Puerto Rico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A. Chase 6507*, 12 Nov 1913, Puerto Rico: Boquersn, open, arid stony hill, culms few to tuft, widely spreading (US-732548; IT: L).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Mary Agnes Merrill Chase (1869–1963) United States agrostologist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 50–60 cm long. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades involute, 10–15 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–15 cm long. Primary panicle branches appressed, 2–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, pubescent, pungent.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 10–13 mm long, 1 length of upper glume, membranous, 2 -veined. Lower glume primary vein scabrous. Lower glume apex acuminate or setaceously acuminate. Upper glume linear, 10–13 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate or setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 11 mm long, coriaceous, light brown or purple, mottled with last colour, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 20 mm long limb. Lateral lemma awns present, spreading less than principal, 20 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Puerto Rico.

**Aristida chichlayensis** Tovar. *Publ. Mus. Hist. Nat. "Javier Prado"*, Ser. B, Bot. 32: 11 (1984).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R. Ferreyra 6047*, 2 May 1949, Peru: Lambayeque: Chiclayo Prov.: cerca a Chiclayo, 150–200 m, arenoso (US-2014561).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending, 10–15 cm long. Lateral branches ample, arising from lower culm. Leaf-sheaths 1–2 cm long. Ligule a fringe of hairs. Leaf-blades filiform, involute, 2–4 cm long, 1 mm wide. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 3–4 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 14–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 8–10 mm long, 0.66 length of upper glume, membranous. Lower glume apex acute. Upper glume linear, 14–15 mm long, 3–4 length of adjacent fertile lemma, membranous. Upper glume apex dentate, 2 -fid.

**Florets.** Fertile lemma linear, subterete, 3.5–4.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 27–40 mm long limb, with twisted column, limb scabrous. Column of lemma awn 4.5–6 mm long. Lateral lemma awns present, subequal to principal. Palea 1.3 mm long, 0.33 length of lemma.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Peru.

**Aristida chinensis** Munro. *Proc. Am. Acad.* 4: 363. (1860).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Wright s.n.*, 1853–1856, China: Kwantung: Huang-pu (Whampoa) and Cum-sing-moon near Hong Kong (K; IT: US-99208).

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (290), C-C Hsu, *Taiwan Grasses* (1975) (425, Pl. 1385), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 633).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From China.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms decumbent, 30–60 cm long. Leaves mostly basal. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades curved, involute, 10–15 cm long, 0.5–1 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–30 cm long. Primary panicle branches 1–2 -nate, 6–8 cm long. Panicle branches bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.7 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–11 mm long, 1.2–1.3 length of upper glume, membranous, 1-keeled. Lower glume primary vein scaberulous. Lower glume apex setaceous acuminate. Upper glume lanceolate, 8–9 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex setaceous acuminate.

**Florets.** Fertile lemma linear, subterete, 7.5–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 15–20 mm long limb, without a column. Lateral lemma awns present, 10–15 mm long, shorter than principal, lemm awns 0.66 length of principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China, Eastern Asia. Hainan, China Southeast. Taiwan. Indo-China, Malesia. Cambodia, Thailand, Vietnam. Philippines, Sulawesi.

**TDWG4.** Fujian, Guangdong, Guangxi.

**Aristida circinalis** Lindm. *Svensk. Vet.-Akad. Handl.* 4 no. 6. 13. (1900).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Aristida leptochaeta* Hack., Fedde, *Repert. Nov. Sp.* 6: 344 (1909), *A. aristiglumis* Caro, *Kurtziana*, 1: 198 (1961). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.A.M. Lindman A1527*, 10 May 1893, Brazil: Rio Grande do Sul: Rio Grande do Sul, Cachoeira (S; IT: US-81002 (fragm. ex S & photo), US-703175).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (283, Fig. 57), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (507, Fig. 108), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (222, Fig. 83 & 223, Fig. 84 as *A. leptochaeta* & *A. aristiglumis*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (208, Fig. 85).

**Illustrations (Journals):** *Darwiniana* (41: 169, fig.5 (2003)).

**Derivation** (Clifford & Bostock 2007): *L. related*. Similar to another species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40–70 cm long. Ligule a fringe of hairs. Leaf-blades flat or involute, 10–20 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, nodding, 10–20 cm long. Primary panicle branches ascending or spreading. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets linear, subterete, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 7–9 mm long, 1 length of upper glume, membranous. Lower glume apex acute, muticous or mucronate. Upper glume linear, 7–9 mm long, 1.1 length of adjacent fertile lemma, membranous. Upper glume apex acute, muticous or mucronate.

**Florets.** Fertile lemma linear, subterete, 6.5–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 15–25 mm long limb. Lateral lemma awns present, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil, Southern South America. Venezuela. Bolivia, Peru. Brazil West Central, Brazil South. Argentina Northwest, Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Mato Grosso, Catarina, Rio Grande do Sul. Catamarca, Mendoza, Salta, Tucuman. Buenos Aires, Cordoba, Corrientes, Entre Rios, Formosa, La Pampa, Misiones.

**Aristida cognata** Trin. & Rupr. *Mem. Acad. Petersb. Ser. 6, 7:* 127 (1849).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Virgin Is. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Anonymous s.n.*, no date, Virgin Islands: St. Thomas (LE-TRIN-1272.001 (fragm. ex hb. Schrader); IT: G, US-81001 (fragm. ex G, LE & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. related. Similar to another species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 20–40 cm long. Lateral branches sparse, arising from lower culm. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs. Leaf-blades involute, 5–15 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 5–15 cm long. Primary panicle branches ascending, 1–2 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 4–5 mm long, 0.7–0.8 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 5–7 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 6–7 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, with this appendage 1 mm long, awned, 3 -awned. Principal lemma awn 3-branched, with 10–15 mm long limb. Lateral lemma awns present, spreading less than principal, 10–15 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Northern South America. Leeward Is, Windward Islands. Venezuela.

**Aristida condensata** Chapm. *Coult. Bot. Gaz.* 3: 19. (1878).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: A.W. Chapman *s.n.*, no date, USA: Florida: Apalachicola (L (fragm. ex US), US-80996).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (341).

**Derivation** (Clifford & Bostock 2007): L. *condenso*, press close together. Spikelets crowded in the inflorescence.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–150 cm long. Leaf-sheaths glabrous on surface or pilose. Ligule a fringe of hairs. Leaf-blades flat, 15–30 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, dense, 15–30 cm long. Primary panicle branches ascending, 5–10 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, pungent.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 8–9 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate or setaceously acuminate. Upper glume linear, 8–9 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate or setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 8 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, with this appendage 1 mm long, awned, 3 -awned. Principal lemma awn 3-branched, ascending or spreading, with 10–15 mm long limb. Lateral lemma awns present, spreading as much as principal or gyrate, 10–15 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southeastern USA.** Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina.

**Aristida condylifolia** Caro. *Darwiniana* 14 :391 (1967).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Prov. Entre Rios, dpto. Feliciano, Paso Yunque, peladares, A. Burkart, N.S. Troncoso, N.M. Bacigalupo & S. Crespo 25248 (HT: SI).

**Illustrations (Books):** A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (218, Fig. 81).

**Derivation** (Clifford & Bostock 2007): Gk. *kondylus*, knuckle; L. *folium*, leaf. Leaf-blade abruptly bent at the junction with sheath.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 20–40(–50) cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades curved or straight, conduplicate, 6–16 cm long, 0.2–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 12–18 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.5–0.8 mm long, pilose, obtuse or acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 9–12(–15) mm long, 1–3 -veined (lateral veins free). Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex acuminate (shortly awned), muticous or mucronate. Upper glume lanceolate, 18–28 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acuminate (shortly awned).

**Florets.** Fertile lemma laterally compressed or subterete, 10–13(–15) mm long, without keel, rounded except near apex, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma surface scaberulous, rough above, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 50–80 mm long limb, without a column. Lateral lemma awns present, ascending, 50–80 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil, Southern South America.** Argentina Northeast, Paraguay.

**TDWG4.** Entre Rios.

**Aristida congesta** Roem. & Schult. *Syst.* 2: 401. (1817).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Lichtenstein s.n.*, South Africa: Cape Province: West Griqualand (B (destroyed)).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (314, Fig. 280), M.A.N. Muller, *Grasses of South West Africa/Namibia* (1984) (as subsp. *congesta*), G.E. Gibbs Russell et al., *Grasses of Southern Africa* (1990) (45, Fig. 19), J. Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (99 & 101, Fig. 27 & 28 as subsp. *congesta*), S. Phillips, *Poaceae* (Gramineae) in I. Hedberg & S. Edwards, *Flora of Ethiopia and Eritrea* (1995) (85, Fig. 35).

**Images:** F. van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. crowded together. Spikelets crowded in inflorescence.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–75 cm long. Culm-internodes distally glabrous. Leaf-sheath oral hairs lacking or bearded. Ligule a fringe of hairs. Leaf-blades conduplicate or convolute, 2–20 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, 3–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile floret, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6.5–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pilose, truncate.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–5 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 2 mm long. Upper glume lanceolate, 6.5–10 mm long, 1.6–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume awned, 1 -awned, awn 2 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 4–5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 12–30 mm long limb, with twisted column, deciduous, abscising from top of column, limb scabrous. Column of lemma awn 2–4 mm long. Lateral lemma awns present, 12–30 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

$2n = 22$ , or 44.

**Distribution (TDWG). Continent.** Europe (\*), Africa, Temperate Asia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Northern Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Middle Atlantic ocean, Western Indian ocean.** Algeria, Morocco, Tunisia. Eritrea, Ethiopia (inc. Eritrea). Kenya, Tanzania. Angola, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. Ascension. Madagascar. **Arabian Peninsula.** Saudi Arabia, Yemen.

**Aristida constricta** H.M. Longhi-Wagner. *Novon* 2(1): 39 (1992).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Longhi-Wagner et al. 1562*, 17 Nov. 1987, Brazil: Rio Grande do Sul: Santana do Livramento, Cerro Palomas (ICN; IT: MO-3801206).

**Illustrations (Journals):** *Novon* (2: 38, Fig. 2 (1992)).

**Derivation** (Clifford & Bostock 2007): L. *constringo*, bind together. Lemma constricted at the summit.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 24–26 cm long. Lateral branches lacking. Leaf-sheath oral hairs sparsely bearded. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades curled (lower) or straight (upper), flat (lower) or convolute (upper), 10–33 cm long, 2–3.5 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, 10–15 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1–1.3 mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, 16–19.5 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex setaceously acuminate, awned. Upper glume lanceolate, 13–15 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate.

**Florets.** Fertile lemma subterete, 7–9 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, pseudo-articulate at base (of column), with 32–40 mm long limb, with twisted column. Column of lemma awn 10–15 mm long. Lateral lemma awns present, ascending, 26–32 mm long, shorter than principal.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil, Southern South America. Brazil South. Paraguay.

**Aristida contorta** F. Muell. *Trans. Vict. Inst.* 1: 44 (1855).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Mueller s.n.*, Australia: Victoria: on barren places on the Murray River (MEL (photo, BRI); IT: BRI, E, K).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (322, Fig. 254), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (167, Pl. 49 as *A. arenaria*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (551, Fig. 109), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (128), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (104(9)), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (153, Fig. 23), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (82, Fig. 14), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.13 as *A.arenaria*; Pl.15 as *A.utilis*).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 157, Fig.3 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. twisted. Awns hygroscopic and so twisted when dry.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived, caespitose. Culms erect or geniculately ascending, zigzag, 12–44 cm long, 2–4 -noded. Culm-internodes antrorsely scabrous, distally glabrous. Lateral branches ample. Leaf-sheaths smooth or scaberulous, glabrous on surface or pilose. Leaf-sheath oral hairs ciliate, 3 mm long. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades flexuous, filiform, involute, 3–10 cm long, 1 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 9–26 cm long, 4–9 cm wide. Primary panicle branches 2–3 -nate, 1–2.5 cm long. Panicle branches scaberulous or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, compressed slightly, 12–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–2 mm long, pubescent, pungent. Floret callus hairs 0.1–0.3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7.4–14.2 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 12–30 mm long, 2.5–4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous or scabrous. Upper glume apex emarginate or acute or acuminate, muticous.

**Florets.** Fertile lemma lanceolate, laterally compressed, 4.9–7 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 18–95 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 7–26 mm long. Lateral lemma awns present, spreading as much as principal, 16–92 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.



**Flower and Fruit.** Anthers 3, 1.3 mm long. Caryopsis with adherent pericarp, 3–4.5 mm long. Hilum linear, 0.5–0.6 length of caryopsis.

**Distribution (TDWG). Continent.** Europe (\*), Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia.** New South Wales, Northern Territory, Queensland, South Australia, Victoria, Western Australia.

**TDWG4.** Kimberley, Ereman, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Western Slopes, Western Plains.

**Aristida correlliae** P.M. McKenzie L.E. Urbatsch & G.R. Proctor. *Syst. Bot.* 15(3): 421 (1990).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from West Indies: Turks & Caicos Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Caicos Island, 21.31N 71.30W, near sea level WSW of the South Caicos airport terminal building, 12 Dec 1988, *Proctor 45260* (HT: LSU; IT: SJ).

**Illustrations (Journals):** *Systematic Botany* (15: 42, Fig.1 (1990)).

**Derivation** (Clifford & Bostock 2007): in honor of Helen Correll (fl.1990) United States botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 8–10 -noded. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs bearded, 4 mm long. Ligule a fringe of hairs, 0.2–0.4 mm long. Leaf-blades erect, curved, plicate, 10–22 cm long, 0.4–1 mm wide. Leaf-blade surface woolly, hairy abaxially (proximally). Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, comprising 2–20 fertile spikelets. Panicle open, linear, 3–20 cm long, bearing few spikelets. Primary panicle branches appressed, indistinct the panicle almost racemose, bearing 2–3 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–8.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7.4–9.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.7–0.9 mm long, pubescent, acute.

**Glumes.** Glumes similar, with lower wider than upper, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 5–9 mm long, 0.7–0.9 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 7.4–9.7 mm long, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 7.5–10 mm long limb. Lateral lemma awns present, 7.5–10 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Turks-Caicos Is.

**Aristida culionensis** Pilger ex Perkins. *Frag. Fl. Philipp.* 1: 145. (1904).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Philippines. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IST: *Merrill 515*, Dec 1902, Philippines: Culisn Island, dry open grassy valley (MO-2874630, US-435486). LT: *E.D. Merrill 471*, 13 Dec 1902, Philippines: Palawan I., Palawan Prov.: Culisn Island, dry open grassy valley (B (photo, US-435441); ILT: US-435441). LT designated by Henrard, *Meded. Rijks-Herb.* 54: 120 (1926).

**Illustrations (Books):** No illustration found (BKS).

**Images:** H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Culisn Island, Philippines.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 80–120 cm long. Leaf-sheaths 9–20 cm long. Ligule a fringe of hairs. Leaf-blades 35–50 cm long, 6 mm wide. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 30–40 cm long. Primary panicle branches ascending or spreading, whorled at most nodes, 8–15 cm long. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9 mm long, 0.9 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 1–2.5 mm long. Upper glume lanceolate, 10–11 mm long, 1–1.2 length of adjacent fertile lemma, scarious, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 2.5 mm long.

**Florets.** Fertile lemma elliptic, subterete, 10–13 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 39 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 3 mm long. Lateral lemma awns present, 33 mm long, subequal to principal or shorter than principal. Palea 1.3 mm long, 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 4 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China, Malesia. Thailand, Vietnam. Malaya, Philippines.

**Aristida cumingiana** Trin. & Rupr. *Mem. Acad. Petersb. Ser. 6*, 7:141. (1842).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China 22* (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

**TYPE** from Philippines. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Philippine Islands: Luzon., H. Cuming 671 (HT: LE; ILT: G-Del, MO-2874635, US-80993 (fragm. ex G-Del)).

**Illustrations (Books):** G.V.Pope et al., *Flora Zambesiaca* 10, J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (105, Fig. 30), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 632).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 192, Fig.10 (1992)).

**Derivation** (Clifford & Bostock 2007): in honor of Hugh Cuming (1791–1865) English naturalist and traveller.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms 8–30 cm long. Culm-internodes distally glabrous. Leaves cauline. Ligule a fringe of hairs. Leaf-blades 2–7 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 3–8 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1.5–2 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, 2–2.5 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 1.5–1.7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 4.5–6 mm long limb, persistent. Lateral lemma awns present, 2.5–4 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia, Australasia, South America.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Western Indian ocean. Guinea, Nigeria, Senegal, Sierre Leone. Central African Republic. Ethiopia (inc. Eritrea), Sudan. Tanzania. Malawi, Zambia, Zimbabwe. Madagascar. **China.** China South Central, China Southeast. **Indian Subcontinent, Indo-China, Malesia,**

**Papuasia.** Bangladesh, India, Nepal. Laos, Myanmar, Thailand, Vietnam. Philippines, Sulawesi. New Guinea PNG, or West Papua (Irian Jaya). New Guinea. **Australia.** Queensland. **Western South America.** Colombia.  
**TDWG4.** Fujian, Guangdong, Hunan, Jiangsu, Zhejiang. Yunnan. Bihar. Madhya Pradesh. North.

**Aristida curtifolia** Hitchcock. *Contrib. U. S. Nat. Herb.* 12: 235 (1909).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Wright* 736, 1865, Cuba (US-559960 (bearing secondary numbers 282 and 286); IT: GOET, NY-71006, NY-71007).

**Illustrations (Books):** A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (95, Fig. 55).

**Derivation** (Clifford & Bostock 2007): *L. curtus*, short; *folium*, leaf. Leaf-blades short.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Culms erect, 20–60 cm long, wiry. Leaf-sheaths 0.5–1 cm long, glabrous on surface. Leaf-sheath oral hairs scanty or ciliate. Ligule a fringe of hairs. Leaf-blades spreading, flat or involute, 0.5–2 cm long, 0.5–1 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–10 cm long. Primary panicle branches indistinct the panicle almost racemose. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 8–9 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume linear, 8–9 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, with 10–12 mm long limb. Lateral lemma awns present, spreading less than principal, 10–12 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Aristida curtissii** (Gray) Nash. Britton, *Man. Fl. N. U.S.* 94. (1901).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from USA. **Basionym or Replaced Name:** *Aristida dichotoma* var. *curtissii* Gray, *Man.* ed. 6:640 (1890). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *A.H. Curtiss s.n.*, 8 Oct 1871, USA: Virginia: Bedford Co. (GH; ILT: US-745544 (right-hand specimen), US-81057 (fragm. ex GH & photo)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 22(7): 535 (1924).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Allen Hiram Curtiss (1845–1907) United States botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms 30–40 cm long. Culm-internodes scaberulous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or involute, 4–10 cm long, 0.5–1 mm wide. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle, terminal or terminal and axillary. Panicle contracted, linear, 5–10 cm long. Primary panicle branches indistinct the panicle almost racemose. Spikelets solitary. Fertile spikelets sessile and pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 5–7 mm long, 0.5–0.66 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume linear, 10 mm long, 1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma linear, subterete, 10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading or briefly coiled at base of limb, with 10 mm long limb. Lateral lemma awns present, spreading less than principal, 2–4 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, North-central USA, Northeast USA, Southeastern USA. Colorado, Wyoming. Illinois, Iowa, Kansas, Missouri, Nebraska, Oklahoma, South Dakota, Wisconsin. Arkansas, Florida, Kentucky, Maryland, Virginia.

**Aristida curvifolia** Fourn. *Mex. Pl.* 2:78 (1886).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Virlet d'Aoust 1449*, 1851, Mexico: San Luis Potosi (P; ILT: US-81602 (fragm. ex P & photo)). LT designated by Davila & Sanchez-Ken, *Fl. Valle Tehuacan-Cuicatlan* 3: 12 (1994).

IST: *W.F. Karwinski von Karwin 1007*, Jul 1842, Mexico: inter La Noria del Viejo et Tanquecillos (LE, US-80991 (fragm. ex LE & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. curvus*, bent; *folium*, leaf. The leaf-blades are convolute.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–40 cm long, wiry. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Collar glabrous. Leaf-blades curved or flexuous, involute, 5–20 cm long, 1 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–15 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, pungent.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8 mm long, 0.7–0.8 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex emarginate or obtuse, mucronate. Upper glume lanceolate, 10–11 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex emarginate or obtuse, mucronate.

**Florets.** Fertile lemma linear, subterete, 10 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex scabrous, awned, 3 -awned. Principal lemma awn spreading, with 10–15 mm long limb. Lateral lemma awns present, spreading as much as principal, 10–15 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

$2n = 22$  (1 ref TROPICOS), or 44 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Southeast Mexico.

**TDWG4.** Puebla. Coahuila, Durango, Neuvo Leon, San Luis Potosi, Zacatecas. Chiapas.

**Aristida cyanantha** Steud. *Syn. Pl. Gram.* 141. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Nepal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Royle 64*, Nepal (LE).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. *kyanos*, blue; *anthos*, flower. Spikelets glaucous.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 100–200 cm long. Ligule a fringe of hairs. Leaf-blades flat or involute, 15–35 cm long, 3–5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 20–40 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets linear, subterete, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.7–1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–12 mm long, 0.75–0.8 length of upper glume, scarios, purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned. Upper glume lanceolate, 10–15 mm long, 1.2–1.5 length of adjacent fertile lemma, scarios, purple, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 3–5 mm long.

**Florets.** Fertile lemma elliptic, subterete, 8–10 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 35–55 mm long limb, persistent. Lateral lemma awns present, 25–45 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** Western Asia. Iran. **Indian Subcontinent.** India, Pakistan, West Himalaya.

**TDWG4.** Uttah Pradesh. Jammu Kashmir.

### **Aristida dasydesmis** Mez. Fedde, *Repert.* 17: 148 (1921).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Drhge*, South Africa: Kapgebiet (B). LT: *Schlechter 11228*, Sep 1897, South Africa: Cape: Little Namaqualand distr.: auf Hgeln bei Iaus (B; ILT: GRA, K, PRE). LT designated by Henrard, *Meded. Rijks-Herb.* 54: 131 (1926).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. *dasy*, hairy; *desmos*, mooring cable. Callus hairy.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 35–70 cm long, 1.5–3 mm diam. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches fastigiate. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades erect, aciculate, conduplicate, 15–30 cm long, 1 mm wide, stiff. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 5–10 cm long, 3–6 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pilose, truncate or obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Upper glume lanceolate, 8 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent.

**Florets.** Fertile lemma elliptic, subterete, 8 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 25 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 5 mm long. Lateral lemma awns present, 20 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Northern Cape, Western Cape.

### **Aristida decaryana** A. Camus. *Bull. Soc. Bot. France* 105: 246 (1958).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Ankazobe: *Decary 14084* .

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Raymond Decary (1891–1973) French botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect, slender, 15–20 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths striately veined, glabrous on surface. Ligule a fringe of hairs. Leaf-blades curved, filiform or linear, convolute, 2–7 cm long. Leaf-blade surface smooth, glabrous.

**Inflorescence.** Inflorescence a panicle, comprising 4–6 fertile spikelets. Panicle open, lanceolate, 3–6 cm long, bearing few spikelets. Primary panicle branches appressed, 0.8–0.9 cm long, bearing 1–2 fertile spikelets on each lower branch. Panicle branches glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1–6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, subterete, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 2.5–3 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 3.5–4.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 3.5–4 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 1 -awned. Principal lemma awn curved, with 20 mm long limb.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Aristida denudata** Pilger. R. E. Fries, *Wiss. Ergebn. Schwed. Rhod.-Kongo-Exped*, 1911–12, i. 206 (1916).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Zambia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Anon.* 887, 5 Oct, Nordost-Rhodesia: Bangweolo bei Kamindas, auf ziemlich feuchter Wiese (S). ST: *Anon.* 1161, 30 Oct, Am Kalungwisi-river, zwischen dem Bangweolo- und Tanganyika-See, auf feuchter Wiese (S).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. lacking in hairs. Foliage of spikelets glabrous or weakly hairy.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long, 1–2 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades 10 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 5–12 cm long. Primary panicle branches 2 -nate, 3–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, bearded, truncate or obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–8.5 mm long, 0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 10–11 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 6.5–7.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above or in lines. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, reflexed, with 30–35 mm long limb, persistent. Lateral lemma awns present, spreading less than principal, 25–30 mm long, shorter than principal. Palea 0.3 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa. Malawi, Zambia, Zimbabwe.

**Aristida depressa** Retz. Obs. 4: 22 (1786).

Regarded by K as a synonym (*A. adscensionis*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L. Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Kvniq s.n.*, India: in sterilioribus Malabariae (S; IT: B-W, M).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. broad and dwarf the growth having taken place horizontally. With spreading geniculate culms.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State. Western Indian ocean.** Mauritius (\*), Seychelles. **China.** China South Central. **Indian Subcontinent, Indo-China.** India, Sri Lanka. Myanmar, Thailand.

**TDWG4.** Sichuan, Yunnan. Kerala. Tamilnadu.

**Aristida desmantha** Trin. & Rupr. *Mem. Acad. Petersb. Ser. 6, 7:* 109. (1842).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Drummond* 285, no date, USA: Texas (LE; IT: US-81059 (fragm. ex E, LE), W-15636).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (320), F.W.Gould, *The Grasses of Texas* (1975) (388, Fig. 205).

**Derivation** (Clifford & Bostock 2007): Gk. desmos, anything used for tying; anthos, flower. The three arms of the awn intertwine at maturity.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 45–100 cm long, wiry. Lateral branches ample. Leaf-sheaths without keel, glabrous on surface or pubescent or pilose or woolly. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades flat or involute, 25–40 cm long, 2–4.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 8–20 cm long. Primary panicle branches ascending. Panicle branches stiff, scabrous. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, pubescent, pungent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–13 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume surface glabrous or hispid. Lower glume apex acute, awned, 1 -awned, awn 2–4 mm long. Upper glume lanceolate, 10–13 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume surface glabrous or hispid. Upper glume apex acute, awned, 1 -awned, awn 2–4 mm long.

**Florets.** Fertile lemma linear, laterally compressed, 7–10 mm long, coriaceous, yellow or purple, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, recurved at base of limb, with 20–35 mm long limb, with a straight or slightly twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 1–2 mm long. Lateral lemma awns present, gyrate, 20–35 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. North-central USA, South-central USA, Southeastern USA.** Illinois, Kansas, Oklahoma. Texas. Louisiana.

**Aristida dewinteri** Giess. *Bothalia* 10(2): 365 (1971).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Namibia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kaokoveld, Enyandi: *Giess 9345* (PRE holo, K, M, WIND, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Bernard de Winter (1924-) South African botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 50–100 cm long, 2–3 -noded. Culm-internodes distally glabrous. Culm-nodes purple. Lateral branches lacking. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades flat or involute, 15–30 cm long, 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 15–30 cm long, 10–15 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pilose, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume oblong, 3.5–4 mm long, 0.3–0.4 length of upper glume, membranous, yellow or black (at tip), 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 10–11 mm long, 1.5 length of adjacent fertile lemma, membranous, yellow or black (at tip), 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, subterete, 7–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 35 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 1.3–1.4 mm long. Lateral lemma awns present, 25 mm long, shorter than principal. Palea oblong, 0.7 mm long, 0.1 length of lemma, hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules 2, ovate, 1–1.25 mm long, veined, obtuse. Anthers 3, 3 mm long, yellow. Caryopsis with adherent pericarp, linear, 3–3.5 mm long. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Angola. Namibia.

### **Aristida dichotoma** Michx. *Fl. Bor. Am.* 1: 41. (1803).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Michaux s.n.*, USA: South Carolina: in Carolina septentrionali juxta Lincoln (P; IT: C, P, US-81058 (fragm. ex P)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (329 as var. *dichotoma* & *curtissii*), F.W.Gould, *The Grasses of Texas* (1975) (389, Fig. 206 as var. *dichotoma*).

**Derivation** (Clifford & Bostock 2007): L. with divisions in pairs. Culms branching dichotomously.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms zigzag, 15–75 cm long, wiry. Lateral branches ample, arising from mid culm or upper culm. Leaf-sheaths without keel, glabrous on surface. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades filiform, 8–15 cm long, 1–2 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 4–15 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 4–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–10 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute or setaceously acuminate. Upper glume lanceolate, 4–10 mm long, 1–1.6 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 4–6 mm long, coriaceous, yellow or purple, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading or briefly coiled at base of limb, with 5–9 mm long limb, without a column. Lateral lemma awns present, spreading less than principal, 1–2 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. North America.

**Country /Province /State.** Eastern Canada, North-central USA, Northeast USA, South-central USA, Southeastern USA. Ontario. Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, Oklahoma, South Dakota, Wisconsin. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. New Mexico, Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia.



**Aristida diffusa** Trin. *Bull. Sc. Acad. Petersb.* 1: 68 (1830).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: South Africa, Cape: Coll? (LE holo).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (Plt. 8I as var. *burkei*).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. widely spreading. Inflorescence an open panicle.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths glabrous or woolly. Culms erect, 40–75 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades curled, filiform, involute, 10–30 cm long, 2.5–3 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle, shorter than basal leaves. Panicle open, elliptic, effuse, 15–30 cm long. Primary panicle branches spreading, distant, 2–3 -nate, 10–15 cm long. Panicle branches capillary, flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pilose, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–9 mm long, 0.4–0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 10–17 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate.

**Florets.** Fertile lemma elliptic, subterete, 9–13 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or asperulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 20–30 mm long limb, with a straight or slightly twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 2–6 mm long. Lateral lemma awns present, 20–30 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Zimbabwe. Limpopo, North-West, Gauteng, Mpumalanga, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape.

**Aristida diminuta** (Mez) C. E. Hubbard. *Kew Bull.* 1949, 480 (1949).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Malawi. **Basionym or Replaced Name:** *Stipa diminuta* Mez, Fedde, *Repert.* 27: 208 (1921). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J. Buchanan 561*, no date, Malawi (B; IT: K, US-866121 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. diminuo, make less. Awn apparently single due to non development of the lateral arms.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 15–30 cm long. Culm-internodes distally glabrous. Leaves cauline. Ligule a fringe of hairs. Leaf-blades 2–7 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, loose or effuse, 4–10 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2–2.5 mm long, 0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute, muticous or mucronate. Upper glume lanceolate, 2.5–3 mm long, 1.7–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, muticous or mucronate.

**Florets.** Fertile lemma elliptic, subterete, 1.5–1.7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins convolute, covering most of palea. Lemma apex acute,

awned, 1 -awned. Principal lemma awn curved, 7–10 mm long overall. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Lodicules 2. Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Mali. Burundi, DRC. Chad. Tanzania. Malawi, Mozambique, Zambia, Zimbabwe.

**Aristida divaricata** Jacq., non Willd.(1809). *Eclog.* 7. t. 6 (1813).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Aristida humboldtiana* Trin. & Rupr., nom superfl, *Mem. Acad. Petersb. Ser.6* (7) 118. (1849). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland 4207*, Mexico: Guanajuato (B-W; IT: P-Bonpl, P, US-81054 (fragm. ex P-Bonpl. & photo), US-81055 (fragm. ex P)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (325).

**Derivation** (Clifford & Bostock 2007): *L. divarico*, spread out. Inflorescence branches or culms regularly dividing into equal branches.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 25–70 cm long, wiry. Leaf-sheaths without keel. Leaf-sheath oral hairs pubescent or ciliate. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades conduplicate, 6–20 cm long, 1–3 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, effuse, 10–30 cm long, 0.5 of culm length. Primary panicle branches spreading. Panicle branches with insignificant pulvini. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–13 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 8–13 mm long, 1.6–1.8 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 5–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 10–15 mm long limb, with twisted column. Column of lemma awn 2–5 mm long. Lateral lemma awns present, 10–15 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

$2n = 22$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Northwest USA, North-central USA, Southwestern USA, South-central USA, Mexico. Colorado. Kansas, Oklahoma. Arizona, California. New Mexico, Texas. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico. **Mesoamerica, Southern South America.** Guatemala, Honduras. Paraguay.

**TDWG4.** Tucuman. Distrito Federal, Mexico State, Puebla, Tlaxcala. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo Leon, Queretaro, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Baja California, Sonora. Jalisco, Michoacan, Nayarit, Oaxaca.

**Aristida divulsa** Andersson. *Galapagos Veg.* 143. 1854.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Galapagos. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *N.J. Andersson 39*, 1863, Galapagos Islands: Chatham Island (S; IT: C, GOET, P, US-81053 (fragm. ex C, GOET, P, S & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. divello*, tear apart. Panicles or racemes interrupted.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–80 cm long, 3–4 -noded. Culm-internodes terete, smooth or scaberulous. Culm-nodes swollen. Lateral branches lacking or sparse, arising from mid culm. Leaf-sheaths mostly shorter than adjacent culm internode, smooth or scaberulous, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–30 cm long, 1–2.5 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 15–20 cm long, contracted about primary branches. Primary panicle branches 1 -nate, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7 mm long, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 6 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma oblong, subterete, 3 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 12 mm long limb, with twisted column, deciduous, abscissing from top of column. Column of lemma awn 1.5–3 mm long. Lateral lemma awns present, 12 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Galapagos.

**Aristida dominii** B.K. Simon. *Austrobaileya* 2(3): 281 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Queensland: Cook District: 7 km N of North Kennedy R., 28 Apr. 1983, *J. R. Clarkson 4801* (HT: BRI; IT: AD, CANB, DNA, K, MEL, MO, NSW, PERTH, QRS).

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 155, Fig.2 (1992)).

**Derivation** (Clifford & Bostock 2007): in honor of Karel Domin (1882–1953) Czech educator and botanist who collected widely in Australia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 13–50 cm long. Culm-internodes smooth, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate, 3 mm long. Ligule a fringe of hairs, 0.3–1 mm long. Leaf-blades flexuous, filiform, involute, 8–16 cm long, 0.5 mm wide. Leaf-blade surface scaberulous or scabrous, rough abaxially, glabrous or pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear, 12–17 cm long, 1.2 cm wide. Primary panicle branches 2 -nate, 2–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, compressed slightly, 17–21 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2 mm long, pubescent, pungent. Floret callus hairs 0.2–1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–10 mm long, 0.4–0.5 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface smooth to scabrous. Lower glume apex emarginate or obtuse, awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 17–21 mm long, 2.3–3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate or obtuse, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma lanceolate, laterally compressed, 5.1–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 38–64 mm long

limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 10–23 mm long, pubescent. Lateral lemma awns present, 20–41 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 4.5–5.5 mm long. Hilum linear, 0.75 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, Western Australia.

**TDWG4.** Kimberley, Darwin & Gulf. North.

**Aristida echinata** Henrard. *Meded. Herb. Leid.* No. 30 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *W. McComb s.n.*, Apr. 1918, Queensland: Warrego Distr.; Morven (K (photo, BRI); IT: BRI). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 714 (1933).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (128), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (106(29)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 197, Fig.11 (1992)).

**Derivation** (Clifford & Bostock 2007): L. spiny. Inflorescence a very condensed panicle and the spikelets or auxillary structures are awned the whole thereby resemble a hedgehog.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms robust, 50–120 cm long. Culm-internodes smooth, distally glabrous. Lateral branches ample. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs, 0.5 mm long. Collar glabrous or pubescent. Leaf-blades involute, 6–12 cm long, 1–2.5 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–10 cm long, 0.8–2 cm wide. Primary panicle branches 0.5–1.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6.3–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–10 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 4–10 mm long, 0.6–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6.3–10 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 11–19 mm long limb, without a column, persistent. Lateral lemma awns present, 11–19 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 5–8 mm long. Hilum linear, 0.3 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Queensland.

**TDWG4.** Central, South East, Inland. Coast, Western Slopes, Western Plains.

**Aristida echinulata** Roseng. & Izag. de Artucio. *Bol. Univ. Republ. Fac. Agron. Montevideo*, No. 94, 3 (1967).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Rosengurt B-7931*, 2 Jan 1960, Tacuarembos: Chamberlain, ruta 5 (MVFA; IT: BLA, K, US-2946508).

**Illustrations (Books):** B.Rosengurt, *Gramineas Uruguayas I* (1970) (208, Fig. 85).

**Derivation** (Clifford & Bostock 2007): L. echinus, hedgehog; -ulus, diminutive; -ata, possessing. Leaf-blades hispid with small prickles.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 23–25 cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.2–0.4 mm long. Collar glabrous. Leaf-blades curved, conduplicate, 3.5–13 cm long, 1.3–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (subcontracted), 10–15 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1 mm long, pilose, acute.

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 11–15 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface asperulous, rough generally. Lower glume apex acute. Upper glume lanceolate, 19–25 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute, mucronate.

**Florets.** Fertile lemma subterete, 12–14 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface papillose or tuberculate (strongly), rough generally or above, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 55–80 mm long limb, without a column. Lateral lemma awns present, ascending, 50–72 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil South. Uruguay.

**Aristida ecuadoriensis** Henrard. *Meded. Herb. Leid.* No. 58 A. 307 (1932).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 20761, 27 Jul 1923, Ecuador: Huigra, Chimborazo, 1200 m, along old railway grade (L; IT: NY-74320, US-1163812).

**Illustrations (Books):** G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 45, Fig. 8 (1997)).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Ecuador.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–70 cm long. Ligule a fringe of hairs. Leaf-blades 10–20 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 10–20 cm long. Primary panicle branches ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 5–5.5 mm long, 0.75 length of upper glume, membranous. Lower glume apex acute. Upper glume linear, 6–7 mm long, 1–1.1 length of adjacent fertile lemma, membranous. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 5–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 8–11 mm long limb. Lateral lemma awns present, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia, Ecuador, Peru.

**Aristida effusa** Henrard. *Meded. Herb. Leid.* No. 54, 155 (1926).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Namibia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A. Engler 6162, Apr 1938, Namibia: Karibib (B).

**Illustrations (Books):** M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

**Derivation** (Clifford & Bostock 2007): L. spread out. Inflorescence an open panicle.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, slender, 45–90 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades flat, 15–30 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 20–30 cm long, 15 cm wide, with spikelets clustered towards branch tips. Primary panicle branches spreading. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–11.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 6–8.5 mm long, 0.66–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface scabrous, rough above. Lower glume apex acute or acuminate. Upper glume lanceolate, 5.5–8 mm long, 0.66 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex truncate or obtuse.

**Florets.** Fertile lemma linear, subterete, 9–11.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 16 mm long limb, persistent. Lateral lemma awns present, 13 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State. Southern Africa.** Namibia, Botswana, Limpopo, North-West, Gauteng.

**Aristida eggersii** Hitchcock. *Contrib. U. S. Nat. Herb.* 22: 56 (1924).

Regarded by K as a synonym (*A. purpurea*).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.F.A. von Eggers* 5389, May 1889, Cuba: in calcaritis, ad mare, La Caimanera (US-820940).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Heinrich Franz Alexander Eggers (1844–1908) German-born Danish military officer and plant collector in the West Indies and South America.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending or decumbent, 20–40 cm long, wiry. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs. Collar pilose. Leaf-blades curved or flexuous, filiform, involute, 5–10 cm long, 0.5 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 3–10 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 5–6 mm long, 0.5 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume linear, 10–12 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma linear, subterete, 10 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, with 20–25 mm long limb. Lateral lemma awns present, spreading less than principal, 20–25 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Cuba, Dominican Republic.

**Aristida ekmaniana** Henrard. *Meded. Herb. Leid.* No. 54, 159 (1926).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. Dusin* 9710, 16 Apr 1910, Brazil: Parana: in alto planitie Jaguarihya, in campo (L-923.213-114; IT: K, NY-39634, US-601164).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Erik Leonard Eckman (1888–1931) Swedish botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms (58–)70–85(–115) cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking or bearded. Ligule a ciliolate membrane, 0.2 mm long. Collar glabrous. Leaf-blades curled (lower) or straight (upper), flat (lower) or conduplicate (upper), (7–)11–34 cm long, 1.8–3.6 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, hairless except near base, moderately hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, 15–33 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.8 mm long or -1.2 mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower longer, shorter or subequal upper). Lower glume lanceolate, 9.8–14.2 mm long, 1 -veined. Lower glume primary vein scaberulous. Lower glume surface asperulous, rough generally. Lower glume apex setaceously acuminate. Upper glume lanceolate, 8.5–14 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire or dentate, 2 -fid, setaceously acuminate.

**Florets.** Fertile lemma subterete, 6–7 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface smooth, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with (14–)15–22(–30) mm long limb, with twisted column. Column of lemma awn (5–)8–12 mm long. Lateral lemma awns present, ascending, 13–20(–25) mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South.

**TDWG4.** Sao Paulo Parana.

### **Aristida elliptica** (Nees) Kunth. *Enum. Pl.* 1: 193. (1833).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Chaetaria elliptica* Nees, *Agrost. Bras.* 389 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Martius s.n.*, Brazil: provinciae Maragnanensis: in fluvii Itapicuru ripa ad Cachias (LE-TRIN-1282.01 (fragm. misit Nees ab Esenb. 1830, M). LT: *K.F.P. von Martius s.n.*, May, Brazil: Piauhm: habitat in pascuis agrestibus provinciae Piauhianae (M; ILT: K (photo ex M), US-865701 (fragm. ex M & photo)). LT designated by Henrard, *Meded. Rijks-Herb.* 54: 166 (1926); also cited by Longhi-Wagner, *Bol. Inst. Bot. (Sao Paulo)* 12: 130 (1999).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (55, Fig. 19).

**Derivation** (Clifford & Bostock 2007): Gk. elluipsis, ellipse; -ike, belonging to. Culms semiterete.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 20–25(–50) cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.6–0.8 mm long. Collar glabrous. Leaf-blades straight, conduplicate (commonly) or flat, 6–14 cm long, 1.8–2 mm wide. Leaf-blade surface scabrous, rough on both sides, glabrous or pilose, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle capitate, 2.5–4 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.2 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar (lower longer than upper sometimes subequal). Lower glume lanceolate, 7.5–9.2 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous (densely), rough generally. Lower glume apex acute (shortly awned), muticous or mucronate. Upper glume lanceolate, 7–9 mm long, 1 -veined. Upper glume surface asperulous. Upper glume apex entire, acute (shortly awned).

**Florets.** Fertile lemma subterete, 4–5.5 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined (densely). Lemma surface scabrous, rough above, without grooves. Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 7–14 mm long limb, without a column. Lateral lemma awns present, ascending, 5.5–12 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.  
**Country /Province /State. Brazil.** Brazil Northeast.  
**TDWG4.** Bahia, Maranhao, Piaui.

**Aristida eludens** K.W. Allred & J. Valdes-Reyna. *Novon* 5(3): 212 (1995).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Coahuila: San Lorenzo Canyon, ca. 8 km S of Saltillo, mountain scrub grassland vegetation with *Berberis*, *Bouteloua*, *Hilaria*, *Saylirion*, very rocky sandy loam, flat bajada on N-facing side of canyon, 6000 ft (1830 m), 3 Sep 1991, J. Valdis-Reyna 2254 (HT: ANSM; IT: NMSU).

**Illustrations (Journals):** *Novon* 5:213, Fig.3 (1995).

**Derivation** (Clifford & Bostock 2007): *L. eludo*, avoid. Not to be confused with a series of closely related species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 35–80 cm long. Culm-internodes terete, distally glabrous. Lateral branches lacking. Leaves basal and cauline. Leaf-sheaths longer than adjacent culm internode, without keel, smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades flat or conduplicate, 15–35 cm long, 1–1.5 mm wide. Leaf-blade surface smooth or scaberulous, rough abaxially, glabrous or puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle, comprising 16–20 fertile spikelets. Panicle contracted, linear, 10–23 cm long, 1–2 cm wide. Primary panicle branches appressed, 5–9 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3–1 mm long, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–13 mm long, 1 length of upper glume, membranous, light brown, 1 -veined. Lower glume lateral veins absent. Lower glume surface glabrous. Lower glume apex acute. Upper glume lanceolate, 8–13 mm long, 1–1.3 length of adjacent fertile lemma, membranous, light brown, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 6–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned or 3 -awned. Principal lemma awn geniculate or 3-branched, with 5–10 mm long limb, with twisted column. Column of lemma awn (3–)4–5 mm long. Lateral lemma awns absent or present, 0.1–3 mm long, shorter than principal. Palea 1 mm long, hyaline, 2-keeled.

**Flower and Fruit.** Lodicules 2, 1–1.5 mm long. Anthers 3, 2–2.5 mm long. Caryopsis with adherent pericarp, fusiform, 6 mm long, dark brown.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Mexico.** Northeast Mexico, Southwest Mexico.

Coahuila, Chihuahua, Durango, Guanajuato, Neuvo Leon, Queretaro, San Luis Potosi. Oaxaca.

**Aristida engleri** Mez. Fedde, *Repert.* 17:147 (1889).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Namibia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.G.A. Engler* 6717, 4 May 1913, Namibia: Namabezirk, Kuibis-Steinsteppe, 1300 m (B; IT: US-81051 (fragm. ex B)).

**Illustrations (Books):** M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984) (as var. *engleri* & var. *ramosissima*).

**Derivation** (Clifford & Bostock 2007): in honor of Heinrich Gustav Adolph Engler (1844–1930) German botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending or decumbent, 35–50 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades flat or involute, 7–15 cm long, 1–2 mm wide.



**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or ovate, 10–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–6 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex obtuse. Upper glume lanceolate, 9–10 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, subterete, 5–8 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 20 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 4.5 mm long. Lateral lemma awns present, 15 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Namibia, North-West, Northern Cape.

**Aristida erecta** Hitchcock. *Contrib. U. S. Nat. Herb.* 12: 236 (1909).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Wright 3432 [2432]*, 1865, Cuba (US-41161; IT: GOET, NY-71008). Orig. publ. cites "...2432, which is an error for 3432."

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. held upright. Spikelets or inflorescence branches held erect.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–150 cm long. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat, 50–100 cm long, 3–5 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 25–50 cm long. Primary panicle branches appressed, 5–10 cm long, bearing spikelets almost to the base. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 12–15 mm long, 1.2 length of upper glume, membranous, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acuminate or setaceously acuminate. Upper glume linear, 10–12 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate or setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 12–13 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 20–30 mm long limb. Lateral lemma awns present, spreading less than principal, 15–25 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Aristida exserta** S. T. Blake. *Proc. Roy. Soc. Queensl.* 51: 172 (1940).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Blake 6130*, 11 Jun 1934, Australia: Queensland: North Kennedy Dist.: Mt. Remarkable, near Pentland (BRI: IT: BRI, K, MEL).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(26)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 182, Fig.8 (1992)).

**Derivation** (Clifford & Bostock 2007): *L. exserted*. Peduncle longer than in related species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 45–75 cm long. Culm-internodes smooth, distally glabrous. Lateral branches fastigiate. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades filiform, involute, 4–8 cm long, 0.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear, 10–15 cm long, 1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6.5–10 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface smooth to scabrous. Lower glume apex emarginate or acute, awned, 1 -awned, awn 0.5–1.3 mm long. Upper glume lanceolate, 6.7–10 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate, awned, 1 -awned, awn 0.5–1.3 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 7–11 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins involute, covering most of palea, without distinctive roughness. Lemma apex acute, awned, 3 -awned. Principal lemma awn spreading, with 9.5–11 mm long limb, without a column, persistent. Lateral lemma awns present, spreading as much as principal, 8.5–10.5 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 5–6 mm long. Hilum linear, 0.2–0.3 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, Western Australia.

**TDWG4.** Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland. North, Central, Inland.

**Aristida ferrilateris** S.M. Phillips. *Kew Bulletin* 41(4): 1029. 1986.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Yemen. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Wood 1142*, North Yemen: Jibla (K).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (79, Fig. 33).

**Derivation** (Clifford & Bostock 2007): *L. ferreus*, iron; laterus, side. In honor of John Richard Ironside Wood (1944-) English plant collector and botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40–70 cm long. Ligule a fringe of hairs. Leaf-blades flat or convolute, 4–20 cm long, 1–3 mm wide. Leaf-blade surface ribbed, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or oblong, 3–20 cm long. Primary panicle branches appressed or spreading, simple, bearing spikelets almost to the base. Panicle branches glabrous in axils or bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 7.5–12 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface glabrous or pubescent. Lower glume apex obtuse or acute, mucronate. Upper glume subulate or lanceolate, 8–13 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 7–9.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of

palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn triquetrous below, with 13–20 mm long limb, without a column, persistent. Lateral lemma awns present, ascending, 8–15 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG), Continent.** Africa, Temperate Asia.

**Country /Province /State.** Northeast tropical Africa. Ethiopia (inc. Eritrea). Arabian Peninsula. Saudi Arabia, Yemen.

**Aristida filifolia** (Arech.) Herter. *Rev. Sudamer. Bot.* 9: 99 (1953).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. **Basionym or Replaced Name:** *Aristida pallens* f. *filifolia* Arech., *An. Mus. Nac. Montevideo* 4:75 (1902). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Arechavaleta s.n.*, Nov 1886, Uruguay: colinas pedregosas de Minas (W-16092).

**Illustrations (Books):** B.Rosengurt, *Gramineas Uruguayas I* (1970) (210, Fig. 86).

**Derivation** (Clifford & Bostock 2007): L. filum, thread; folium, leaf. Leaf-blades very narrow.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 40–80 cm long. Lateral branches lacking. Leaf-sheaths striately veined, smooth. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades convolute, 25–30 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle, comprising 7–12 fertile spikelets. Panicle open, dense, 20–40 cm long, bearing few spikelets. Primary panicle branches appressed or ascending, 1–2 -nate, bearing 1–2 fertile spikelets on each lower branch.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, 30–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated.

**Glumes.** Glumes persistent. Lower glume lanceolate, 18–20 mm long, 0.4–0.6 length of upper glume, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 30–50 mm long, 1 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma subterete, 16–20 mm long, without keel, 3 -veined, 0–3 -veined. Lemma surface asperulous, rough above. Lemma margins convolute. Lemma apex with outer margin prolonged as a hyaline appendage, with this appendage 0.2–0.5 mm long, awned, 3 -awned. Principal lemma awn straight, with 100–150 mm long limb. Lateral lemma awns present, ascending, 100–150 mm long, subequal to principal.

**Distribution (TDWG), Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil Southeast. Uruguay. Catarina, Rio Grande do Sul.

**Aristida flabellata** Caro. *Kurtziana* 1: 148 (1961).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Csrdo: Sierra de Pocho falda O. cerca de los tuneles subiendo desde la llanura oeste, ruta 20, 5 Mar 1959, A.T. Hunziker, A. Cocucci & J.A. Caro 14174 (HT: CORD)

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. flabella, fan; -ata, possessing. Culms fan-shaped at the base.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped densely. Basal innovations intravaginal, flabellate. Culms erect, 40–50 cm long, 1–2 -noded. Culm-internodes terete, distally glabrous. Culm-nodes glabrous. Lateral branches sparse, arising from lower culm. Leaf-sheaths longer than adjacent culm internode, striately veined, smooth or scaberulous. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Collar glabrous. Leaf-blades conduplicate or convolute, 3.5–15 cm long, 1.5–2 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, continuous or interrupted, 17–20 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets linear, subterete, 5–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–0.75 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, 0.75 length of upper glume, membranous, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume apex mucronate. Upper glume lanceolate, 5–9 mm long, 1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma linear, subterete, 5.5–8.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 8–15 mm long limb. Lateral lemma awns present, 6–13 mm long, subequal to principal or shorter than principal. Palea 1 mm long, 0.1–0.2 length of lemma, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2. Anthers 3. Caryopsis with adherent pericarp, 7–7.5 mm long, light brown.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast.

**TDWG4.** San Luis. Cordoba.

### **Aristida flaccida** Trin.& Rupr. *Mem. Acad. Petersb. Ser. 6, 7:* 117. (1842).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Langsdorff s.n.*, Jan, Brazil: in montibus Carassae prope Capanima (LE-TRIN-1302.01). IT: *L. Riedel s.n.*, Jan 1876-Feb 1876, Brazil: in montibus Carassae prope Capanima (US-81045 (fragm. e xLE)).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (507, Fig. 108).

**Derivation** (Clifford & Bostock 2007): L. unable to support its own weight. Inflorescence branches long and thin and so droop.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 26–45 cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades straight, convolute, 8–32 cm long, 1.2–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorse scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open (pauciflore), 16–20 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.7 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 11–12 mm long, 3(–5) -veined. Lower glume primary vein scabrous. Lower glume surface asperulous, rough generally. Lower glume apex acute, mucicous. Upper glume lanceolate, 13–16(–20) mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute.

**Florets.** Fertile lemma subterete, 19–25 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 19–25 mm long limb, without a column. Lateral lemma awns present, ascending, (4–)7–8(–9) mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Southeast, Brazil North, Brazil South.

**TDWG4.** Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

### **Aristida floridana** (Chapm.) Vasey. *Gram. U. St.* 21. (1885).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Streptachne floridana* Chapm., *Fl. S. U. St.* 554 (1860). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *J.L. Blodgett s.n.*, 18??, USA: Florida: Key West (L (fragm. ex US), NY-273725, US-77250).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (322).

**Derivation** (Clifford & Bostock 2007): L.-ana, indicating location. From Florida State, USA.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 60 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface or pilose. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades involute, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, dense, 20–30 cm long. Primary panicle branches ascending, 2–4 cm long, bearing spikelets almost to the base. Panicle axis scabrous. Panicle branches capillary. Spikelets solitary. Fertile spikelets sessile and pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume linear, 6–7 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 6–7 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn curved, ascending, 20 mm long overall, with 20 mm long limb. Lateral lemma awns absent.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southeastern USA, Mexico. Florida. Southeast Mexico. Campeche, Quintana Roo, Yucatan.

**Aristida forsteri** B.K. Simon. *Austrobaileya* 4(2): 147 (1994).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Queensland: Darling Downs District: head of Pariagara Creek, Wondul Range, 28.11S, 151.02E, 12 Apr 1992, P.I.Foster & P. Machim PIF9793 (HT: BRI; IT: CANB, K, MEL).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (88, Fig. 15), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor of Paul Irwin Forster (1961-) Australian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 25–50 cm long, 1–1.5 mm diam., 2–3 -noded. Culm-internodes scaberulous, distally glabrous. Culm-nodes glabrous. Lateral branches sparse. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined, scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.6 mm long. Collar glabrous. Leaf-blades involute, 7–14 cm long, 1 mm wide. Leaf-blade surface scaberulous, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 7–13 cm long, 1 cm wide. Primary panicle branches appressed, 1–2 cm long. Panicle branches scaberulous, with insignificant pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 3.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4 mm long, pubescent, obtuse. Floret callus hairs 0.7 mm long.

**Glumes.** Glumes lower deciduous, upper persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–4.5 mm long, 1.1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, 3.2–4.2 mm long, membranous, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma linear, subterete, 2.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins involute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 8 mm long limb. Lateral lemma awns present, 6 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, ellipsoid, sulcate on hilar side, 2 mm long. Embryo 0.33 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** South East.

**Aristida fragilis** Hitchcock & Ekman. *N. Am. Fl.* 17 :393 (1935).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.L. Ekman 16784*, 18 Jun 1923, Cuba: Pinar del Rmo: San Juan and Martmnez, in pinales ad La Tea, white sands (US-1024372; IT: LE, US-1538518, US-1024373).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. weak. Inflorescences readily disarticulating.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long, wiry. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades involute, 1–10 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–20 cm long. Primary panicle branches appressed, 1–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, pungent.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 4 mm long, 0.6 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous, rough above. Lower glume apex acute. Upper glume linear, 7 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, with 10 mm long limb. Lateral lemma awns present, ascending, 10 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Aristida fredschoizii** H. Scholz & Kurschner. *Willdenowia* 30(2): 273–274, f. 1a. (2000).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending, 17 cm long. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty. Ligule a fringe of hairs. Leaf-blades convolute, 2–6 cm long, 0.5–1 mm wide. Leaf-blade surface smooth, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 5–8 cm long, bearing few spikelets. Primary panicle branches distant. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.5 mm long, pilose, obtuse. Floret callus hairs 1.5 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 4–6 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Upper glume lanceolate, 4–6 mm long, 0.66–0.8 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent.

**Florets.** Fertile lemma elliptic, laterally compressed, 5–9 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, muticous or awned, 1 -awned. Principal lemma awn straight, 0.5–1.5 mm long overall.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Arabian Peninsula. Oman.

**Aristida friesii** Hackel ex Henrard. *Meded. Herb. Leid.* No. 54, 186 (1926).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R.E. Froes 1301a*, 28 Feb 1902, Bolivia: Junaca prope Tarija, loco graminoso in regione subalpina (W-22175 (photo, herb. Sulekic)).

**Illustrations (Journals):** *Darwiniana* (41: 170, fig.6 (2003)).

**Derivation** (Clifford & Bostock 2007): in honor of Robert Elias Fries (1876–1966) Swedish botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long. Culm-internodes antrorsely scabrous. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, antrorsely scabrous. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades 20–30 cm long, 3 mm wide. Leaf-blade surface scabrous, rough on both sides, glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex acuminate, filiform.

**Inflorescence.** Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle open, elliptic, 15 cm long, contracted about primary branches. Primary panicle branches appressed or ascending, 1–3 -nate. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.25 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7 mm long, 0.85 length of upper glume, membranous, 3 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate, mucronate. Upper glume lanceolate, 8 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, acuminate, mucronate.

**Florets.** Fertile lemma linear, subterete, 7–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface granulose. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, awned, 3 -awned. Principal lemma awn 3-branched, with 9–10 mm long limb. Lateral lemma awns present, 8 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia. Argentina Northeast.

**TDWG4.** Salta.

***Aristida funiculata*** Trin. & Rupr. *Mem. Acad. Petersb. Ser. 6, 7: 159.* (1842).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (& as *A. royleana*).

**TYPE** from Senegal. **Basionym or Replaced Name:** *Aristida royleana* Trin. & Rupr., *Mem. Acad. Petersb. Ser. 6 (7) 160.* (1849). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Senegal: *Leprieur* (P holotype).

**Illustrations (Books):** L.Boulos, *Flora of Egypt* 4 (2005) (239, Pl. 70), K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (Pl.713).

**Derivation** (Clifford & Bostock 2007): *L. funis*, rope; -ula, diminutive; -ata, possessing. The twisted column of the awn resembles a rope.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 15–30 cm long, wiry. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 4–10 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 20–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, pilose, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 20–30 mm long, 1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume linear, 17–25 mm long, 4–6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate.

**Florets.** Fertile lemma elliptic, subterete, 4 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 35–45 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn (2–)3–4.5 mm long. Lateral lemma awns present, 35–45 mm long, subequal to principal. Palea 0.25 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

*N* = 11 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** Northern Africa, Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Egypt, Libya. Cape Verde. Mali, Nigeria, Senegal, Niger. Eritrea, Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Kenya. Western Asia, Arabian Peninsula. Afghanistan, Iran. Gulf States, Oman, Saudi Arabia. Indian Subcontinent, Indo-China. India, Pakistan, West Himalaya. Myanmar.

**TDWG4.** Karnataka. Punjab, Rajasthan, Tamilnadu, Uttah Pradesh. Himachal Pradesh.

### **Aristida geminiflora** E. Fourn. *Mexic. Pl.* 2: 77. 1886.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Liebmann 646*, Jan, Mexico: Veracruz: Mirador (C).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. gemini*, twins; flos, flower. Spikelets in pairs on a common peduncle.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 50–60 cm long. Leaf-sheaths scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule a fringe of hairs. Leaf-blades involute, 5–10 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, loose, 10–15 cm long. Primary panicle branches ascending, 1 -nate, 3 cm long, bearing 4–6 fertile spikelets on each lower branch. Spikelets solitary.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 12 mm long, 1.1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Upper glume lanceolate, 11 mm long, 1.4 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent.

**Florets.** Fertile lemma linear, subterete, 8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, recurved at base of limb, with 8 mm long limb, with twisted column. Column of lemma awn 6 mm long. Lateral lemma awns present, 1 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Gulf (Mexico).

Veracruz.

### **Aristida gentilis** Henrard. *Meded. Herb. Leid.* No. 54, 196 (1926).

Regarded by K as a synonym (*A. hamulosa*).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A.S. Hitchcock 7448*, 2 Oct 1910, Mexico: Aguascalientes: Aguascalientes, , 6300 ft, weed, edge of field (L-922.342–255; IT: US-991622).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L.* of the same clan. Belonging in the same Section of the genus.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 50–100 cm long, 1–2 -noded. Culm-internodes smooth or scaberulous. Leaf-sheaths keeled. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades convolute, 10–20 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex filiform.



**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 25–35 cm long, with spikelets clustered towards branch tips. Primary panicle branches spreading, branching divaricately, 10–15 cm long. Panicle branches flexuous, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.75 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 14 mm long, 1.05–1.1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface glabrous to pubescent. Lower glume apex setaceously acuminate. Upper glume linear, 13 mm long, 1.2 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 11 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 15 mm long limb. Lateral lemma awns present, 12 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Northeast Mexico, Northwest Mexico, Southwest Mexico.

**TDWG4.** Aguascalientes, Durango, Guanajuato, San Luis Potosi, Zacatecas. Sonora. Jalisco, Oaxaca.

### ***Aristida gibbosa* (Nees) Kunth. *Enum. Pl.* 1: 189. (1830).**

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Chaetaria gibbosa* Nees, *Agrost. Bras.* 383 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K.F.P. von Martius s.n.*, May, Brazil: Piahy: habitat in campis (M; IT: LE-TRIN-1286.01 (misit Nees ab Esenb. 1830 & fig.),US-865702 (fragm. e xM & photo)).

**Recent Synonyms:** *Aristida sorzogonensis* J. Presl, *Reliq. Haenk.* 1(4–5): 224 (1830).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. gibba*, swelling; -osa, indicating abundance. Spikelets swollen asymmetrically.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms (32–)45–90 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking or bearded (deciduous hairs). Ligule a ciliolate membrane, 0.2–0.4 mm long. Collar glabrous. Leaf-blades straight, conduplicate, 10.5–42 cm long, 1.8–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, hairless except near base, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, (8–)12–24 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.2–0.3 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar (lower in general slightly longer than upper, sometimes subequal or lower slightly shorter than upper). Lower glume lanceolate, 5.2–11.8 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume apex acute (shortly awned). Upper glume lanceolate, 5–9.8 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute (shortly awned).

**Florets.** Fertile lemma subterete, (4.5–)5–11.5 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface smooth, with a median groove (ventral, longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with (8–)8.8–19.5 mm long limb, with twisted column. Column of lemma awn (1–)1.5–4 mm long. Lateral lemma awns present, ascending, (6–)7–14 mm long, shorter than principal.

**Distribution (TDWG). Continent.** North America, South America (and Central America).

**Country /Province /State.** Mexico (as *A. orizabensis*). Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil.** Costa Rica, Honduras, Panama. Guyana, Venezuela. Bolivia, Colombia. Brazil Southeast.

**TDWG4.** Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Chihuahua, Durango, Guanajuato. Veracruz. Sinaloa, Sonora. Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas.

**Aristida glauca** (Nees) Walp. *Ann. Bot.* 1:925 (1849).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Mexico. **Basionym or Replaced Name:** *Chaetaria glauca* Nees, *Linnaea*, 19: 688 (1847). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A. Aschenborn 251*, Mexico (B; IT: US-865703 (fragm. ex B & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. glauca*, bluish-green. Whole plant or any of its parts glaucous.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 15–30 cm long. Culm-internodes distally glabrous or pubescent. Leaf-sheaths smooth or scaberulous, glabrous on surface or puberulous. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades curved, involute, 5–10 cm long, 0.7–1.5 mm wide, stiff, glaucous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 6–18 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pubescent, pungent.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5–8 mm long, 0.5–0.66 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 7–12 mm long, 0.9 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 8–15 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 15–20 mm long limb, with twisted column. Column of lemma awn 1–4 mm long. Lateral lemma awns present, spreading as much as principal, 15–20 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

$N = 22$  (1 ref TROPICOS).  $2n = 44$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. North America.

**Country /Province /State.** Southwestern USA, South-central USA, Mexico. Central Mexico, Northeast Mexico, Northwest Mexico, Southeast Mexico.

**TDWG4.** Puebla. Aguascalientes, Coahuila, Neuvo Leon, San Luis Potosi, Tamaulipas, Zacatecas. Baja California, Sonora. Chiapas.

**Aristida glaziovii** Hackel ex Henrard. *Meded. Herb. Leid.* No. 54, 204 (1926).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziou 20107*, 1892, Brazil: Minas Gerais (W-15602; IT: US-1341398, US-1126809 (fragm. ex W & photo)).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (53, Fig. 18 as *A. glaziouii*).

**Derivation** (Clifford & Bostock 2007): in honor of Auguste François Marie Glaziou (fl. 1833–1906) French-born artist and Brazilian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 100–130 cm long. Lateral branches sparse or lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.3–0.5 mm long. Collar glabrous or pubescent. Leaf-blades curled (lower) or straight (upper), flat (lower) or convolute (upper), 18–39 cm long, 1.5–4.5 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antroersely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (or subcontracted), 20–37 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.8–1 mm long, pilose, acute.

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, 7.5–12 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume lanceolate, 5.5–8 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute.

**Florets.** Fertile lemma subterete, 7–9.8 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough generally, without grooves. Lemma margins involute. Lemma apex awned, 3 -

awned. Principal lemma awn straight, ascending, simple at base, with 17–30 mm long limb, without a column. Lateral lemma awns present, ascending, 14–28 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast.

**TDWG4.** Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo.

### **Aristida gracilipes** (Domin) Henrard. *Meded. Herb. Leid.* No. 54, 209 (1926).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Aristida vagans* var. *gracilipes* Domin, *Repert. Spec. Nov. Regni Veg.* 9: 551 (1911). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. Leichhardt s.n.*, 11 Mar 1844, Australia: New South Wales: Moreton Dist.: Cameron's Bush (K: IT: BR, BRI (fragm. & photo ex K), BRI, MEL).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (128), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(20)), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (155, Fig. 24), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 197, Fig.11 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. gracilis*, slender; pes, foot. Pedicels slender.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms geniculately ascending, 60–115 cm long. Culm-internodes smooth or scaberulous, distally glabrous. Lateral branches fastigiate. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs, 0.5 mm long. Collar glabrous. Leaf-blades involute, 4–8 cm long, 0.5 mm wide. Leaf-blade surface scabrous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 12–21 cm long, 1–3 cm wide. Primary panicle branches 4–6 cm long. Panicle branches with insignificant pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 4–10 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acuminate. Upper glume lanceolate, 4–10 mm long, 0.5–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate.

**Florets.** Fertile lemma lanceolate, subterete, 8–11 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn spreading, with 10–20 mm long limb, without a column, persistent. Lateral lemma awns present, spreading as much as principal, 10–16 mm long, subequal to principal or shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 6–8 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Queensland.

**TDWG4.** North, Central, South East, Inland. Coast.

### **Aristida granitica** B.K. Simon. *Austrobaileya* 2(1): 91 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Queensland: North Kennedy District: Mt. Pring, 10 km W of Bowen, 18 Apr 1978, *Simon 3423* (HT: BRI-257519).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (96, Fig. 17), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 157, Fig.3 (1992)).

**Derivation** (Clifford & Bostock 2007): Eng. granite; L. -ica, belonging to. Growing on granitic soils.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 35 cm long. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs ciliate, 2–4.5 mm long. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades involute, 10–21 cm long, 1.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 7–19 cm long, 8 cm wide. Primary panicle branches 3-nate, 1–2.4 cm long. Panicle branches glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, compressed slightly, 12–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.6 mm long, pubescent, acute. Floret callus hairs 1–1.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–8 mm long, 0.6 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume primary vein scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 12–13 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute or acuminate, muticous.

**Florets.** Fertile lemma lanceolate, laterally compressed, 8–9 mm long, coriaceous, without keel, 3-veined, 0–3-veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3-awned. Principal lemma awn 3-branched, spreading, with 22 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 12–14 mm long. Lateral lemma awns present, spreading less than principal, 11 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear, 0.6 length of caryopsis.

**Distribution (TDWG), Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** Central.

**Aristida guayllabambensis** Laegaard. *Flora of Ecuador* 57: 49, f. 9A-C. 1997.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Laegaard* 51740, 8 Mar 1984, Ecuador: Pichincha: near Guayllabamba, N of Quito, 00:03'S, 78:21'W, dry slopes and roadsides with some grazing, alt. 2000 m (AAU!; IT: MO-5198263, QCA, US-3351511).

**Illustrations (Books):** G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 50, Fig. 9 (1997)).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect, 40–60 cm long, 0.5 mm diam. Culm-internodes striate, scaberulous, distally glabrous. Leaf-sheaths subequal to internodes, striately veined, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate, 1–2 mm long. Ligule a fringe of hairs, 0.2–0.4 mm long. Leaf-blades erect, convolute, 10–20 cm long, 2–2.5 mm wide. Leaf-blade surface ribbed, grooved adaxially, scaberulous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, bracteate at branch bases. Panicle open, linear, 10–30 cm long, 1–2 cm wide, contracted about primary branches. Primary panicle branches appressed, 1-nate, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.7 mm long, pubescent, acute. Floret callus hairs 0.3–0.7 mm long.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–9 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute to attenuate. Upper glume lanceolate, 7–9 mm long, 1.4–1.8 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute to attenuate.

**Florets.** Fertile lemma linear, subterete, 5 mm long, 0.3–0.7 mm wide, coriaceous, without keel, 3-veined, 0–3-veined. Lemma surface asperulous. Lemma margins convolute, covering most of palea. Lemma apex

awned, 3 -awned. Principal lemma awn with 10 mm long limb. Lateral lemma awns present, 6–10 mm long, subequal to principal or shorter than principal. Palea oblanceolate, 0.5 mm long, 2 -veined.

**Flower and Fruit.** Lodicules 2, 0.6 mm long. Anthers 3, 2–2.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America.** Colombia, Ecuador.

**Aristida gypsophila** Beetle. *Phytologia* 49(1): 36–37. 1981.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Coahuila: western Coahuila, north facing mountainside, gypsum banks, western base of Picacho del Fuste, northeasternly from Tanque Vaionetta, ca. lat. 27:34'N, 23–25 Aug 1941, *I. M. Johnston 8399* (HT: US)

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (327).

**Derivation** (Clifford & Bostock 2007): Gk. gypsos, gypsum; phileo, love. Growing on gypsum soils.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–80 cm long. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades curled, filiform, 1 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear. Primary panicle branches appressed. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 5.5–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–6 mm long, 0.9 length of upper glume, membranous. Lower glume apex acuminate. Upper glume lanceolate, 5.5–7.5 mm long, membranous. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned or 3 -awned. Principal lemma awn straight or geniculate, with 10 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 2 mm long. Lateral lemma awns absent or present, 0–1 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. South-central USA, Mexico.** Texas. Northeast Mexico. **Southern South America.** Uruguay.

**TDWG4.** Coahuila, Chihuahua, San Luis Potosi.

**Aristida gyrans** Chapm. *Coult. Bot. Gaz.* iii. 18. (1878).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.W. Chapman s.n.*, no date, USA: Florida: Roberts Key (NY; IT: US-966071, W).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (341).

**Derivation** (Clifford & Bostock 2007): L. gyro, turn round in a circle. Awns forming loose spirals on drying.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 40–70 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades involute, 10–15 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 15–30 cm long. Primary panicle branches appressed, bearing 1–3(–6) fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets linear, subterete, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5 mm long, pubescent, pungent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 7–8 mm long, 0.7–0.8 length of upper glume, membranous, 2 -veined. Lower glume primary vein smooth. Lower glume apex setaceously acuminate. Upper glume linear, 10–11 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 6 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex scabrous, with a short cylindrical neck, with this appendage 0.5 mm long, awned, 3 -awned. Principal lemma awn spreading, with 10–15 mm long limb. Lateral lemma awns present, gyrate, 10–15 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southeastern USA. Florida, South Carolina.

**Aristida hackelii** Arech. *Anal. Mus. Montevid.* 4, 1: 79. (1902).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Arechavaleta s.n.*, Oct–Nov, Uruguay: campos de Independencia (MVFA; IT: US-2434280).

**Illustrations (Books):** B.Rosengurtt, *Gramineas Uruguayas I* (1970) (212, Fig. 87).

**Derivation** (Clifford & Bostock 2007): in honor of Eduard Hackel (1850–1926) Bohemian-born Austrian botanist with special interest in the grasses.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 20–30 cm long. Ligule a fringe of hairs. Leaf-blades involute, 4–7 cm long, 1 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scaberulous. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or oblong, 6–10 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5 length of fertile spikelet, scabrous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 13–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 13–14 mm long, 1.1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous, rough above. Lower glume apex acuminate. Upper glume linear, 12 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 8–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 35–40 mm long limb, with twisted column. Column of lemma awn 4 mm long. Lateral lemma awns present, 35–40 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Uruguay.

**Aristida hamulosa** Henrard. *Meded. Herb. Leid.* No. 54, 219 (1926).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.W. Toumey s.n.*, 30 Sep 1892, USA: Arizona: Tucson (L-923.156–861; IT: US-664054, US-664054 (fragm. ex L)).

**Illustrations (Books):** F.W.Gould, *The Grasses of Texas* (1975) (397, Fig. 211).

**Derivation** (Clifford & Bostock 2007): *L. hamus*, hook; -ula, diminutive; -osa, abundance. Lemma base and awn with reflexed barbs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–75 cm long. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades involute, 10–30 cm long, 1–3 mm wide. Leaf-blade surface scabrous, glabrous, hairless throughout or except near base.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 10–40 cm long, with spikelets clustered towards branch tips. Primary panicle branches spreading or reflexed, 8–15 cm long. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–15 mm long, 1–1.1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 9–15 mm long, 1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 10–15 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, ascending, with 8–25 mm long limb, with a straight or slightly twisted column. Column of lemma awn 2–3 mm long. Lateral lemma awns present, spreading less than principal, 8–25 mm long, subequal to principal or shorter than principal.

**Flower and Fruit.** Anthers 3.

$2n = 44$ .

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Southwestern USA, South-central USA, Mexico. Arizona, California. New Mexico, Texas. Mesoamerica. Belize, Guatemala, Honduras.

**Aristida hassleri** Hack. *Bull. Herb. Boiss. Ser. 2*, 4: 277. (1904).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Paraguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *E. Hassler 8346*, 1901-Jan 1902, Paraguay: Amambay, in regione cursus superiores fluminis Apa (W-15599; ILT: G, K, MO, US-81038 (fragm. ex W-15599 & photo), W-15597). LT designated by Henrard, *Meded. Rijks-Herb.* 54(A): 222 (1927).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Emil Hassler (1861–1939) Swiss-born Paraguayan botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 60–90 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades curled (lower) or straight (upper), flat (lower) or convolute (upper), 12–20 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–25 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.5–0.6 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, 8.5–10(–12) mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume apex acute, mucicous or mucronate. Upper glume lanceolate, 6.5–7(–8) mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate.

**Florets.** Fertile lemma subterete, 5–6(–8) mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous (densely), rough above, with a median groove (ventral, longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn straight or flexuous (slightly), ascending or spreading, simple at base, with (16–)18–20(–25) mm long limb, with a straight or slightly twisted column. Column of lemma awn 3–3.8(–4) mm long. Lateral lemma awns present, ascending, 13–16(–23) mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Western South America, Southern South America. Bolivia. Brazil South. Paraguay.

Catarina, Rio Grande do Sul.

**Aristida havardii** Vasey. *Bull. Torrey Bot. Club.* 13: 27. (1886).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *V. Havard* 28, Oct 1883, USA: Texas: Western Texas, Ft. Davis, Marfa etc., prairie (US-81037; IT: W-15595).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (325).

**Derivation** (Clifford & Bostock 2007): in honor of Valery Havard (1846–1927) United States physician and amateur botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 15–40 cm long. Culm-internodes distally glabrous. Leaf-sheaths without keel, outer margin hairy. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades involute, 5–15 cm long, 0.5–1.5 mm wide.

**Inflorescence.** Inflorescence a panicle, deciduous as a whole. Panicle open, oblong, effuse, 6–18 cm long, 0.5 of culm length. Primary panicle branches spreading or reflexed, 3–6 cm long. Panicle branches with prominent pulvini. Spikelets spreading, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–13 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 8–13 mm long, 1.6–1.8 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 5–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 8–22 mm long limb, with a straight or slightly twisted column. Column of lemma awn 2–5 mm long. Lateral lemma awns present, 8–22 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** **Southwestern USA, South-central USA, Mexico** (as *A. barbata*). Arizona, Nevada. New Mexico, Texas. Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico. **Mesoamerica.** Guatemala.

**TDWG4.** Distrito Federal, Mexico State, Puebla. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Neuvo Leon, San Luis Potosi, Zacatecas. Veracruz. Baja California, Sonora. Jalisco.

**Aristida helicophylla** S. T. Blake. *Proc. Roy. Soc. Queensl.* 51: 171 (1940).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Queensland: Warrego District: between Charleville & Westgate, 20 Apr 1934, on red sand associated with *Eucalyptus melanophloia* & *Triodia*, S. T. Blake 5411 (HT: BRI; IT: BRI, CANB, K, MEL).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (128), J.C.Tothill.& J.B.Hacker. *The grasses of southern Queensland* (1983) (104(16)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 179, Fig.7 (1992)), *Proc.Roy.Soc.Qld.* (51:176,Pl.4 (1940)).

**Derivation** (Clifford & Bostock 2007): Gk. helix, twisted; phyllon, leaf. Old leaf-blades curled in the manner of a watch-spring.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms 70–150 cm long. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous or pubescent. Leaf-blades 10–21 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 12–32 cm long, 1.5–4 cm wide. Primary panicle branches 4–8 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile



or the upper sterile. Spikelets lanceolate, subterete, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, acute. Floret callus hairs 0.5–1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 6–8 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex emarginate, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 4–5.5 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea, scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn spreading, pseudo-articulate at base, with 17–40 mm long limb, without a column, persistent. Lateral lemma awns present, 15–38 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 3 mm long. Hilum linear, 0.2 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** North, Central, South East.

### **Aristida hintonii** Hitchcock. *N. Am. Fl.* 17: 382 (1935).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.B. Hinton* 1729, 15 Sep 1932, Mexico: Mixico: Temascaltepec Dist.: Rincsn del Carmen (US-1610353; IT: MO-1104439).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of George Bode Hinton (1882–1943) United States botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–130 cm long. Leaf-sheaths glabrous on surface or pilose. Ligule a fringe of hairs. Leaf-blades flat or involute, 25–50 cm long, 3–4 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 20–40 cm long, with spikelets clustered towards branch tips. Primary panicle branches 10–15 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–6.5 mm long, 0.5–0.75 length of upper glume, membranous, purple, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 7–8.5 mm long, 1–1.4 length of adjacent fertile lemma, membranous, purple, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex attenuate.

**Florets.** Fertile lemma linear, subterete, 5–9 mm long, coriaceous, purple, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 7–10 mm long limb, with twisted column. Column of lemma awn 5–6 mm long. Lateral lemma awns present, 1–2 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Southwest Mexico, Southeast Mexico.

**TDWG4.** Distrito Federal, Mexico State. Tamaulipas. Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca.

### **Aristida hispidula** Henrard. *Meded. Herb. Leid.* No. 58 A. 195 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Zimbabwe. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *J.M. Rattray* 16 (L holo, K, SRGH) , 14 Feb 1930, Zimbabwe: District Matopos: black land paddocks, alt. 4500 ft [1371 m] (L-931.267–26). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 721 (1933).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. hispidus*, bristly; -ula, diminutive. With minutely hispid glumes.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–70 cm long, 2–3 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades conduplicate or convolute, 4–8 cm long, 0.5–1 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 10–15 cm long, with spikelets clustered towards branch tips. Primary panicle branches appressed or spreading, distant, 1–2 -nate, 1–6 cm long. Panicle branches glandular (in axils), pubescent, pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 9–10 mm long, 1.2–1.5 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume primary vein scaberulous. Lower glume surface puberulous. Lower glume apex acuminate, mucronate. Upper glume linear, 6–8.5 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous, rough above. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 5–5.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above or in lines. Lemma margins involute, covering most of palea. Lemma apex acuminate, awned, 3 -awned. Principal lemma awn 3-branched, with 8–11 mm long limb, persistent. Lateral lemma awns present, 7–10 mm long, subequal to principal or shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa. Zimbabwe.

**Aristida hitchcockiana** Henrard. *Meded. Herb. Leid.* No. 54 A. 233 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Oaxaca: Las Sedas, anno 1894, *L. Smith 918* (HT: US-991670).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of Albert Spear Hitchcock (1865–1935), United States agrostologist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 70 cm long. Culm-internodes terete, striate, scaberulous, distally glabrous or pubescent. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades flat or convolute, 15–25 cm long, 1–3 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 25 cm long, 1 cm wide, bearing few spikelets. Primary panicle branches appressed, 1 -nate, 5–6 cm long, bearing spikelets almost to the base. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.75 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 11 mm long, 1.1 length of upper glume, membranous, light brown or purple, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acute. Upper glume lanceolate, 10 mm long, 1.4 length of adjacent fertile lemma, membranous, light brown or purple, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex erose, truncate, mucronate.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, ascending, with 16–18 mm long limb, with twisted column. Column of lemma awn 3 mm long. Lateral lemma awns present, spreading less than principal, 9–10 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Southwest Mexico.

**TDWG4.** Puebla. Guanajuato, Queretaro, Zacatecas. Jalisco, Nayarit, Oaxaca.

**Aristida holathera** Domin. *Biblioth. Bot.* 1, 5: 340 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*.

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Domin s.n.*, Dec 1910, Australia: Queensland: Cook Dist.: Hugel und Savannenwalder, bei Chillagoe (L-926.361–524 (photo, BRI, K); IT: BRI).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (323, Fig. 255 as var. *holathera*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (167, Pl. 49 as *A.browniana*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (551, Fig. 109), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (128), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(13) as *A.browniana*), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (82 & 91, Fig. 14 & 16 & var. *latifolia*), D.Sharp & B.K.Simon, *AusGrass*. *Grasses of Australia*. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.13, Pl.14 as *A.stipoides*).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 157, Fig.3 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. *Grasses of Australia*. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): Gk. holos, wholly; ather, spike or ear of wheat. Awn not disarticulating from base of lemma at maturity.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual or perennial, caespitose, clumped loosely or moderately. Culms 28–128 cm long, 2–5 -noded. Culm-internodes mid-green or glaucous, smooth or scaberulous, distally glabrous. Lateral branches lacking or sparse or ample. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate, 0.5–3 mm long. Ligule a fringe of hairs, 0.3–0.5 mm long. Collar glabrous or pubescent. Leaf-blades straight or flexuous, filiform or linear, flat or conduplicate or involute, 10–25 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 8–41 cm long, 1–10 cm wide. Primary panicle branches 2 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.8–3 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–16 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex emarginate. Upper glume lanceolate, 12–25 mm long, 1.5–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume apex acute or acuminate, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 8–13.5 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous or papillose, rough above. Lemma margins convolute, covering most of palea, without distinctive roughness. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 34–78 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 18–57 mm long. Lateral lemma awns present, 27–66 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 4.8–7.9 mm long. Hilum linear, 0.3–0.4 length of caryopsis.

**Distribution (TDWG). Continent.** Tropical Asia, Australasia.

**Country /Province /State.** Malesia. Philippines. **Australia.** New South Wales, Northern Territory, Queensland, South Australia, Victoria, Western Australia.

**TDWG4.** Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Western Slopes, Western Plains.

**Aristida hordeacea** Kunth. *Rev. Gram.* 2, 1: 173. (1831).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Senegal. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: Leprieur 2, Senegal (B; IT: P).

**Illustrations (Books):** R.M.Phill, F.T.E.A., *Gramineae* (1(1970):151, Fig. 48), G.V.Pope et al., *Flora Zambesiaca* 10, M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

**Derivation** (Clifford & Bostock 2007): L. -acea, resembling. Inflorescence as with *Hordeum*.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 10–90 cm long. Culm-internodes distally pubescent. Culm-nodes pubescent. Leaf-sheaths keeled. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 5–20 cm long, 2–5 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, continuous or interrupted, 5–15 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5–0.8 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–8 mm long, 0.8 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface glabrous or hispidulous. Lower glume apex dentate, acute, awned, 1 -awned, awn 2.5–5 mm long. Upper glume lanceolate, 6–9 mm long, 1.2–1.3 length of adjacent fertile lemma, scarious, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface glabrous or hispidulous. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 1–4 mm long.

**Florets.** Fertile lemma elliptic, subterete, 5–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous (hooked prickles), rough in lines. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 25–35 mm long limb, deciduous, abscising from top of lemma. Lateral lemma awns present, 25–35 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Burkina, Ghana, Mali, Nigeria, Senegal, Niger. Burundi, DRC. Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana.

**Aristida hubbardiana** Schweickerdt. *Notizbl. Bot. Gart. Berlin*, 14: 196 (1938).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Namibia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Dinter* 7600, Apr 1934, Namibia: Tsumeb (B).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (311, Fig. 276).

**Derivation** (Clifford & Bostock 2007): In honor of Charles Edward Hubbard (1900–1980) English agrostologist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, slender, 25–50 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or convolute, 5–10 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear or lanceolate, 3–6 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels absent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–7 mm long, 0.66–1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex awned, 1 -

awned. Upper glume lanceolate, 7 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume awned, 1 -awned.

**Florets.** Fertile lemma elliptic, subterete, 6–7 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins involute, covering most of palea. Lemma apex rostrate, awned, 3 -awned. Principal lemma awn with 20–30 mm long limb, persistent. Lateral lemma awns present, 20–30 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, lanceolate, sulcate on hilar side.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Namibia, Botswana.

**Aristida humbertii** Bourreil. *Adansonia*, n.s. 9: 421 (1969).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 150–180 cm long. Ligule a fringe of hairs.

**Inflorescence.** Inflorescence a panicle. Panicle open. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–6.75 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5–6.8 mm long, 0.75 length of upper glume, scarious, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, 6–6.75 mm long, 1.1 length of adjacent fertile lemma, scarious, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid.

**Florets.** Fertile lemma elliptic, subterete, 5.75–6 mm long, coriaceous, without keel. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 1–1.5 mm long overall.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa. Angola.

**Aristida humidicola** S.M. Phillips. *Kew Bull.*, 55(1): 203 (2000).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tanzania: Mpanda Distr.: 56 km on Uvinza-Mpanda road, 5°29'S, 30°32'E, 1600 m, 21 May 1007, *Bidgood, Sitoni, Vollesen & Whitehouse 4406* (HT: K; IT: NHT).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. humidus*, moist; *cola*, dweller. Growing on the margins of lakes.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, culms solitary. Culms slender, 11–18 cm long. Leaves mostly basal. Leaf-sheaths loose, striately veined. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades conduplicate, 2–3.5 cm long, 1 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 7–12 cm long. Primary panicle branches appressed. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8.6–9.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, winged, with this appendage 1.5 mm long, pubescent, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 8.6–9.7 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear or oblong, 7.5–7.8 mm long, 2–2.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate, mucronate.

**Florets.** Fertile lemma linear, subterete, 3 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth, villous, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 18–22 mm long limb, with twisted column, persistent. Column of lemma awn 13–14 mm long. Lateral lemma awns present, 16–18 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa. Kenya.

**Aristida hygrometrica** R. Br. *Prod.* 174. (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *R. Brown 6196*, 14 Feb 1803, Australia: Northern Territory: Darwin & Gulf Region, Arnhem North Bay (Melville Bay) (BM; ILT: BRI (fragm., photo ex BM), E, K). LT designated by Henrard, *Meded. Rijks Herb.* 54(A): 248 (1927).

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (167, Pl. 49), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1125, Fig. 324), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (104(6)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.13).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 157, Fig.3 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): Gk. hygros, water; metron, measure; -ike, belonging to. Aquatic or swamp species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms erect or geniculately ascending, 29–84 cm long. Culm-internodes smooth, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths smooth, glabrous on surface or pilose. Leaf-sheath oral hairs ciliate, 1–2 mm long. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades curled or flexuous, filiform, involute, 11–27 cm long, 0.8–1.2 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 14.4–35 cm long, 7–15 cm wide. Primary panicle branches 2-nate, 2–3.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 25–43 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 4–6 mm long, pubescent, pungent. Floret callus hairs 0.4–1.3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 13.5–23 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex emarginate or obtuse. Upper glume lanceolate, 25–42.6 mm long, 2.5–3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate, mucronate or awned, 1 -awned, awn 0.5–3.5 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8–16 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, flat below, with 85–150 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 53–85 mm long. Lateral lemma awns present, 81–140 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 2 mm long. Caryopsis with adherent pericarp, 6.6–8.5 mm long. Hilum linear, 0.33 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, Western Australia.

**TDWG4.** Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. North, Central, Inland.

**Aristida hystricula** Edgew. *Journ. Linn. Soc.* 6: 208. (1862).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Stocks 187 (partim.)*, India: Sindh and Multan (CAL?).

**Illustrations (Books):** T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982).

**Derivation** (Clifford & Bostock 2007): L. -ula, diminutive. Resembling *Hystrix* in the form of the inflorescence.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect, 5–15 cm long. Ligule a fringe of hairs. Leaf-blades curved, involute, 2–4 cm long, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 2–4 cm long, bearing few spikelets. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9.5–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.6 mm long, pilose, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5–5.5 mm long, 0.5 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 0.5–1 mm long. Upper glume lanceolate, 9.5–11 mm long, 3–4 length of adjacent fertile lemma, scarious, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 1–1.5 mm long.

**Florets.** Fertile lemma elliptic, subterete, 2.5–3.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface hispid. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 60 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 20 mm long. Lateral lemma awns present, 40 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Pakistan.

**Aristida hystrix** Nees. *Linnaea* 7: 287 (1832).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Aristida rigida* Roth, non Cav.(1799), *Nov. Pl. Sp.* 42 (1821). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Kvning s.n.*, India: habitat in Malabar (LINN; IT: M, S).

**Recent Synonyms:** *Aristida rigida* Roth, non Cav.(1799), *Nov. Pl. Sp.* 42 (1821).

**Illustrations (Books):** K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 806 & 807).

**Derivation** (Clifford & Bostock 2007): resembling *Hystrix*. Usually a reference to the inflorescence resembling that of *Hystrix*.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 60–130 cm long. Culm-nodes glabrous. Leaf-sheaths 3.5–9 cm long. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades convolute, 10–40 cm long, 2–3 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 10–20 cm long, 10–20 cm wide. Panicle branches capillary, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 4–7 mm long, smooth.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 13–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.5–3 mm long, bearded, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–9 mm long, 0.66 length of upper glume, scarious, yellow, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex awned, 1 -awned, awn 2.5–3 mm long. Upper glume lanceolate, 13–14 mm long, 1.5 length of adjacent fertile lemma, scarious, yellow, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume awned, 1 -awned, awn 1.5–2 mm long.

**Florets.** Fertile lemma elliptic, subterete, 9–10 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 50–60 mm long limb, persistent. Lateral lemma awns present, 50–60 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent, Indo-China, Malesia.** India. Myanmar. Philippines.

**TDWG4.** Kerala. Madhya Pradesh, Tamilnadu.

**Aristida inaequiglumis** Domin. *Biblioth. Bot.* 1, 5: 347 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *K. Domin s.n.*, Mar 1910, Australia: Queensland: North Kennedy Dist.: Savannenwldder bei Pentland (PR; IT: BR, L (photo, BRI)).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dasher & F.M.James, *Grasses of South Australia* (2006) (324, Fig. 256), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (167, Pl. 49), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1125, Fig. 324), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(33)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 168, Fig.5 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): *L. inaequalis*, unequal; gluma, husk. Glumes differing in length and/or shape.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms 32–155 cm long, 1-noded. Culm-internodes glaucous, smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths longer than adjacent culm internode, smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs pubescent, 0.3–1.1 mm long. Ligule a fringe of hairs, 1 mm long. Collar glabrous. Leaf-blades curled, 15–30 cm long, 2.3–4.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, equilateral or nodding, 13–40 cm long, 1.5–4 cm wide. Primary panicle branches appressed, 4-nate, 4–8 cm long, bearing spikelets almost to the base. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–18.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.9–1.5 mm long, pubescent, acute.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–18.5 mm long, 1.4 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex emarginate, mucronate. Upper glume lanceolate, 6.4–13 mm long, 1.4–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume apex emarginate, mucronate, 1-awned.

**Florets.** Fertile lemma lanceolate, subterete, 3.7–9 mm long, coriaceous, pallid or light brown, without keel, 3-veined, 0–3-veined. Lemma surface smooth or scaberulous, rough above. Lemma margins involute, covering most of palea, without distinctive roughness or tuberculate (along groove). Lemma apex acute, awned, 3-awned. Principal lemma awn pseudo-articulate at base, with 14–46 mm long limb, without a column, persistent. Lateral lemma awns present, 11–40 mm long, subequal to principal or shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 3.1–7 mm long. Hilum linear, 0.4–0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, South Australia, Western Australia.

**TDWG4.** Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre. North, Central, Inland.

**Aristida ingrata** Domin. *Biblioth. Bot.* 1, 5: 346 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K. Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: bei Barcaldine (PR; IT: BRI, L).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(15)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 179, Fig.7 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. disagreeable*. The sharp callus enables the spikelets to catch on to clothing.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.



**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms 41–155 cm long. Culm-internodes smooth, distally glabrous. Culm-nodes glabrous. Lateral branches ample. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate, 4 mm long. Ligule a fringe of hairs, 0.5–1 mm long. Collar pubescent. Leaf-blades curled, 10–23 cm long, 3–4 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 11–42 cm long, 1.5–4 cm wide. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–14 mm long, 1–1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 6–12 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex emarginate or acute or acuminate, muticous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 4–8 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface papillose. Lemma margins involute, covering most of palea, without distinctive roughness. Lemma apex acute, awned, 3 -awned. Principal lemma awn pseudo-articulate at base, triquetrous below, with 10–30 mm long limb, without a column, persistent. Lateral lemma awns present, 8–28 mm long, subequal to principal or shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, Western Australia.

**TDWG4.** Kimberley, Darwin & Gulf, Victoria R & Barkly Tableland. North, Central, Inland.

**Aristida inversa** Hackel apud R. E. Fries. *Arkiv Bot. Stockh.* 8: No. 8, 37 (1909).

Regarded by K as a synonym (*A. mendocina*).

**TYPE** from Bolivia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R.E. Fries 1589*, 17 Apr 1902, Bolivia: Gran Chaco, Fortin Crevaux ad Rmo Pilcomayo, in campo siccis apricis (W-15583; IT: US-1162487, US-72632 (fragm. ex W)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. inverto, turn upside down. Contrary to expectation, the lower glume is larger than the upper glume.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Culms erect or geniculately ascending, 70–110 cm long. Culm-nodes swollen. Lateral branches lacking or sparse, arising from lower culm. Leaf-sheaths tight, mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Collar glabrous. Leaf-blades conduplicate, 15–30 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins cartilaginous, scaberulous. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or oblong, 20–30 cm long, 1 cm wide, contracted about primary branches. Primary panicle branches appressed, 2 -nate, 4–8 cm long. Panicle axis smooth. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 12 mm long, 3–4 length of upper glume, membranous, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned. Upper glume lanceolate, 3–4 mm long, 0.5 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma linear, subterete, 7–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned.

Principal lemma awn with 30 mm long limb. Lateral lemma awns present, 30 mm long, subequal to principal. Palea oblong, 1.5–2 mm long, 0.2–0.25 length of lemma, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, 1.75 mm long. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia. Argentina Northeast.

**TDWG4.** Buenos Aires.

**Aristida jacobiana** B.K.Simon & I.D.Cowie. *Telopea* 13: 150 (2010).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Northern Territory: Nitmiluk National Park, 20 km N of Edith Falls: C.R. *Michell 3717*; holo: DNA; iso: BRI, CANB, NSW.

**Illustrations (Journals):** *Telopea* (13: 151, Fig 1 (2011)).

**Derivation** (Clifford & Bostock 2007): named for Surrey Jacobs (1946–2009), Senior Principal Research Scientist at the National Herbarium of New South Wales (NSW).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 20–60 cm long, 4–6 -noded. Culm-internodes smooth, distally glabrous. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface. Leaf-sheath oral hairs ciliate, 1–2 mm long. Ligule a fringe of hairs, 0.2 mm long. Collar pilose. Leaf-blades filiform or linear, flat or conduplicate or involute or convolute, 5–12 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough abaxially, glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, continuous or interrupted, 5–20 cm long, 0.5–2 cm wide. Primary panicle branches appressed, 2 -nate, 1–2.5 cm long. Panicle branches scaberulous or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5–1 mm long, pubescent, acute. Floret callus hairs 0.1–0.3 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–6.5 mm long, 0.5–0.6 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute or acuminate, mucronate, awn 1–2 mm long. Upper glume lanceolate, 6–11 mm long, 1.1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate, mucronate, awn 0.5–1.5 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 5.5–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 9–18 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 1.5–2 mm long. Lateral lemma awns present, spreading as much as principal, 9–185 mm long, subequal to principal.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland. Darwin & Gulf. North.

**Aristida jaliscana** R. Guzman M. & Jaramillo. *Phytologia* 51(7): 470 (1982).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Jalisco: Mun. de Chimaltitan: cerca del arroyo de Los Sabinos y cerro El Muerto, entre San Juan de Potreritos y Atolinga, en bosque de pino y encino 26 Sep 1981, J. J. *Muñoz* & F. J. *Avila M. s.n.* (HT: IBUG).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -anum, indicating location. From Jalisco, Mexico.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–100 cm long. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, glabrous on surface or pilose. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades involute, 14–30 cm long, 3 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 20–30 cm long, 1 cm wide. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident.

**Glumes.** Glumes shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 9–11 mm long, 1 length of upper glume, membranous, 1-keeled. Lower glume primary vein scaberulous. Lower glume surface pilose. Lower glume apex dentate, 2 -fid, awned, 1 -awned. Upper glume lanceolate, 9–11 mm long, 0.75 length of adjacent fertile lemma, membranous. Upper glume primary vein scaberulous. Upper glume surface pilose. Upper glume apex dentate, 2 -fid, awned, 1 -awned.

**Florets.** Fertile lemma linear, subterete, 11–14 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 9–15 mm long limb, with twisted column. Column of lemma awn 2.5–5 mm long. Lateral lemma awns present, spreading as much as principal, shorter than principal.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Northeast Mexico, Southwest Mexico.

**TDWG4.** Guanajuato. Jalisco.

### **Aristida jaucaensis** Cataszs. *Novosti Sist. Vyssh. Rast.* 21: 22. 1984.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Guantanamo: Paladores del Jauco, sobre laderas roso-siliceas, 10 Feb 1978, L. Cataszs 1388 (HT: HAC).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Pedaleros del Jauco, Cuba.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

### **Aristida jerichoensis** (Domin) Henrard. *Meded. Herb. Leid.* No. 54 A. 270 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Aristida ingrata* var. *jerichoensis* Domin, *Biblioth. Bot.* 85(2): 346 (1915). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: K. Domin s.n., Mar 1910, Australia: Queensland: Mitchell Dist.: Dividing Range bei Jericho (PR; IT: BRI, L (photo, BRI)).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (325, Fig. 257), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (129), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(4)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 176, Fig.6 (1992)).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Jericho, Queensland, Australia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 30–60 cm long. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous or pubescent. Leaf-blades flexuous, involute, 16–18 cm long, 2 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 4–15 cm long, 1–2 cm wide. Primary panicle branches 1–3.5 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–9 mm long, 1 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate,

muticous or mucronate. Upper glume lanceolate, 5–9 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume surface smooth to scabrous. Upper glume apex emarginate or obtuse, muticous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 4–7 mm long, coriaceous, pallid or light brown or purple, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea, without distinctive roughness or scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn flat below, with 12–24 mm long limb, without a column, persistent. Lateral lemma awns present, 10–21 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 3.5–4.5 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** New South Wales, Northern Territory, Queensland, South Australia. **TDWG4.**

### **Aristida jorullensis** Kunth. *Rev. Gram.* 1: 62. (1829).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Bonpland s.n.*, Sep, Mexico: Playas de Jorullo (P; IT: US-77249 (fragm. & photo)).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (54, Fig. 13).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From the "Players der Jorulla", Mexico.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped densely. Culms 10–60 cm long, 1–8 -noded. Culm-internodes solid, distally glabrous. Culm-nodes glabrous. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.1–0.2 mm long. Leaf-blades conduplicate or involute, 4–20 cm long, 1–1.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough adaxially, pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle 7–15 cm long. Panicle open, elliptic, 6–20 cm long. Primary panicle branches 1 -nate, 1–4 cm long, bearing spikelets almost to the base. Panicle axis pilose. Panicle branches pilose. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 5–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute. Floret callus hairs 1 mm long.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume linear, 4.5–9 mm long, 0.9–1.1 length of upper glume, membranous, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume linear, 5–8.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1–3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent or distinct. Upper glume apex acute.

**Florets.** Fertile lemma linear, laterally compressed, 4–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above or in lines. Lemma margins convolute, covering most of palea. Lemma apex attenuate, awned, 1 -awned. Principal lemma awn flexuous, 10–16 mm long overall, with 10–16 mm long limb, without a column. Lateral lemma awns absent. Palea 1–1.5 mm long.

**Flower and Fruit.** Anthers 3, 1.1–1.7 mm long.

$2n = 22$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** **Mexico.** Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America.** Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Venezuela. Colombia.

**TDWG4.** Veracruz. Sinaloa, Sonora. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo.

### **Aristida jubata** (Arech.) Herter. *Rev. Sudamer. Bot.* 9: 98 (1953).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. **Basionym or Replaced Name:** *Aristida pallens* f. *jubata* Arech., *An. Mus. Nac. Montevideo* 4:74 (1902). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Arechavaleta s.n.*, Uruguay: campo de Tacuarembos, en terrenos arenosos (MVM; IT: W-15517).

**Illustrations (Books):** A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (213, Fig. 77), B.Rosengurt, *Gramineas Uruguayas I* (1970).

**Derivation** (Clifford & Bostock 2007): *L. jubum*, mane; -ata, possessing. The inflorescence or awn resembles a fox tail.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 40–80 cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades straight, convolute, 25–30 cm long, 0.5–1 mm wide. Leaf-blade surface scabrous, rough on both sides, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open (patent), 20–40 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1 mm long, pilose, acute.

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 20–35 mm long, 3 -veined. Lower glume primary vein scabrous. Lower glume surface asperulous, rough generally. Lower glume apex acuminate. Upper glume lanceolate, 35–50 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acuminate, awned.

**Florets.** Fertile lemma subterete, (11–)14–16 mm long, without keel, rounded except near apex, 3 -veined, 0–3 -veined. Lemma surface scabrous or smooth (less frequent), rough above, without grooves. Lemma margins convolute. Lemma apex with outer margin prolonged as a hyaline appendage, with this appendage 1–1.5 mm long, awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with (125–)150–230 mm long limb, without a column. Lateral lemma awns present, ascending, (125–)150–230 mm long, subequal to principal.

**Distribution (TDWG), Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil West Central, Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Buenos Aires, Chaco, Corrientes, Entre Rios, Misiones.

***Aristida junciformis*** Trin. & Rupr. *Mem. Acad. Petersb. Ser. 6, 7:* 143. (1842).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. **Basionym or Replaced Name:** *Aristida textilis* Mez, Fedde, *Repert.* 17: 149 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Drhge s.n.*, South Africa: without specific locality (LE-TRIN).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (309 & 312, Fig. 274 & 278 & as *A. galpinii*).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. forma*, appearance. Resembling *Juncus* mostly in habit.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Roots simple (spongy). Rhizomes absent or short. Culms 20–60 cm long. Culm-internodes elliptical in section (below nodes), distally glabrous. Leaf-sheath oral hairs lacking or bearded. Ligule a fringe of hairs. Leaf-blades straight or curled, involute, 10–30 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous or pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, interrupted, dense, 5–20 cm long, contracted about primary branches. Panicle branches glabrous in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3–0.5 mm long, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, 0.6–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate, mucous or mucronate or awned, 1 -awned, awn 0–2 mm long. Upper glume lanceolate, 6–9 mm long, 1.2–1.5 length of adjacent fertile lemma,

membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucinous or mucronate or awned, 1 -awned, awn 0–2 mm long.

**Florets.** Fertile lemma elliptic, subterete, 5–6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 8–23 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 1–3(–6) mm long. Lateral lemma awns present, 7–17 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

$2n = 24$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean. Nigeria. DRC. Kenya, Tanzania. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Western Cape, Eastern Cape. Madagascar.

**Aristida kelleri** Hack. *Mem. Herb. Boiss.* no. 20. 10. (1900).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Keller 163, 1891, Somalia: Ogaden (Z; US-81220 (fragm. ex W), W-15572).

**Illustrations (Books):** R.M.Phill, F.T.E.A., *Gramineae* (1(1970):154, Fig. 49), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (83, Fig. 34), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (164, Fig. 81).

**Derivation** (Clifford & Bostock 2007): in honor of A. Keller (1873–1945) Swiss botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 15–30 cm long, wiry. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 4–20 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, oblong, 3–4 cm long. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5–1 mm long, pilose, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex lobed, 2 -fid, mucronate. Upper glume lanceolate, 9–12 mm long, 3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex lobed, 2 -fid, awned, 1 -awned, awn 3–4 mm long.

**Florets.** Fertile lemma elliptic, subterete, 3–3.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 30–60 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 7–20 mm long. Lateral lemma awns present, 15–30 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea), Somalia. Kenya.

**Aristida kenyensis** Henrard. *Meded. Herb. Leid.* No. 54 C. Suppl., 722. (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Kenya. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 24829, 14 Sep 1929, Kenya: Nairobi to Kisumu, grass plots Scott Laboratory (L-932.28–88; IT: US-1446300).

**Illustrations (Books):** R.M.Phill, F.T.E.A., *Gramineae* (1(1970):149, Fig. 47), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Kenya.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 15–90 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 5–15 cm long, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 5–20 cm long, with spikelets clustered towards branch tips. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.2 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5–8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–8 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, laterally compressed, 5–9 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 6–15 mm long limb, persistent. Lateral lemma awns present, 6–15 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Eritrea, Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda.

**Aristida kerstingii** Pilger. *Engl. Jahrb.* 4: 127. (1904).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Togo. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Kersting 541*, Sep 1902, Westafrika: Togo: Sokodo-Basari, bei Koukomba in einzeln Bueschen (B (destroyed)). LT designated (as type) by Henrard, *Meded. Rijks-Herb.* 54(A): 277 (1927). ST: *Flegel s.n.*, Benue.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Otto Kersting (-) German botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 30–90 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades filiform, involute, 10–20 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 10–20 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2 mm long, pubescent, with longer hairs above, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 15–20 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acuminate, awned, 1 -awned, awn 12–15 mm long. Upper glume linear, 20–30 mm long, 5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 5–6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 45–110 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 30–70 mm long. Lateral lemma awns present, 25–95 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

$N = 22$  (1 ref TROPICOS).  $2n = 22$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa. Burkina, Ghana, Guinea, Ivory Coast, Nigeria, Senegal, Togo. Cameroon.

**Aristida kimberleyensis** B.K. Simon. *Austrobaileya* 2(1): 91 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Western Australia: Cardner District: Carson Escarpment, 29 km ENE of Doongan, 23 March 1978, *M. Lazarides 8660* (HT: CANB-283118; IT: BRI).

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 204, Fig.12 (1992)).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From the Kimberley Region of north-western Australia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms rambling, 50–100 cm long, 6-noded. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades 10–20 cm long, 2 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 20–40 cm long, 1–2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 12–15 mm long, 1.1–1.2 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 10–14 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 9–14 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 20–25 mm long limb, without a column, persistent. Lateral lemma awns present, 18–23 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** Kimberley.

**Aristida kunthiana** Trin. & Rupr. *Mem. Acad. Petersb. Ser. 6, 5* :151 (1842).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Senegal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: prope Richard-Tol., *Lelivre s.n.* (HT: B (herb. Kunth)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of Karl Sigismund Kunth (1788–1850), German botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Butt sheaths glabrous. Culms 30–45 cm long. Culm-internodes distally glabrous. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades flat or convolute, 5–20 cm long, 2–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 10–15 cm long. Primary panicle branches simple, 3–10 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.75 mm long, pilose, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, acuminate, awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 5–8 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent.



**Florets.** Fertile lemma elliptic, subterete, 5–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough in lines. Lemma margins involute, covering most of palea. Lemma apex acuminate, awned, 3 -awned. Principal lemma awn 3-branched, with 15–25 mm long limb, without a column, deciduous, abscissing from top of lemma. Lateral lemma awns present, 10–20 mm long, subequal to principal or shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa. Mali, Senegal.

**Aristida laevigata** Hitchcock & Ekman. *N. Am. Fl.* 17: 390 (1935).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *E.L. Ekman 15170*, 21 Sep 1922, Cuba: Prov. Oriente: Sierra de Nipe, pinelands at the headwaters of the Rmo Piloto, alt. 750 m (US-125006; IT: LE, NY-70999).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. smooth and polished. Plant generally glabrous.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–100 cm long. Culm-internodes distally glabrous. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades curved or flexuous, involute, 10–20 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 20–30 cm long, contracted about primary branches. Primary panicle branches ascending, 1 -nate, 7–15 cm long. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes dissimilar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume linear, 12 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous, rough above. Lower glume apex acuminate. Upper glume linear, 12 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous, rough above. Upper glume apex dentate, 2 -fid, acute, mucronate.

**Florets.** Fertile lemma linear, subterete, 12–14 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading or reflexed, with 12–20 mm long limb. Lateral lemma awns present, spreading less than principal, 2–5 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Aristida laevis** (Nees) Kunth. *Enum. Pl.* 1: 192 (1830).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Chaetaria laevis* Nees, *Agrost. Bras.* 2: 384 (1829). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Sello s.n.*, s.d., Brazil: South Brazil (B; IT: K, LE-TRIN-1300.01 (Hb. Chamisso no d.1638), LE-TRIN-1300.02 (ex hb. de Schlechtendal 1827), LE-TRIN-1300.03, US-865704 (fragm. ex LE & photo), W).

**Recent Synonyms:** *Aristida altissima* Arech., *Anal. Mus. Montevid.* 4: 50: 80 (1902).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (507 & 533, Fig. 108 & 115), B.Rosengurt, *Gramineas Uruguayas I* (1970).

**Derivation** (Clifford & Bostock 2007): *L. laevis*, smooth. Lacking hairs or roughness, usually of leaf-blades or lemmas.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 40–130 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking or scanty (deciduous). Ligule a ciliolate membrane, 0.2 mm long. Collar pubescent

(continuous). Leaf-blades straight, flat or conduplicate (less frequent), (8–)15–60 cm long, 1.7–3.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (linear), 10–30 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.7–1 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, (8–)10–15 mm long, 1 -veined. Lower glume primary vein scaberulous. Lower glume surface asperulous, rough generally. Lower glume apex setaceously acuminate. Upper glume lanceolate, (10–)15–20 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate, awned.

**Florets.** Fertile lemma subterete, 10–14 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with (23–)25–40(–46) mm long limb, without a column. Lateral lemma awns present, ascending, (23–)25–40(–46) mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America, Brazil, Southern South America.** Bolivia. Brazil West Central, Brazil Southeast, Brazil South. Argentina Northwest, Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Sao Paulo Parana, Catarina, Rio Grande do Sul. Jujuy, Salta. Buenos Aires, Chaco, Cordoba, Entre Rios, Misiones, Santa Fe.

**Aristida lanigera** H.M. Longhi-Wagner. *Kew Bull.* 49(4): 819 (1994).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Goiás: between Mineiros and Jatai, 28 Apr 1990, *Filgueiras 2323* (HT: ICN; IT: IBGE, K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. lana, wool; gero, bear. Glumes invested with long hairs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 85–95 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking. Ligule a ciliolate membrane, 0.3–0.5 mm long. Collar glabrous. Leaf-blades curled (lower) or straight (upper), flat (lower) or convolute (upper), 40–60 cm long, 2.8–5 mm wide. Leaf-blade surface woolly, hairless throughout, densely hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (or subcontracted), 15–29 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.5 mm long, pilose, obtuse (subobtuse).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, (3.5–)5–5.5 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume apex acute, mucous. Upper glume lanceolate, 6–6.8 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex dentate, 2 -fid.

**Florets.** Fertile lemma subterete, 8–8.5 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 11–18 mm long limb, without a column. Lateral lemma awns present, ascending, 9–16 mm long, slightly shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central.

**Aristida lanosa** Muhl. *Cat. Pl.* :14 (1813).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Carolina (CHARL).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (339).

**Derivation** (Clifford & Bostock 2007): L. lana, wool; -osa, abundance. Leaf-sheath woolly.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Butt sheaths woolly. Culms 70–150 cm long. Lateral branches lacking. Leaf-sheaths without keel, woolly. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades filiform, flat or involute, 20–50 cm long, 1–3 mm wide. Leaf-blade surface scabrous, glabrous or hispid, sparsely hairy.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 15–40 cm long, 2–8 cm wide. Primary panicle branches appressed or ascending, 6–15 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 12–14 mm long, 1.2–1.5 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth or scabrous. Lower glume apex setaceously acuminate. Upper glume lanceolate, 10 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth or scabrous. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 8–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading or reflexed, with 15–25 mm long limb, without a column. Lateral lemma awns present, spreading less than principal, 10–15 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** North-central USA, South-central USA, Southeastern USA. Oklahoma, Texas, Alabama, Arkansas, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia.

**Aristida latifolia** Domin. *Biblioth. Bot.* 1, 5: 339 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: K. Domin *s.n.*, Mar 1910, Australia: Queensland: Hughenden (L (2 sheets), PR). ST: *Domin s.n.*, Feb 1910, Australia: Queensland: Savannenwdder am Walsh River nordlich von Chillagoe ST: *Domin s.n.*, Feb 1910, Australia: Queensland: Grasfldchen der Roling Downs bei Winton.

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (325, Fig. 258), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (167, Pl. 49), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1125, Fig. 324), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (129), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (104(12)), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (101, Fig. 18), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.13).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 188, Fig.9 (1992).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. latus, broad; folium, leaf. Leaf-blades broad or relatively broad with respect to related species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms 20–131 cm long, 2 -noded. Culm-internodes smooth, distally glabrous. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking or bearded, 0–6 mm long. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades curled, 35–70 cm long, 2–4.5 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 8–69 cm long, 3–3.5 cm wide. Primary panicle branches 5–10 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5–1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–13 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -

veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0.4 mm long. Upper glume lanceolate, 8–17 mm long, 1–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous or scabrous. Upper glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–4 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8–11 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 17–50 mm long limb, with a straight or slightly twisted column or with twisted column, persistent. Column of lemma awn 1–9 mm long. Lateral lemma awns present, 15–45 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 5–7.5 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** New South Wales, Northern Territory, Queensland, South Australia, Western Australia.

**TDWG4.** Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Western Plains.

**Aristida latzii** B.K. Simon. *Austrobaileya* 2(1): 91 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Northern Territory: Central Northern: Mt. Riddoch, 13 Sep 1973, P. K. Latz4163B (HT: BRI-238482; IT: AD, CANB, NT).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (96, Fig. 17), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): in honor of Peter Kenneth Latz (1941-) Australian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 45–90 cm long. Culm-internodes scaberulous, distally glabrous. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, scaberulous. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades filiform, involute, 10–20 cm long, 1 mm wide, stiff.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–37 cm long, 1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4 mm long, pubescent, acute. Floret callus hairs 1.2 mm long.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–9 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 7–10 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn flat below, with 6–15 mm long limb, without a column, persistent. Lateral lemma awns present, 6–15 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Northern Territory.

**TDWG4.** Central Australia.

**Aristida laxa** Cav. *Icon*. 5: 44–45, t. 470, f. 1. (1799).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South America. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *D.L. Nee s.n.*, South America (M; IT: MEXU (ex M & photo), P). Habitat prope Montevideo, et in inuslis

Philippicis. [error; probably from N.W. South America, coll by Nee], for a discussion of typification see Henrard, *Meded. Rijks-Herb.* 54: 291 (1926).

**Illustrations (Books):** G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 45, Fig. 8 (1997)).

**Illustrations (Journals):** *Darwiniana* (41: 173, fig.7 (2003) as var. *longiramea*).

**Derivation** (Clifford & Bostock 2007): L. loose. Inflorescence much branched either as a single panicle or from branching of the culms.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with curly dead sheaths. Culms 50–100 cm long, 1–1.5 mm diam. Culm-internodes solid, distally glabrous. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths keeled, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades involute, 15–30 cm long, 1–2.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough abaxially, glabrous, hairless except near base.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 25–45 cm long. Primary panicle branches ascending, 1-nate, 4–8 cm long. Panicle axis scaberulous. Panicle branches scaberulous. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute. Floret callus hairs 1–1.5 mm long.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 9.5–11.5 mm long, 0.9 length of upper glume, membranous. Lower glume surface scabrous. Lower glume apex acute. Upper glume linear, 10–12 mm long, 1 length of adjacent fertile lemma, membranous. Upper glume surface smooth. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 10–12 mm long, coriaceous, without keel, 3-veined, 0–3-veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3-awned. Principal lemma awn 3-branched, spreading, with 24–30 mm long limb, with a straight or slightly twisted column. Column of lemma awn 5–9 mm long. Lateral lemma awns present, shorter than principal.

**Flower and Fruit.** Anthers 3, 1.6 mm long.

$2n = 44$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico, Mexico. Mesoamerica, Northern South America, Western South America, Southern South America. Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Venezuela. Colombia, Ecuador. Argentina Northeast.

**TDWG4.** Jujuy, Salta. Distrito Federal, Mexico State, Morelos, Puebla. Chihuahua, Durango, Guanajuato, Hidalgo, San Luis Potosi, Zacatecas. Sinaloa, Sonora. Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca.

**Aristida lazaridis** B.K. Simon. *Austrobaileya* 2(1): 92 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Gregory North District: 20 miles (32 km) NNW of Duchess, 17 Aug. 1954, *M. Lazarides* 4807 (HT: BRI-178996; IT: AD, CANB, MEL, NSW, NT, PERTH).

**Illustrations (Books):** T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (153, Fig. 23), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (96, Fig. 17), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 182, Fig.8 (1992)).

**Derivation** (Clifford & Bostock 2007): in honor of Mike Lazarides (1928-) Australian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 40–140 cm long, 3–5-noded. Culm-internodes glaucous, smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate, 0.5 mm long. Ligule a fringe of hairs, 0.3 mm long. Collar glabrous or pubescent. Leaf-blades curled, involute, 10–20 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 10–45 cm long, 5–20 cm wide. Primary panicle branches 4–8 cm long. Panicle branches scaberulous or scabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets lanceolate, subterete, 9–19 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.6 mm long, pilose, acute. Floret callus hairs 2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–19 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 8–19 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 4–5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea, without distinctive roughness. Lemma apex acute, awned, 3 -awned. Principal lemma awn curved, flat below, with 13–37 mm long limb, without a column, persistent. Lateral lemma awns present, 10–31 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 5–8.5 mm long. Hilum linear, 0.4 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, Western Australia.

**TDWG4.** Kimberley, Eremean. Darwin & Gulf. North, Central, South East, Inland.

### ***Aristida leichhardtiana*** Domin. Fedde, *Repert.* 9: 551 (1911).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Leichhardt s.n.*, 10 Jan 1847, Australia: Queensland: Port Curtis District: Dry-beef Creek (K (photo, BRI); IT: BRI (fragm.), L, MEL).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (129), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(23)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 204, Fig.12 (1992)).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Friedrich Wilhelm Ludwig Leichhardt (1813–1848) German-born physician and Australian explorer.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms slender, 25–45 cm long. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate, 2–3 mm long. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous. Leaf-blades involute, 6–12 cm long, 1–1.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 5–8 cm long, 3–6 cm wide. Primary panicle branches 1–2.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5–12 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth to scabrous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 4.5–12 mm long, 0.5–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 9–10.5 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea, scaberulous. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 12.5–25 mm long limb, without a column, persistent. Lateral lemma awns present, 11–23 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 6.5 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Queensland.

**TDWG4.** South East. Western Slopes, Western Plains.

**Aristida leptopoda** Benth. *Fl. Austral.* 7: 562. (1855).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Leichardt s.n.*, Australia: New South Wales: Central Coast, Liverpool Plains (K). LT designated by Simon, *Austr. Syst. Bot.* 5: 206 (1992).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (129), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (104(21)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.14).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 207, Fig.13 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): Gk. leptos, slender; pous, foot. Pedicel slender.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–65 cm long, 1–3 -noded. Culm-internodes smooth, distally glabrous. Lateral branches fastigiate. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous or pubescent. Leaf-blades involute, 15–30 cm long, 3.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 14–25 cm long, 12–23 cm wide. Primary panicle branches 4–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–22 mm long, 1 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or obscure. Lower glume apex acute or acuminate. Upper glume lanceolate, 9–22 mm long, 0.75–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent or obscure. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 12–17 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn curved, with 23–30 mm long limb, without a column, persistent. Lateral lemma awns present, 19–25 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, 10.5 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Queensland.

**TDWG4.** North, Central, South East, Inland. Western Slopes, Western Plains.

**Aristida leptura** T.A. Cope. *Kew Bull.* 47(2): 277 (1992).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Jubbada Hoose, 14 km from Badade Village on the Kismayu to Kolbio rd., 19 Oct 1982, *Rose Innes 762* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. leptos, slender; oura, tail. Awns filiform.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 25–55 cm long. Ligule a fringe of hairs. Leaf-blades involute, 6–20 cm long, 1 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 7–14 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.5–3 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 20 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins

absent. Lower glume apex attenuate, awned, 1 -awned, awn 10 mm long. Upper glume linear, 20 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex attenuate, awned, 1 -awned, awn 10 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 60–65 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 30 mm long. Lateral lemma awns present, 60–65 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Somalia.

### **Aristida leucophaea** Henrard. *Meded. Herb. Leid.* No. 54 A. 298 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Zimbabwe. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Salisbury, 1440 m.s.m., Maio 1920, *F. Eyles* 2238 (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. leukos, white; phaeos, grey. Panicles pale-colored.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–90 cm long. Culm-internodes distally woolly. Leaf-sheaths glabrous on surface or pilose. Ligule a fringe of hairs. Leaf-blades curled, 10–20 cm long, 1.5–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, interrupted, 5–15 cm long, contracted about primary branches. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3 mm long, bearded, truncate.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–8 mm long, 0.9–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute, mucicous or mucronate or awned, 1 -awned, awn 0–1.1 mm long. Upper glume lanceolate, 5–8 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucicous or mucronate.

**Florets.** Fertile lemma elliptic, subterete, 5–6.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 8–17 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn (0.5–)1.5–2.5(–5.5) mm long. Lateral lemma awns present, 7–13 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa. Tanzania. Angola, Mozambique, Zambia, Zimbabwe.

### **Aristida liebmannii** Fourn. *Mex. Gram.* :78 (1886).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Liebmann* 662, Apr 1842, Mexico: Veracruz: Mirador (C; IT: MO, US-207485, US-991666 (fragm. ex LE), US-1389797).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Frederik Michael Leibmann (1813–56), Danish botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long. Leaves mostly basal, distichous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat, 1–2 mm wide. Leaf-blade surface puberulous, hairy adaxially.



**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 6–15 cm long. Primary panicle branches ascending, bearing spikelets almost to the base. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 8–9 mm long, 1.1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 8–9 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 8–9 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, with 20 mm long limb. Lateral lemma awns present, spreading as much as principal, 20 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica.** Guatemala, Honduras.

Veracruz. Oaxaca. Chiapas.

**Aristida lignosa** B.K. Simon. *Austrobaileya* 2(1): 92 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Queensland: South Kennedy District: Hazelwood Creek, W. of Eungella Dam, 9 April 1978, *Simon 3339* (HT: BRI-264061; IT: CANB, K).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (130), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (155, Fig. 24), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (96, Fig. 17), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 204, Fig.12 (1992)).

**Derivation** (Clifford & Bostock 2007): L. lignum; wood; -osa, abundance. Culms woody.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 100–200 cm long, 3–4 -noded. Culm-internodes smooth, distally glabrous. Lateral branches ample. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades 15–30 cm long, 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear or lanceolate, 7–30 cm long, 0.5–5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pilose, acute. Floret callus hairs 1.5 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–8 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 7–10 mm long, 0.9–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous or scabrous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6–11 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough generally. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 14–23 mm long limb, without a column, persistent. Lateral lemma awns present, 11–20 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** New South Wales, Queensland.

**TDWG4.** North, Central, South East, Inland. Coast, Tablelands.

**Aristida lisowskii** T. Richel. *Bull. Soc. Roy. Bot. Belg.*, 117(2): 317 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from DRC. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Zaire, Lualaba: *Lisowski 98700* (POZG holo, BR).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honour of Stanislaw Lisowski (1924–2002) Polish botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 10–20 cm long, 1–2 -noded. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades convolute, 2–5 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10 cm long. Panicle branches capillary, flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 30–50 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, bearded, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–12 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 8–12 mm long, 3–3.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, subterete, 2.5–3.5 mm long, coriaceous, without keel. Lemma surface puberulous, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 18–25 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 17–22 mm long. Lateral lemma awns present, 18–25 mm long, subequal to principal.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa. DRC.

**Aristida longespica** Poir. *Encyc. Suppl.* 1: 452. (1810).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.A.G. Bosc s.n.*, no date, USA: Carolina (P; IT: C, US-2947176 (fragm. ex P)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (331 as var. *longespica* & *geniculata*), F.W.Gould, *The Grasses of Texas* (1975) (393, Fig. 208 & 394, Fig. 209 as var. *longespica* & *geniculata*).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; *spica*, thorn. With long spikelets or inflorescence branches.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Butt sheaths glabrous or pilose. Culms geniculately ascending, 20–60 cm long, wiry. Lateral branches sparse. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades filiform, flat or involute, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 10–35 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.2 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–9 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 3–9 mm long, 0.75–1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex entire or dentate, 3 -fid, acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 4–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn reflexed, with 6–36 mm long limb, without a column. Lateral lemma awns present, spreading as much as principal, 2–25 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Temperate Asia, North America.

**Country /Province /State.** **Eastern Asia.** Japan. Japan Honshu. **Eastern Canada, North-central USA, Northeast USA, South-central USA, Southeastern USA.** Ontario. Illinois, Iowa, Kansas, Missouri, North Dakota, Nebraska, Oklahoma, South Dakota, Wisconsin. New Jersey, New York. New Mexico, Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia.

**Aristida longicollis** (Domin) Henrard. *Meded. Herb. Leid.* No. 54:14 (1926).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Aristida adscensionis* var. *longicollis* Domin, *Biblioth. Bot.* 85(2): 343, t. 15, f. 5–8 (1915). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K. Domin s.n.*, Feb 1910, Australia: Queensland: Burke Dist.: drre Hgel bei Cloncurry (L (photo, BRI); IT: BRI, L).

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(25)), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.15 as *A.adscensionis* var. *longicollis*).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 209, Fig.14 (1992).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; collum, neck. Column of awn long.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–80 cm long, 3 -noded. Culm-internodes glaucous, scaberulous, distally glabrous. Lateral branches ample. Leaf-sheaths striately veined, scaberulous, glabrous on surface. Leaf-sheath oral hairs pubescent or ciliate. Ligule a fringe of hairs, 0.5–1 mm long. Collar pilose. Leaf-blades involute, 9–18 cm long, 2–3 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, elliptic, 9.5–20 cm long, 3–6 cm wide. Primary panicle branches 0.5–1.7 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.8 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–11 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acuminate to setaceously acuminate. Upper glume lanceolate, 7–13 mm long, 1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate to setaceously acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5–9.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 15–25 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 1–5 mm long. Lateral lemma awns present, spreading as much as principal, 15–25 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 4–6.5 mm long. Hilum linear, 0.25 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** Northern Territory, Queensland.

**TDWG4.** Central Australia. North, Central, Inland.

**Aristida longiseta** Steud. *Syn. Pl. Gram.* 420. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Fendler* 978, 1847, USA: New Mexico: probably Santa Fe Co.: Santa Fe (P; IT: F, MO, PH, US-81210). For locality information, see Allred, Great Basin Naturalist 50: 74 (1990).

**Illustrations (Books):** K.F.Best, et al, *Prairie Grasses* (1971) (63), F.W.Gould, *The Grasses of Texas* (1975) (404, Fig. 215), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:19(1980)).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; seta, bristle. Glumes or lemmas long awned.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–35 cm long. Leaves mostly basal or basal and cauline. Leaf-sheaths without keel. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.5 mm long. Collar pubescent. Leaf-blades curved or flexuous, involute, 4–15 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear, straight or flexuous, 4–15 cm long, bearing few spikelets. Primary panicle branches ascending or drooping, indistinct the panicle almost racemose or simple. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 16–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5 mm long, pubescent, pungent.

**Glumes.** Glumes dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–10 mm long, 0.5–0.66 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 16–25 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 13–15 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 40–100 mm long limb, without a column. Lateral lemma awns present, 40–100 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

$2n = 22$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Northwest USA, North-central USA, Southwestern USA, South-central USA, Mexico. New Mexico.

***Aristida longifolia*** Trin. *Mem. Acad. Petersb. Ser.* 6, 1: 84. (1831).

More checking of status required.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. Riedel s.n.*, s.d., Brazil: Mato Grosso: in umbrosis siccis prope Cuiba (LE-TRIN-1305.06; IT: K, US-81213 (fragm. ex LE)).

**Recent Synonyms:** *Aristida temulenta* Luces, *Bol. Soc. Venez. Cienc. Nat.* 15: 16 (1953).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (276, Fig. 56), S.A.Renvoize, *The Grasses of Bahia*, 1984 (55, Fig. 19), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (34, Fig. 18).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; folium, leaf. With long leaf-blades.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 70–130 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking or bearded (less frequent, deciduous). Ligule a ciliolate membrane, 0.2 mm long. Collar glabrous. Leaf-blades straight, flat, 35–75 cm long, 3–8 mm wide. Leaf-blade surface scabrous (densely), rough on both sides, glabrous, hairless throughout. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 30–60 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1 mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper, rarely subequal or upper slightly longer than lower). Lower glume lanceolate, 8.5–12(–14) mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex acute, muticous. Upper glume lanceolate, 11–15 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute.

**Florets.** Fertile lemma subterete, 14.5–16(–18) mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma surface smooth, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 20–33 mm long limb, without a column. Lateral lemma awns present, ascending, 20–33 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America, Western South America, Brazil. Belize, Nicaragua. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia. Brazil West Central, Brazil Northeast, Brazil North.

**TDWG4.** Roraima, Para, Amapa, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe.

**Aristida macrantha** Hackel. Fedde, *Repert. Nov. Sp.* 7: 372 (1909).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Paraguay. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *T. Rojas* 9795, Dec 1907, Paraguay: Sierra de Amabay: in campis siccis Punta Pora (W-15558; ILT: US-991924, US-81208 (fragm.), W-947). LT designated by Henrard, *Meded. Rijks-Herb.* 54(A): 321 (1927).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. makros, large; anthos, flower. Spikelets large.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal or intravaginal. Culms erect, 40–80 cm long. Culm-internodes glaucous, smooth. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–70 cm long, 2–4 mm wide, stiff. Leaf-blade surface smooth or scaberulous, rough adaxially. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, dense, 30 cm long. Primary panicle branches 2-nate, 2 cm long. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 55 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3–4 mm long, pubescent, hairy on the margins, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 45 mm long, 0.8 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 55 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 10–11 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 120 mm long limb. Lateral lemma awns present, 110 mm long, subequal to principal. Palea 2.5 mm long.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia. Paraguay.

**Aristida macroclada** Henrard. *Meded. Herb. Leid.* No. 54 A. 325 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), J.F.Veldkamp, *Poaceae* ms (*Flora Malesiana*).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J. E. Tennison Woods & M. Holtze* 12, 1886, Australia: Northern Territory: Darwin and Gulf Region (K; IT: BRI (fragm., photo ex K), MEL).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (91, Fig. 16), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 192, Fig.10 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): Gk. makros, large; klados, stem. Panicle branches long and slender.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–100 cm long, 5–9 -noded. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking or ciliate or bearded. Ligule a fringe of hairs, 0.3 mm long. Collar glabrous. Leaf-blades involute, 15–30 cm long, 1–2.3 mm wide. Leaf-blade surface glabrous or pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 17–24 cm long, 3–7 cm wide. Primary panicle branches 5–10 cm long. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets lanceolate, subterete, 6–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5–0.8 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–11 mm long, 0.66–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex emarginate, mucronate. Upper glume lanceolate, 6–15 mm long, 1.1–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 5.5–9.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 10–29 mm long limb, with a straight or slightly twisted column or with twisted column, persistent. Column of lemma awn 1–8 mm long. Lateral lemma awns present, 9–26 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 5–8 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Tropical Asia, Australasia.

**Country /Province /State. Malesia, Papuaia.** New Guinea PNG, or West Papua (Irian Jaya). New Guinea. **Australia.** Northern Territory, Queensland.

**TDWG4.** Darwin & Gulf. North.

### **Aristida macrophylla** Hackel. *Denkschr. Akad. Wien, Math.-Nat.* 79: 77 (1908).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M. Wacket s.n.*, 1902, Brazil: Sco Paulo: prope Pilar haud procul ab urbe Sco Paulo, 750–800 m (W-15557; IT: MO-4014762 (fragm. ex US), US-81206 (fragm. ex W & photo)).

**Recent Synonyms:** *Aristida kleinii* L.B. Smith, *Phytologia*. 22 (2): 88 (1971).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102 as *Aristida kleinii*).

**Derivation** (Clifford & Bostock 2007): Gk. makros, large; phyllon, leaf. Leaf-blades large.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 50–100 cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded (deciduous). Ligule a fringe of hairs, 0.5–0.8 mm long. Collar glabrous. Leaf-blades flexuous (sometimes erect), flat (lower) or convolute (upper), 15–50(–55) cm long, 0.8 mm wide or 0.5–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially (densely), glabrous or pilose (sometimes), hairless except near base, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (or subcontracted), (14–)18–23 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.5–0.7 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, 10–14(–16) mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex acuminate, mucicous. Upper glume lanceolate, (6–)10–12 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute.

**Florets.** Fertile lemma subterete, 6–7(–10) mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough generally, with a median groove (ventral, longitudinal). Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight or flexuous, ascending or spreading, pseudo-articulate at base, with 16–20(–24) mm long limb, with twisted column. Column of lemma awn 5–7(–8) mm long. Lateral lemma awns present, ascending or spreading as much as principal, 14–18(–21) mm long, shorter than principal (slightly).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America, Brazil, Southern South America.** Bolivia. Brazil West Central, Brazil Southeast, Brazil South. Paraguay.

**TDWG4.** Mato Grosso, Catarina, Rio Grande do Sul. Misiones.

### **Aristida mandoniana** Henrard. *Meded. Herb. Leid.* No. 40, 55 (1921).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *G. Mandon 1277*, Mar-Apr 1861, Bolivia: La Paz; 2700 m (L-908.84–409, L-908.84–408, US-81204; IST: MO-2098286). ST: *Herzog 1708*, Mar 1911, Bolivia: auf Bergwiesen bei Samaipata, 1900 m (L).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Gilbert Mandon (1799–1866) French botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 45–60 cm long. Ligule a fringe of hairs. Collar glabrous or pubescent. Leaf-blades flat or involute, 25–45 cm long, 2–3 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 9–24 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9.5–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9.5–13 mm long, 1–1.05 length of upper glume, membranous. Lower glume apex acuminate. Upper glume lanceolate, 9.5–13 mm long, membranous. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 7–8.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn straight, with 15–20 mm long limb, with twisted column, persistent. Column of lemma awn 3–5 mm long. Lateral lemma awns present, 15–20 mm long, subequal to principal.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

***Aristida marginalis*** Ekman. *Archiv Bot. Stockh.* 10 No. 17 23 (1911).

Regarded by K as a synonym (*A. gibbosa*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.O.A. Malme 3143*, 26 Apr 1903, Brazil: Mato Grosso: Cuiaba, in margine silvulae, loco sicco graminoso, arenoso-argilloso (S; IT: US-702283, US-81202 (fragm. ex S)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. margo, border; -alis, pertaining to. The leaf-blades have conspicuously thickened marginal nerves.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–120 cm long. Lateral branches lacking or sparse. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades 15–25 cm long, 2–3 mm wide, glaucous. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base. Leaf-blade margins cartilaginous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or oblong, 20 cm long, 3–6 cm wide, with spikelets clustered towards branch tips. Primary panicle branches appressed, 2–3 -nate, 5–10 cm long. Panicle axis scabrous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5–5.5 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 1.5–2.5 mm long. Upper glume lanceolate, 4.5–5.5 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute, awned, 1 -awned, awn 1 mm long.

**Florets.** Fertile lemma linear, subterete, 5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, with this appendage 1–2 mm long, awned, 3 -awned. Principal lemma awn 3-branched, with 15 mm long limb. Lateral lemma awns present, 10 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. Brazil West Central.

Mato Grosso.

**Aristida megapotamica** Spreng. *Syst. Cur. Post.* 31. (1827).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, no date, Brazil: Rio Grande (B; IT: HAL, K, US-81198 (fragm. ex B & photo)). US-81199 (fragm. ex B), is *Stipa filifolia* Nees, but US-81198 (fragm. ex B) is an *Aristida*, this has led to the misapplication of the name *Aristida megapotamica* to *Stipa filifolia*.

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (275, Fig. 55), S.A.Renvoize, *The Grasses of Bahia*, 1984 (55, Fig. 19), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (507, Fig. 108), B.Rosengurt, *Gramineas Uruguayas I* (1970) (212, Fig. 87).

**Illustrations (Journals):** *Ruizia* (13:233, Fig 26e (1993)).

**Derivation** (Clifford & Bostock 2007): Gk. megas, large; potamos, river; -ike, belonging to. Mostly from Rio Grande do Sul, now La Platte. Otherwise from the Amazon or Rio Grande, a district in southern Brazil.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms (37–)60–140 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking or bearded. Ligule a fringe of hairs, 0.5–0.7 mm long. Collar glabrous. Leaf-blades curled (lower) or straight (upper), flat (lower) or convolute (upper), 20–50 cm long, 3–5 mm wide. Leaf-blade surface scabrous, rough on both sides or adaxially, glabrous or pilose, hairless throughout or except near base, moderately hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, 11–35(–40) cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1–1.8(–2.5) mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, (16–)20–33 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex setaceously acuminate, awned. Upper glume lanceolate, 14 mm long or 6–28 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate, awned.

**Florets.** Fertile lemma subterete, (6–)8–12 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous or scaberulous (rarely), rough above (upper 2/3), without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight or flexuous, twisted together or ascending, simple at base, with 25–55 mm long limb, with twisted column. Column of lemma awn (20–)25–60(–95) mm long. Lateral lemma awns present, ascending or wrapped around principal, 22–48 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Western South America, Brazil, Southern South America. Belize, El Salvador, Honduras. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Paraguay, Uruguay.

**TDWG4.** Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Corrientes, Misiones.

**Aristida mendocina** Phil. *Sert. Mend. Alt.* 47. (1870).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Philippi s.n.*, 1868–1869, Argentina: Mendoza (CORD, L-908.83–1456, SGO-45628, SGO-37149, US-1939963 (fragm. ex SGO-45628 & photo), US-1126810 ex W, US- (ex SGO-37149 photo)). Chile in the broad sense when these two countries were still one.

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (283, Fig. 57), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (335, Fig. 114), M.N.Correra, *Flora Patagonica Parte III, Gramineae* (1978) (473, Fig. 317).

**Derivation** (Clifford & Bostock 2007): from Mendoza, Chile.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.



**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–200 cm long, 2–6 -noded. Lateral branches sparse. Leaf-sheaths mostly shorter than adjacent culm internode. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades curled, flat or convolute, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse.

**Glumes.** Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 7–11 mm long, 2–2.3 length of upper glume, membranous. Lower glume apex acute. Upper glume linear, 3–5 mm long, membranous. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 7–11 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins involute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn straight, with 17–30 mm long limb. Lateral lemma awns present, 14–27 mm long, subequal to principal.

**Flower and Fruit.** Caryopsis with adherent pericarp, fusiform, without sulcus, dark brown.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Brazil Northeast. Argentina Northeast, Argentina South, Paraguay.

**TDWG4.** Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe. Catamarca, Jujuy, La Rioja, Mendoza, Salta, Santiago del Estero, San Juan, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Formosa, La Pampa. Río Negro.

**Aristida meraukensis** Henrard. *Meded. Herb. Leid. No. 54 C. Suppl.*, 725 (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Indonesia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Jaheri s.n.*, 4 Apr 1901, Indonesia: New Guinea, Irian Jaya, Merauke (L-933.48–142; IT: BO).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–120 cm long, 1 mm diam. Lateral branches lacking. Leaf-sheaths scaberulous. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 7–40 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, 10–20 cm long. Primary panicle branches ascending or spreading, 2–3 -nate, 4–9 cm long. Panicle axis scabrous. Panicle branches capillary, flexuous, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 7–8 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 10–12 mm long, 1.4–1.7 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate, awned, 1 -awned, awn 1.5 mm long.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, recurved at base of limb, with 30 mm long limb, with twisted column. Column of lemma awn 12–13 mm long. Lateral lemma awns present, spreading less than principal, 25 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia, Papuasias. New Guinea PNG, or West Papua (Irian Jaya). New Guinea.

**Aristida meridionalis** Henrard. *Meded. Herb. Leid. No. 54 A. 344* (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Namibia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *M.K. Dinter 2476*, Jan 1912, Namibia: Tsumeb (L-922.258–618).

**Illustrations (Books):** G.V.Pope et al., *Flora Zambesiaca* 10 (1(1971):121, t. 32), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984), G.E.Gibbs Russell et al., *Grasses of Southern Africa* (1990) (51, Fig. 20).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. meridies*, meridian; -ale, pertaining to. On the same meridian as a related species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths glabrous or woolly. Culms erect, 100–200 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades involute, 25–50 cm long, 2–5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, nodding, 40–80 cm long. Panicle branches capillary, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–2 mm long, pilose, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, 0.5 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume margins ciliolate. Lower glume apex emarginate or obtuse. Upper glume lanceolate, 10–15 mm long, 1.4–1.6 length of adjacent fertile lemma, scarious, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid.

**Florets.** Fertile lemma elliptic, subterete, 7–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 40–50 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 5–15(–18) mm long. Lateral lemma awns present, 40–50 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West-central tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. DRC. Tanzania. Angola, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Free State, Northern Cape.

***Aristida mexicana*** Scribn. ex Henrard. *Meded. Herb. Leid.* No. 54 A. 345 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *C.G. Pringle 6408*, 2 Sep 1896, Mexico: Distrito Federal: sandy fields near Tlalpam, 7300 ft (L-926.134–806; IT: GH, US-287869, US-820675, US-745670).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating origin. From Mexico.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 15–30 cm long. Culm-internodes distally pubescent. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, scaberulous. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades conduplicate, 10–20 cm long, 1–2 mm wide, glaucous. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle pubescent above. Panicle open, ovate, effuse, 30 cm long, 20 cm wide, with spikelets clustered towards branch tips. Primary panicle branches spreading, distant, 1 -nate, rebranched near base, 5–10 cm long. Panicle axis pubescent. Panicle branches scabrous, pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 13 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 1 mm long.

Upper glume linear, 12 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 1 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8–10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma apex acuminate, awned, 3 -awned. Principal lemma awn 3-branched, with 15–17 mm long limb, persistent. Lateral lemma awns present, 15–17 mm long, subequal to principal.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico.

Distrito Federal, Mexico State, Puebla. Aguascalientes, Guanajuato. Jalisco.

### **Aristida migiurtina** Chiov. *Pl. Nov. Aethiop.* 29 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Somalia settentrionale: Costa dei Migiurtini, spiaggia e duna di Hafun, 30 Jan 1924, *Puccioni & Stefanini* 8 (FT holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. from Migiurtini, Somalia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 9–20 cm long, with 0.1–0.33 of their length below uppermost node. Ligule a fringe of hairs. Leaf-blades curled, involute, 2–15 cm long, 1–2 mm wide. Leaf-blade surface ribbed, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or elliptic, 7–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 0.75–1 mm long, pilose, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–13 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 1–2 mm long. Upper glume linear, 12–22 mm long, 3–4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 4.5–5.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 65–80 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 15–20 mm long. Lateral lemma awns present, 50–60 mm long, shorter than principal. Palea 0.33 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State.** Northeast tropical Africa. Somalia. Arabian Peninsula. Oman.

### **Aristida minutiflora** Caro. *Kurtziana* 1: 151 (1961).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Caro* 2949, 15 Jan 1959, Argentina: Csrdo: Depto. Colón: La Estancita, a mas o menos 17 km de Rmo Ceballos, (CORD).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. minutus, very small; flos, flower. Spikelets or florets very small.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal, flabellate. Culms 20–30 cm long, 1–2 -noded. Culm-internodes scaberulous. Culm-nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 2.5–7 cm long, 0.5 mm wide. Leaf-blade venation comprising 7–9 vascular bundles. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, interrupted, 6–13 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, scaberulous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 4.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume linear, 3–5 mm long, 0.66–0.8 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume linear, 4.5–6 mm long, membranous, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma linear, laterally compressed, 4.5–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn straight, with 7–15 mm long limb. Lateral lemma awns present, 6–13 mm long, shorter than principal. Palea 0.75–1 mm long.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, linear, without sulcus, 4–6 mm long, light brown. Hilum curved.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast.

**TDWG4.** Catamarca, Mendoza, Santiago del Estero. Cordoba, La Pampa.

**Aristida mohrii** Nash. *Bull. N. York Bot. Gard.* 1: 436. (1900).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Mohr s.n.*, 1888, USA: Alabama: Mobile Co.: Springs Hill, on sandy ridges (NY-345850; IT: L (fragm. ex US), US-82311, US-81195). Protologue cites collection date as 4 Oct 1886.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (339).

**Derivation** (Clifford & Bostock 2007): in honor Charles Theodore Mohr (1824–1901) German-born, United States pharmacist and plant collector.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 40–60 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades flat or involute, 10–15 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, hairy adaxially. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 15–30 cm long. Primary panicle branches indistinct the panicle almost racemose. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, pungent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 10 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, muticous. Upper glume linear, 10 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma linear, subterete, 8 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn recurved at base of limb, with 15–20 mm long limb. Lateral lemma awns present, spreading as much as principal, 15–20 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southeastern USA. Alabama, Florida, Georgia, South Carolina.

**Aristida mollissima** Pilger. *Engl. Jahrb.* 40: 80 (1908).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Botswana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Schultze 342*, Jan 1905, Botswana: between Senuma (Sekoma?) and Kooa (Kooi?) (B; IT: PRE).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. molle, soft; -issima, most. Plant in whole or in part densely covered with soft hairs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths pubescent or woolly. Culms 60–90 cm long. Culm-internodes distally pubescent or woolly. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades filiform or linear, 20–30 cm long, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 10–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–2.5 mm long, pilose, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–10 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 1–5 mm long. Upper glume lanceolate, 12–20 mm long, 1.5–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 1–5 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8–10 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 28–55 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 12–27 mm long. Lateral lemma awns present, 28–55 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG), Continent.** Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa, Southern Africa. Kenya. Mozambique, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Mpumalanga, Free State, Northern Cape.

**Aristida monticola** Henrard. *Meded. Herb. Leid.* No. 54 A. 355 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Mogg H 20634*, 20 Apr 1919, South Africa: Natal: Mount Aux Sources (K; IT: PRE).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. mons, mountain; -cola, dweller. Growing on mountains.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms decumbent, 35–70 cm long, wiry, without nodal roots or rooting from lower nodes. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches ample. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades flat or convolute, 6–12 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 7–14 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–8.5 mm long, 1.2–1.4 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 5–6 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma linear, subterete, 6–6.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex rostrate, awned, 3 -awned. Principal lemma awn

straight or 3-branched, with 18 mm long limb, without a column or with twisted column, persistent. Lateral lemma awns present, 13 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Free State, Kwazulu-Natal.

**Aristida moritzii** *Aristida moritzii*. Meded. Herb. Leid. No.54 A. 356 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.W.K. Moritz 1522*, 1844, Venezuela: Zulia: Maracaibo (B; IT: US-81194 (fragm. ex B & photo)).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (33, Fig. 17).

**Derivation** (Clifford & Bostock 2007): in honor of Moritz (-) who collected in Venezuela.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long. Culm-internodes smooth or scaberulous. Lateral branches sparse. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined, smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades conduplicate or involute, 15–20 cm long, 1–2 mm wide, glaucous. Leaf-blade surface scabrous, rough adaxially, pubescent, hairy adaxially. Leaf-blade margins cartilaginous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Peduncle scaberulous above. Panicle open, linear, interrupted, 10–20 cm long, 0.5–1 cm wide. Primary panicle branches appressed, 1–2 -nate. Panicle axis scaberulous. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, bearded, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 10–11 mm long, 0.95 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex setaceously acuminate. Upper glume linear, 11–12 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume surface smooth. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 8–9 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 30–35 mm long limb. Lateral lemma awns present, 30–35 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Colombia.

**Aristida multiramea** Hackel. *An. Mus. Nac. Buenos Aires* 21: 67 (1911).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Stuckert 16807 [remitido por M. Estrada]*, 12 Jan 1907, Argentina: Csrdoaba: Capilla del Monte, Dep. Punilla (W; ILT: CORD, US-81192 (fragm.)). LT designated by Henrard, *Meded. Rijks-Herb.* 54(A): 364 (1927); the collection number is erroneously cited as 16806 in the protologue.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. multus*, many; *ramus*, branch. Culms much branched.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal or intravaginal. Culms erect, 25–30 cm long, 2–4 -noded. Culm-nodes glabrous. Lateral branches fastigiate, arising from lower culm or mid culm. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Collar glabrous. Leaf-blades filiform, convolute, 2–12 cm long, 0.4–0.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough adaxially. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, continuous or interrupted, 4–10 cm long, bearing few spikelets. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, smooth.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.75 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 6–9 mm long, 0.66 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, mucronate. Upper glume linear, 9–12 mm long, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma linear, subterete, 8–10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn straight, with 8–20 mm long limb. Lateral lemma awns present, gyrate, 6–18 mm long, shorter than principal. Palea 1 mm long.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus, 8–8.5 mm long, dark brown. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina Northeast.

**TDWG4.** San Luis. Buenos Aires, Cordoba, Distrito Federal, La Pampa.

**Aristida muricata** Henrard. *Meded. Herb. Leid.* No. 58 A. 286 (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *W.D. Brown 63*, Jun 1913, Australia: New South Wales, Golun (L-932.55–106 (photo, BRI); IT: BRI (fragm.), K, NSW). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 729 (1933).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (130), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 182, Fig.8 (1992)).

**Derivation** (Clifford & Bostock 2007): L. rough. Glumes bear short hard points.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 50–90 cm long. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent or ciliate. Ligule a fringe of hairs, 1 mm long. Collar glabrous or pubescent. Leaf-blades involute, 9–19 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear, 17–30 cm long, 1–8 cm wide. Primary panicle branches 2.5–10 cm long, naked below or bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.3 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–12 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 8–12 mm long, 1.1–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex emarginate or obtuse or acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7.5–8.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins involute, covering most of palea, scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn subterete below or flat below, with 17–30 mm long limb, without a column, persistent. Lateral lemma awns present, 15–28 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** New South Wales, Queensland.

**TDWG4.** North, Central, South East, Inland. Western Slopes, Western Plains.

**Aristida murina** Cav.  *Ic. 5: 44. t. 469. (1799).*

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South America. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Habitat in Mindonas insula peope Sambonyan, floretque Decembri, (HT: MA) Erroneously described as originating in the Philippines, it is actually a South American species, *fide* Henrard, *Meded. Rijks-Herb.* 54(A): 255–428 (1927)

**Illustrations (Books):** A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineae (1969) (214, Fig. 78), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (478, Fig. 320), B.Rosengurt, *Gramineae Uruguayas* (1970).

**Derivation** (Clifford & Bostock 2007): *L. murus*, wall; -ina, belonging to. Growing on walls.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 25–50(–76) cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking or bearded (deciduous). Ligule a fringe of hairs, 0.3 mm long. Collar glabrous. Leaf-blades straight or curved, conduplicate, 10–25(–30) cm long, 1.5–3 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, 9–15(–18) cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.8–1 mm long, pilose, acute (or subacute).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 1–18 mm long, 1(–3) -veined. Lower glume primary vein scabrous. Lower glume surface asperulous, rough generally. Lower glume apex dentate (sometimes), 2 -fid (sometimes), acute or acuminate, muticous or awned (shortly). Upper glume lanceolate, 20–35 mm long, 1 -veined. Upper glume primary vein scaberulous. Upper glume surface smooth. Upper glume apex entire, acute or acuminate.

**Florets.** Fertile lemma laterally compressed (slightly), 13–15(–17) mm long, keeled, lightly keeled, keeled above, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma surface smooth, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 55–105 mm long limb, without a column. Lateral lemma awns present, ascending, 55–105 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil Southeast. Argentina Northeast, Uruguay.

**TDWG4.** Sao Paulo Parana. Buenos Aires, Cordoba, Distrito Federal, Entre Rios.

**Aristida mutabilis** Trin. & Rupr. *Mem. Acad. Petersb. Ser. 6, 7: 150. (1842).*

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Sudan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Kotschy 103*, Sudan: Cordofan, in arenae saxi graniticis delitescantibus formata (LE; ILT: K, L). LT designated by Henrard, *Meded. Rijks-Herb.* 54(A): 367 (1927); cited (as type) by Chaudhary, *Grass. Saudi Arabia* 216 (1989); cited by van der Zon, *Gram. Cameroun* 2: 101 (1992).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (85, Fig. 35), L.Boulos, *Flora of Egypt* 4 (2005) (239, Pl. 70).

**Derivation** (Clifford & Bostock 2007): *L. changeable*. Variable in accord with the season or habitat.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms (10–)30–70 cm long. Culm-internodes distally glabrous. Leaf-sheath oral hairs lacking or bearded. Ligule a fringe of hairs. Leaf-blades flat or convolute, 6–14 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or ovate, 10–20 cm long, with spikelets clustered towards branch tips. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pilose, obtuse.



**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–5 mm long, 0.7–1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume mucous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 4–5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 10–30 mm long limb, with twisted column, deciduous, abscising from top of column, limb scabrous. Column of lemma awn 2–5 mm long. Lateral lemma awns present, 10–30 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

*N* = 11 (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** Northern Africa, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Algeria, Egypt, Libya, Western Sahara. Ghana, Mali, Mauritania, Nigeria, Senegal, Niger. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania, Uganda. Western Asia, Arabian Peninsula. Iran. Gulf States, Oman, Saudi Arabia. Indian Subcontinent. India, Pakistan, West Himalaya.

**TDWG4.** Punjab, Rajasthan, Tamilnadu.

**Aristida neglecta** Leon ex Hitchcock. *Contrib. U. S. Nat. Herb.* 22: 567 (1924).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.L. Ekman s.n.*, 12 Feb 1921, Cuba: La Habana: Guanabacoa, on grassy hills called Lomas de las Jatas (US-1064517; IT: L, L (fragm. ex US), NY-39632, NY-7100, NY-39633). NYBG specimen notes: See also NY 39632, 39633, 71000. "This specimen should be cited, 'Amer. Gr. Nat. Herb. no. 783'.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. negligo*, disregard. Often a segregate from another species with which confusion is likely.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 40–60 cm long, wiry. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades filiform, involute, 2–5 cm long, 0.5–1 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 5–10 cm long. Primary panicle branches ascending, 1–2 cm long. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume linear, 7–9 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate or setaceously acuminate. Upper glume linear, 7–9 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate or setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 10 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 10–15 mm long limb, with twisted column. Column of lemma awn 3–4 mm long. Lateral lemma awns present, spreading less than principal, 10–15 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Caribbean. Cuba, Dominican Republic, Haiti.

**Aristida nemorivaga** Henrard. *Meded. Herb. Leid.* No. 54 A. 376 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Angola. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Open forest between Huilla and Quihila mission, 13 Apr 1909, *H.H.W. Pearson 2634* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. nemus*, wood; *vagus*, wandering. Growing in open woodlands.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long, 4 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades curled, 10–20 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins cartilaginous, scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, elliptic, interrupted, 10–20 cm long, with spikelets clustered towards branch tips. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.5–8 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex emarginate or obtuse, mucronate. Upper glume lanceolate, 8–11 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate or truncate, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 7–11 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness or scaberulous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 9–15 mm long limb, persistent. Lateral lemma awns present, 7–13 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa and Southern Africa. Angola.

**Aristida nicorae** Sulekic. *Darwiniana* 41(1–4): 175 (-177; fig. 8). 2003 (2003).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Quebrada de Las Conchas: Sulekic & Cano 3260 (SI holo, US, W).

**Illustrations (Journals):** *Darwiniana* (41: 176, fig.8 (2003)).

**Derivation** (Clifford & Bostock 2007): in honor of Elisa Gernaela Nicora de Panza (1912-) Argentinian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect, 70–110 cm long, 6–9 -noded, disarticulating at the nodes. Culm-internodes terete, solid, distally glabrous. Lateral branches ample. Leaf-sheaths striately veined, smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate, 2–3 mm long. Ligule a fringe of hairs, 0.5–0.6 mm long. Leaf-blades straight or curved, convolute, 2–20 cm long, 0.5–2 mm wide. Leaf-blade venation prominent. Leaf-blade surface scaberulous, rough adaxially or on both sides. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 6–20 cm long. Panicle axis smooth or with occasional prickles. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6.5–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–0.6 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–13 mm long, 0.75–1.1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex entire or dentate, 2 -fid, acute, mucicous or mucronate. Upper glume lanceolate, 8–13 mm long, 1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma linear, subterete, 8.5–11 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn straight, with 10–22 mm long limb. Lateral lemma awns

present, ascending, 8.5–18 mm long, shorter than principal. Palea 1.3–1.7 mm long, 2 -veined. Palea apex entire or dentate, 2 -fid.

**Flower and Fruit.** Lodicules 2, 1.2–1.5 mm long. Anthers 3, 1.5–2.5 mm long. Caryopsis with adherent pericarp, fusiform, without sulcus, 6.5–9 mm long, dark brown. Embryo 0.33–0.5 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina Northeast.

**TDWG4.** Jujuy, Salta, Tucuman.

### **Aristida niederleinii** Mez. Fedde, *Repert.* 17 : 150 (1921).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *G. Hieronymus* 167, 13 Jan 1876, Argentina: Csrdoaba: entre San Ignacio y San Josi al lado del Oeste de la Sierra Chica de Csrdoaba (US-81190). LT designated by Caro, *Kurtziana* 1: 178 (1961). ST: *Niederlein s.n.*, Argentina: Misiones.

**Illustrations (Books):** A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (213, Fig 77).

**Derivation** (Clifford & Bostock 2007): in honor of Gustav Niederlein (1858–1924) German botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal, flabellate. Culms erect, 11–24 cm long, 1–2 -noded. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths wider than blade at the collar, scaberulous. Leaf-sheath oral hairs bearded, deciduous, 2.5–3.5 mm long. Ligule a fringe of hairs. Collar glabrous. Leaf-blades filiform, convolute, 13.5–33 cm long, 0.5 mm wide, stiff. Leaf-blade surface ribbed, scabrous, rough on both sides. Leaf-blade margins scaberulous. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle, comprising 6–18 fertile spikelets. Panicle contracted, oblong, 5–17 cm long, bearing few spikelets. Primary panicle branches bearing 2–3 fertile spikelets on each lower branch. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, scaberulous, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 28–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 15–25 mm long, 0.5–0.66 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous, rough above. Lower glume apex acute, awned, 1 -awned, awn 2–4 mm long. Upper glume linear, 24–40 mm long, membranous, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute, awned, 1 -awned, awn 4–8 mm long.

**Florets.** Fertile lemma linear, subterete, 12.5–14 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness or scaberulous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn straight, with 105–145 mm long limb. Lateral lemma awns present, 95–136 mm long, shorter than principal. Palea 1.5 mm long.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus, 9–10 mm long, light brown. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina Northeast.

**TDWG4.** San Luis. Buenos Aires, Cordoba, Corrientes, Entre Rios, La Pampa, Misiones.

### **Aristida nitidula** (Henrard) S. T. Blake. *Trans. Roy. Soc. S. Austral.* 67: 46 (1943).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Aristida nitidula* (Henrard) S.T. Blake ex Black, *Trans. & Proc. Roy. Soc. South Australia* 67: 46 (1943). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Kempe* 4, 1879, Australia: Northern Territory: Central Southern Station, Mission, Finke River (L (photo, BRI); IT: K, MEL).

T: *H.J. Kempe* 28, 1879, Australia: Northern Territory, Finke River (L).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (327, Fig. 259), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (130), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(31)), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (113, Fig. 19), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 218, Fig.17 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. niteo*, shine; -ula, exhibiting tendency. Spikelets glossy.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 35–82 cm long, 1 mm diam., 1 -noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking. Leaf-sheaths antrorsely scabrous. Leaf-sheath oral hairs bearded, 3–4 mm long. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous. Leaf-blades involute, 12–17 cm long, 0.7–1 mm wide. Leaf-blade surface scaberulous, rough abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 17–28 cm long, 0.5–2 cm wide. Primary panicle branches 2–4 cm long, bearing spikelets almost to the base. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6.3–10.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.3–1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6.3–10.6 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acute to setaceous acuminate. Upper glume lanceolate, 6.2–9.6 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex obtuse, mucous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 6–10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn spreading, flat below, with 8–27 mm long limb, without a column, persistent. Lateral lemma awns present, spreading as much as principal, 7–24 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 1.1–1.4 mm long. Caryopsis with adherent pericarp, 4.6–6 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** New South Wales, Northern Territory, Queensland, South Australia, Western Australia.

**TDWG4.**

***Aristida novae-caledoniae*** Henrard. *Meded. Herb. Leid.* No. 54 A. 383 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from New Caledonia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Balansa* 3083, May 1871, New Caledonia: Poume Mt. (L-908.83–890–893–1201).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): From New Caledonia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 25–50 cm long. Culm-internodes smooth, distally glabrous. Culm-nodes swollen. Lateral branches sparse. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades erect, filiform, involute, 15–20 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–10 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 8–16 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–6 mm long, 0.66 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary

vein scabrous. Lower glume apex acuminate. Upper glume lanceolate, 8–9 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, reflexed, with 15 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 3 mm long. Lateral lemma awns present, spreading less than principal, 10 mm long, shorter than principal. Palea 0.1 length of lemma.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Pacific.

**Country /Province /State. Southwestern Pacific.** New Caledonia.

### **Aristida novae-guineae** Ohwi. *Bot. Mag., Tokyo*, 56: 2 (1942).

Regarded by K as a synonym (*A. macroclada*).

**Accepted by:** J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from New Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Kanehira & S. Hatusima 13006*, 26 Mar 1940, Indonesia: New Guinea: West Irian: Waren (FU (photo, BRI); IT: L, US-81167).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): from New Guinea, now Papua New Guinea.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Papuasia.** New Guinea PNG, or West Papua (Irian Jaya). New Guinea.

### **Aristida obscura** Henrard. *Meded. Herb. Leid.* No. 54 A. 385 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *D. W. J. Hatten 29*, May 1900, Australia: New South Wales: Bourke Dist.: North Western Plains (L-926.156–886 (photo, BRI); IT: K, NSW).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (326, Fig. 260), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (130), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(22)), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (155, Fig. 24), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (101, Fig. 18), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 209, Fig.14 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. dark. Spikelets dark-colored.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 25–40 cm long. Culm-internodes smooth, distally pubescent. Lateral branches ample. Leaf-sheaths antrorsely scabrous, pubescent. Leaf-sheath oral hairs bearded, 3 mm long. Ligule a fringe of hairs, 0.5 mm long. Collar pilose. Leaf-blades 10–25 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough adaxially, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle elliptic in section. Panicle open, ovate, loose, 7–15 cm long, 5–10 cm wide. Panicle branches scaberulous or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 13–21 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–15 mm long, 0.4–0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous or scabrous. Lower glume apex acute or acuminate, awned, 1 -awned, awn 1–3 mm long. Upper glume lanceolate, 13–21 mm long, 1.5–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous or scabrous. Upper glume apex acute or acuminate, awned, 1 -awned, awn 1–3 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 11–14 mm long, coriaceous, purple, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough generally. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 15–40 mm long limb, without a column, persistent. Lateral lemma awns present, 23–38 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 6–10 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Northern Territory, Queensland, South Australia, Western Australia.

**TDWG4.** Eremean. Central Australia. NW & Lake Eyre. South East, Inland. Western Slopes, Western Plains.

### **Aristida oligantha** Michx. *Fl. Br. Am.* 1: 41. (1803).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Michaux s.n.*, In apricis pratensibus regionis Illinoensium, route de Illinois au fort Massar, lieux alternatium submergen (P; IT: US-81184 (fragm. ex P & photo)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (327), F.W.Gould, *The Grasses of Texas* (1975) (386, Fig. 204), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:20(1980)).

**Derivation** (Clifford & Bostock 2007): Gk. oligos, few; anthos, flower. Inflorescence of few spikelets.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 15–88 cm long, wiry. Culm-internodes distally glabrous. Lateral branches ample. Leaf-sheaths without keel, glabrous on surface. Leaf-sheath oral hairs lacking or pubescent. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades filiform, 10–25 cm long, 1–2 mm wide. Leaf-blade surface glabrous or hispid, sparsely hairy. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 5–14 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets sessile. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 18–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 18–25 mm long, 1 length of upper glume, membranous, 3–7 -veined. Lower glume apex acuminate, muticous or awned, 1 -awned, awn 0.5 mm long. Upper glume lanceolate, 18–25 mm long, 1.1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, acute, awned, 1 -awned, awn 10–15 mm long.

**Florets.** Fertile lemma linear, subterete, 16–28 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 30–70 mm long limb, without a column. Lateral lemma awns present, spreading as much as principal, 30–70 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Europe (\*), North America.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA.** Ontario. Colorado. Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, Oklahoma, South Dakota. Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Arizona, California, Nevada. New Mexico, Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia.

### **Aristida oligospira** (Hack.) Henrard. *Meded. Herb. Leid.* No. 54, 160 (1926).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Paraguay. **Basionym or Replaced Name:** *Aristida riparia* var. *oligospira* Hack., *Bull. Herb. Boiss.* ser.2, 4:277 (1904). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *Hassler* 3825, Jan, Paraguay: in palude Tucangua (W; IST: MO, US-2947077 (fragm. ex W & photo)).

LT: *Hassler* 8321, Dec 1901–1902, Paraguay: in campis in regione cursus superiores fluminis Apa (G; ILT: K, MO, NY, P, S, W). LT designated by Longhi-Wagner, *Bol. Inst. Bot. (Sao Paulo)* 12: 141 (1999).

LT: *L.R. Parodi* 2835, 1919, Argentina borealis: Gobernacion de Formosa: in campis altis (L-925.260–295). LT designated (as *typus*) by Henrard, *Meded. Rijks-Herb.* 54(A): 392 (1927), but incorrectly as he did not choose from among the syntypes of *Aristida riparia* var. *oligospira* Hack., the basionym of Henrard's combination.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. oligos, few; spira, spiral. Column of awn with few twists.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 70–110(–140) cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs or a ciliolate membrane (rarely), 0.2 mm long. Collar glabrous. Leaf-blades straight, conduplicate, 30–80 cm long, 3–4 mm wide. Leaf-blade surface scabrous (densely), rough adaxially, glabrous. Leaf-blade apex acute, antorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, (13–)15–27 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.2–0.3 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar (lower longer than upper sometimes subequal). Lower glume lanceolate, 12–15 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface asperulous, rough generally. Lower glume apex setaceously acuminate. Upper glume lanceolate, 11–13 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate.

**Florets.** Fertile lemma subterete, 6–7 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface papillose, rough above, with a median groove (ventral, longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn flexuous, reflexed or twisted together, simple at base, with 22–32 mm long limb, with twisted column. Column of lemma awn 7–12 mm long. Lateral lemma awns present, wrapped around principal (or reflexed), 19–27 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil Northeast, Brazil Southeast. Paraguay.

**TDWG4.** Formosa.

## ***Aristida pallens*** Cav. *Ic.* 5: 43. t. 468. (1799).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Chile. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *L. Nees* s.n., Jan, Chile: Cucha-Cucha (MA; IT: US-81176 (fragm. ex MA)).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (507, Fig. 108 & 525, Fig. 112 as var *pallens*), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970), M.N.Corréa, *Flora Patagonica Parte III, Gramineae* (1978) (478, Fig. 319), B.Rosengurt, *Gramineas Uruguayas I* (1970) (210, Fig. 86).

**Derivation** (Clifford & Bostock 2007): L. pale. Inflorescences pale.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 28–50 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking or scanty. Ligule an eciliate membrane, 0.6–0.8 mm long. Collar glabrous. Leaf-blades straight, convolute, 8–14(–16) cm long, 0.5–0.9 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, hairless except near base, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open (erect, subcontracted), 14–16(–20) cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.4–0.5(–0.6) mm long, pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 12–20(–27) mm long, 1 -veined. Lower glume primary vein scaberulous. Lower glume surface asperulous, rough generally.

Lower glume apex setaceously acuminate. Upper glume lanceolate, 28–37(–40) mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate.

**Florets.** Fertile lemma subterete, 11–12 mm long, without keel, rounded except near apex, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 65–100 mm long limb, without a column. Lateral lemma awns present, ascending, 65–100 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Colombia. Brazil Southeast, Brazil South. Argentina Northeast, Argentina South, Chile Central, Paraguay, Uruguay.

**TDWG4.** Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Mendoza, San Luis. Buenos Aires, Cordoba, Corrientes, Entre Rios, La Pampa, Misiones, Santa Fe. Chubut, Río Negro. Rest of Chile- Biobio, La Araucania, Maule, O'Higgins, Santado, Valpariso. Maule, Biobio, La Araucania.

**Aristida palustris** (Chapm.) Vasey. *Cat. Gram. U. St.* 35. (1885).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Aristida virgata* var. *palustris* Chapm., *Fl. South. US* :555 (1860). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IST: A.W. Chapman s.n., no date, USA: Florida (US-966075).

*Aristida virgatus* Trin., Spreng. *Neue Entdeck.* 2: 60. (1821).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (339).

**Derivation** (Clifford & Bostock 2007): L. swampy place. Growing in swampy places.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Culms erect, 100–150 cm long. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Ligule a fringe of hairs. Leaf-blades flat, 15–30 cm long, 2–3 mm wide. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 25–50 cm long. Primary panicle branches appressed, 5–10 cm long, naked below or bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 12 mm long, 1 length of upper glume, membranous, 2 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous. Lower glume apex acute, mucronate. Upper glume linear, 12 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma linear, subterete, 8 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, with this appendage 1 mm long, awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 15–30 mm long limb. Lateral lemma awns present, spreading less than principal, 10–25 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** South-central USA, Southeastern USA. Texas. Alabama, Arkansas, Florida, Georgia, Mississippi, North Carolina, South Carolina.

**Aristida pansa** Wootton & Standl. *Contrib. US. Nat. Herb.* 16: 112 (1913).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.O. Wootton s.n.*, 6 Oct 1904, USA: New Mexico: Dona Ana Co.: Tortugas Mountain, near Las Cruces (US-690259; IT: L (fragm. ex US), NMC).

**Recent Synonyms:** *Aristida tehuacanensis* Sanchez-Ken & Davila, *Fl. Valle Tehuacan-Cuicatlan* 3: 18, f. 1 (1994).



**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (327), F.W.Gould, *The Grasses of Texas* (1975) (396, Fig. 210).

**Derivation** (Clifford & Bostock 2007): L. extended. Inflorescence branches very long.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths glabrous or pubescent. Culms erect, 20–50 cm long, wiry. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades flat or involute, 5–15 cm long, 0.7–1.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 10–20 cm long. Primary panicle branches appressed or ascending, 2–8 cm long. Panicle branches with insignificant pulvini. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, 0.6–0.75 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 7–12 mm long, 1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 7–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, ascending or spreading, with 10–20 mm long limb, with a straight or slightly twisted column. Column of lemma awn 2 mm long. Lateral lemma awns present, spreading as much as principal, 10–20 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA, South-central USA, and Mexico. Arizona. New Mexico. Central Mexico, Northeast Mexico, Southwest Mexico, Southeast Mexico.

Puebla. Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo Leon, Queretaro, San Luis Potosi, Tamaulipas, Zacatecas. Jalisco, Oaxaca. Quintana Roo.

**Aristida paoliana** (Chiov.) Henrard. *Meded. Herb. Leid.* No. 54 A. 420 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. **Basionym or Replaced Name:** *Aristida hemmingii* Clayton, *Kew Bull.* 23: 211 (1969). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Paoli 115*, 26 Mar 1913, Somalia: Mogadishu, Boscaglia di Morgadiscio lungo la strada di Afgoi fra il 4 e il 5 km (FI).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (83, Fig 34).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of G. Paoli (fl. 1913) who collected in Somaliland.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–40 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades flat or convolute, 5–20 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or ovate, 8–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1 mm long, pilose, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–5(–6) mm long, 0.4 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex lobed, 2 -fid, obtuse, mucronate. Upper glume linear, 10–12 mm long, 2–2.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex lobed, 2 -fid, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 4–6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 35–50 mm long limb, with twisted column, deciduous,

abscising from top of lemma. Column of lemma awn 8–15 mm long. Lateral lemma awns present, 30–40 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea), Somalia. Kenya.

**Aristida papuana** J.F. Veldkamp. *Blumea*, 37(1): 228 (1992).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, J.F. Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from New Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.E. Henty & D.B. Foreman 49315*, 8 Nov 1972, Papua New Guinea: New Guinea, Western, Morehead Patrol Post (L). IT: A, BRI, CANB, E, K, LAE, M.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From Papua, now Papua New Guinea.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 25–45 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades 7–12.5 cm long, 0.5–1.7 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 10–13 cm long, 4 cm wide, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1–1.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–7 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 1(–3) -veined. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate or awned, 1 -awned, awn 0.5–1 mm long. Upper glume lanceolate, 10–12 mm long, 1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, mucronate or awned, 1 -awned, awn 0.8–2 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 6–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 30 mm long limb, with twisted column, persistent. Column of lemma awn 5.5–8 mm long. Lateral lemma awns present, 30 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3, 1.25 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia, Papuasia. New Guinea PNG. New Guinea.

**Aristida parishii** Hitchcock. Jepson, *Fl. Calif* 1: 101 (1912).

Regarded by K as a synonym (*A. wrightii*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *S.B. Parish & W.F. Parish 1029A*, Apr 1882, USA: California: San Bernardino Co.: Agua Caliente, Colorado Desert (US-81172; IT: L (fragm. ex US)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Samuel Bonsall Parish (1838–1928) United States botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–60 cm long. Lateral branches lacking. Leaves basal and cauline. Ligule a fringe of hairs. Leaf-blades involute, 10–20 cm long, 1–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, 10–25 cm long. Primary panicle branches appressed, 4–8 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 8–16 mm long, 0.5–0.66 length of upper glume, membranous. Lower glume primary vein scabrous. Lower glume

apex entire or dentate, 2 -fid, acute, awned, 1 -awned. Upper glume linear, 12–18 mm long, membranous. Upper glume primary vein smooth. Upper glume apex entire or dentate, 2 -fid, acute, awned, 1 -awned.

**Florets.** Fertile lemma linear, subterete, 12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 15–35 mm long limb, with a straight or slightly twisted column. Column of lemma awn 10–15 mm long. Lateral lemma awns present, spreading as much as principal, 15–35 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southwestern USA. California.

### **Aristida parodii** Henrard. *Meded. Herb. Leid.* No. 54 A. 428 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *S. Venturi 1129*, Mar 1917, Argentina: Tucuman (L-925.70–84; IT: BAA, US-81171 (fragm. ex L)).

**Illustrations (Journals):** *Darwiniana* (41: 179, fig.9 (2003)).

**Derivation** (Clifford & Bostock 2007): in honor of Lorenzo Raimondo Parodi (1895–1966) Argentinian agrostologist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–60 cm long. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades convolute, 20–30 cm long, 2 mm wide. Leaf-blade surface smooth, glabrous. Leaf-blade margins smooth. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, 25 cm long. Primary panicle branches 1–2 -nate, 7–15 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, truncate.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7 mm long, 0.9 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 8–8.5 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, laterally compressed, 8–8.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface granulose. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, awned, 3 -awned. Principal lemma awn 3-branched, with 14 mm long limb. Lateral lemma awns present, 10–11 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Southern South America. Bolivia. Argentina Northeast.

**TDWG4.** Jujuy, Salta, Tucuman.

### **Aristida parvula** (Nees) de Winter. *Kirkia* 3: 132 (1963).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. **Basionym or Replaced Name:** *Stipa parvula* Nees, *Fl. Afr. Austr.* 169. (1841). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Klein Namaqualand*, "In collibus saxosis siccis deserti Karro ..." ST: *Drege*, "..., prope Verleptpraam et ad ostia Garip fluvii..."

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (290, Fig 261 as *Stipa*).

**Derivation** (Clifford & Bostock 2007): *L. parvus*, small; -ula, diminutive. Dwarf in habit.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 6–40 cm long, wiry. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches lacking or sparse or ample. Leaf-sheaths outer margin hairy. Ligule a fringe of hairs. Leaf-blades flat or convolute, 6–12 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 4–12 cm long. Primary panicle branches spreading. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6.5–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, hairy in a ring above, truncate. Floret callus hairs 0.5 length of lemma.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5–5.5 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 2 mm long. Upper glume lanceolate, 6.5–7.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 2 mm long.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 1 -awned. Principal lemma awn geniculate, with 6–9 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 5 mm long. Lateral lemma awns absent. Palea oblong, 1 mm long, 0.15 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 2, lanceolate, 1.5 mm long, fleshy, veined. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp, linear. Embryo 0.5 length of caryopsis. Hilum linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Namibia, Northern Cape.

**Aristida patula** Chapm. ex Nash. *Bull. Torr. Bot. Cl.* 23: 98 (1896).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Chapman s.n.*, 1875, USA: Florida (US). ST: *Chapman 79*, 1884, USA: Florida (US, W-15951).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (322).

**Derivation** (Clifford & Bostock 2007): L. outspread. Inflorescence an open panicle.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or short. Culms erect, 50–100 cm long. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades flat or involute, 25–50 cm long, 2–4 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 20–35 cm long, 0.33–0.5 of culm length, with spikelets clustered towards branch tips. Primary panicle branches drooping, 1–2 -nate, rebranched at middle, 10–20 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 12–15 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume linear, 12–15 mm long, 1.2 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 10–12 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn ascending, with 20–25 mm long limb. Lateral lemma awns present, ascending, 5–10 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southeastern USA. Florida.

**Aristida pedroensis** Henrard. *Meded. Herb. Leid.* No. 58 A. 232 (1932).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *L.R. Parodi 9784*, 19 Feb 1931, Argentina: Jujuy: Depto. San Pedro: camino a San Pedro (L-931.349-12; ILT: BAA, US-1502424). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 731 (1933).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ensis*, denoting origin. From Depto. San Pedro, Argentina.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 80–130 cm long, 2.5–3 mm diam., 4–5 -noded. Culm-internodes similar in length, distally glabrous. Culm-nodes swollen. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, scaberulous. Leaf-sheath oral hairs scanty or lacking. Ligule a fringe of hairs. Leaf-blades involute, 40–60 cm long, 2–3 mm wide. Leaf-blade venation with 6 secondary veins. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins cartilaginous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear. Primary panicle branches appressed, distant. Panicle axis scaberulous, glabrous or puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 10 mm long, 0.75 length of upper glume, membranous, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume surface pubescent, hairy in lines. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 3–4 mm long. Upper glume linear, 12–14 mm long, 3–4 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 4–5 mm long.

**Florets.** Fertile lemma linear, subterete, 3–4 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 30 mm long limb, with twisted column. Column of lemma awn 10 mm long. Lateral lemma awns present, 30 mm long, subequal to principal. Palea hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast, Argentina Northwest.

**TDWG4.** Jujuy.

**Aristida pendula** H.M. Longhi-Wagner. *Bradea* 5(5): 59 (1988).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Minas Gerais: Grco Mogol - Cristalina, 15 Apr 1981, *Cordeiro, J.R. Pirani, M.C.E. Amaral, L. Rossi & A. Furlan CFCR 963* (HT: SPF; IT: ICN, K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pendulus*, hanging down. Spikelets or inflorescence branches pendant.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 100–120(–150) cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded (hairs extending to an initial collar). Ligule a fringe of hairs, 1–1.5 mm long. Collar glabrous. Leaf-blades straight or flexuous (slightly), flat (lower) or convolute (upper), 18–43(–50) cm long, 3–3.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 30–35 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1 mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower slightly shorter or longer than upper sometimes subequal). Lower glume lanceolate, 7–8.5 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex acute. Upper glume lanceolate, 8–10 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex dentate, 2 -fid, setaceously acuminate, mucronate.

**Florets.** Fertile lemma subterete, 9–11 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface smooth, with a median groove (ventral, longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with (19–)20–27 mm long limb, with twisted column. Column of lemma awn (1.5–)2–3 mm long. Lateral lemma awns present, ascending, (15–)19–25 mm long, subequal to principal.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil. Brazil Southeast.

**Aristida pennei** Chiov. *Ann. di Bot. Roma*, 2: 366. (1905).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Eritrea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Pappi* 1976, 1902, Eritrea: regione Oculi Cusai (FI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Penne (pre 1908).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 2–20 cm long. Ligule a fringe of hairs. Leaf-blades aciculate, involute, 1–10 cm long, 1–2 mm wide, glaucous. Leaf-blade surface ribbed.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 3–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–10.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.2 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6.5–7.5 mm long, 0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, muticous or awned, 1 -awned, awn 0–1 mm long. Upper glume linear, 9–10.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scabrous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, flat below, with 17–27 mm long limb, without a column, persistent. Lateral lemma awns present, 17–27 mm long, subequal to principal. Palea 0.25 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. Africa, Temperate Asia.

**Country /Province /State.** Northeast tropical Africa. Eritrea. Arabian Peninsula. Saudi Arabia, Yemen.

**Aristida perniciososa** Domin. *Biblioth. Bot.* 1, 5: 340 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K. Domin s.n.*, Feb 1910, Australia: Queensland: Cook District: Eucalyptus-Walder bei Mareeba (L (photo, BRI); IT: BRI).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(11)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.13).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 165, Fig.4 (1992)).

**Derivation** (Clifford & Bostock 2007): L. per, very; noxious, harmful; -osa, abundance. Callus very sharp and readily entangling in wool and clothing.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 40–137 cm long, 1–2 -noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths smooth or scaberulous, glabrous on surface or pilose. Leaf-sheath oral hairs ciliate, 0.5–2 mm long. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades curled or flexuous, conduplicate or involute, 10–20 cm long, 2–3 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear, 15–39 cm long, 1–1.5 cm wide. Primary panicle branches 2-nate, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 11–18.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.8–1.1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 11–16 mm long, 0.9–1 length of upper glume, membranous, 1-keeled, 5 -veined. Lower glume primary vein scabrous. Lower glume apex acute or acuminate, awned, 1 -awned, awn 8 mm long. Upper glume lanceolate, 11–18.3 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface glabrous or pubescent. Upper glume apex acute or acuminate, awned, 1 -awned, awn 8 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 7–14 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins involute, covering most of palea, without distinctive roughness. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 16–34 mm long limb, with twisted column, persistent. Column of lemma awn 5–10 mm long. Lateral lemma awns present, 13–30 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 0.9–1.3 mm long. Caryopsis with adherent pericarp, sulcate on hilar side, 5.4–7.6 mm long. Hilum linear, 0.4 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, Western Australia.

**TDWG4.** Kimberley. Darwin & Gulf. North, Central, South East, Inland.

**Aristida personata** Henrard. *Meded. Herb. Leid.* No. 58, 30 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *C.T. White 3396*, 25 Feb 1927, Australia: Queensland: Port Curtis Dist.: inter Rockhampton et Westwood (L-928.18–7 (photo, BRI); IT: BRI, K). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 732 (1933).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (328, Fig 261), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (131), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(28)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 197, Fig.11 (1992).

**Derivation** (Clifford & Bostock 2007): L. masked, that is, resembling something else. Readily confused with another species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms robust, 60–120 cm long. Culm-internodes smooth, distally glabrous. Lateral branches fastigiate. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous. Leaf-blades involute, 8–16 cm long, 1–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–30 cm long, 1–2 cm wide. Primary panicle branches 2–5 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9.5–11.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–11.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 6–11.5 mm long, 0.6–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute to setaceously acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 9.5–10.5 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness to scabrous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 12–25 mm long limb, without a column, persistent. Lateral lemma awns present, 13–23 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 6–8.5 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Queensland, South Australia. Fiji.

**TDWG4.** Southern. North, Central, South East. Coast, Tablelands, Western Slopes, Western Plains.

**Aristida petersonii** K.W. Allred & J. Valdes-Reyna. *Novon* 5(3): 209 (1995).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Oaxaca: 7.7 km NW of Tlaxiaco on road to San Juan Mixtepec, steep slopes with Pinus, Quercus, and Arbutus, elev. 2020 m, 2 Sep 1990, P.M. Peterson & A. Campos-Villanueva 9731 (HT: NMCR; IT: ANSM, US).

**Illustrations (Journals):** *Novon* (5:210, Fig.1 (1995)).

**Derivation** (Clifford & Bostock 2007): in honor of Paul M. Peterson (b 1923), United States agrostologist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long. Culm-internodes terete, striate, distally glabrous. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, without keel, striately veined, woolly. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 15–30 cm long, 2–2.5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 20–30 cm long. Primary panicle branches appressed, 1–2 -nate, 6–12 cm long, bearing 4–8 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 5 mm long, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–13 mm long, 1.5–2 length of upper glume, membranous, light brown or purple, 1 -veined. Lower glume lateral veins absent. Upper glume lanceolate, 6–7 mm long, 1.7–2 length of adjacent fertile lemma, membranous, light brown or purple, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 3–4 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned or 3 -awned. Principal lemma awn geniculate or 3-branched, with 7–9 mm long limb, with twisted column. Column of lemma awn 4–6 mm long. Lateral lemma awns absent or present, 0.1 mm long, shorter than principal. Palea 1–1.5 mm long, hyaline, 2-keeled.

**Flower and Fruit.** Lodicules 2, 1–1.5 mm long. Anthers 3. Caryopsis with adherent pericarp, fusiform, 4.5–5.5 mm long, dark brown.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Southwest Mexico.

**TDWG4.** Oaxaca.

**Aristida pilgeri** Henrard. *Meded. Herb. Leid.* No. 54 A. 443 (1927).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Namibia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: M.K. Dinter 2938, 4 Apr 1913, Namibia: Omaheke (L-925.70–72; IT: B, PRE).

**Illustrations (Books):** M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

**Derivation** (Clifford & Bostock 2007): in honor of Robert Knuds Friedrich Pilger (1876–1953) German agrostologist, born on Helgoland before its transfer from British to German administration.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 70–150 cm long, 3–6 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades 20–35 cm long, 1–2 mm wide. Leaf-blade surface ribbed, scaberulous, rough abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 20–40 cm long, 2–5 cm wide. Primary panicle branches appressed, 1 -nate, 5–11 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile



or the upper sterile. Spikelets lanceolate, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–7 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume surface asperulous. Lower glume apex acute, awned, 1 -awned, awn 1.5–2 mm long. Upper glume lanceolate, 10 mm long, 1.4–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 2 mm long.

**Florets.** Fertile lemma elliptic, subterete, 6–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface punctate. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 10–20 mm long limb, with a straight or slightly twisted column, deciduous, abscissing from top of column. Column of lemma awn 1.5 mm long. Lateral lemma awns present, 10–20 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Angola, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Mpumalanga.

**Aristida pilosa** Labill. *Sert. N. Caled.* 12. t. 17. (1824).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

**TYPE** from New Caledonia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Labillardiere s.n.*, New Caledonia (P).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pilus*, a hair; -osa, abundance. The whole plant or any of its organs invested with long spreading hairs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–70 cm long. Culm-internodes distally pubescent. Culm-nodes swollen. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades curved, filiform, convolute, 10–20 cm long, 1 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–20 cm long. Primary panicle branches appressed, 2–6 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, clavate, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 6.5 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acuminate, awned, 1 -awned, awn 4 mm long. Upper glume lanceolate, 7.5 mm long, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 1 mm long.

**Florets.** Fertile lemma linear, subterete, 8.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface punctate. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 8–9 mm long limb, without a column, persistent. Lateral lemma awns present, spreading less than principal, 4.5–5 mm long, shorter than principal. Palea 0.1 length of lemma.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. Pacific.

**Country /Province /State.** Southwestern Pacific. New Caledonia.

**Aristida pinifolia** Cataszs. *Novosti Sist. Vyssh. Rast.*, 20: 7 (1983).

More checking of status required.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Isla de la Juventud (Isla del Pinos): sabanas de arenas blancas, 27 Dec 1951, *Alain & Killip 2170* (HT: HAC).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. folium*, leaf. The leaf-blades resemble those of *Pinus*.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Cuba.

**Aristida pittieri** Henrard. *Meded. Herb. Leid.* No. 54 A. 447 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Pittier 10803*, 27 Nov 1922, Venezuela: Trujillo: Dividive, in savannas, abundans (G-Del; IT: *L* (fragm. ex G-Del), US-1187760 (photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Henry Francois de Fabrega Pittier (1857–1950) Swiss botanist and civil engineer.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect, 15–30 cm long, 0.5 mm diam. Culm-internodes glaucous. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, smooth. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 6–7 cm long, 0.5–1 mm wide. Leaf-blade surface scabrous, puberulous, hairy adaxially. Leaf-blade margins ciliate. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 6–16 cm long. Primary panicle branches appressed or ascending, 1–2 -nate. Panicle axis smooth or scaberulous. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse or acute.

**Glumes.** Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5 mm long, 0.75 length of upper glume, membranous, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, acute, mucronate. Upper glume lanceolate, 6.5 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, acute, mucronate.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 18–20 mm long limb. Lateral lemma awns present, 18–20 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America, Western South America.** Venezuela. Colombia.

**Aristida platychaeta** S. T. Blake. *Proc. Roy. Soc. Queensl.* 51: 174 (1940).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Maranoa District: Mitchell, on open downs on dark greenish brown silty clay 1100 ft., 3 May 1934, S. T. Blake 5701 (HT: BRI; IT: BRI).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (131), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(30)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 216, Fig.16 (1992).

**Derivation** (Clifford & Bostock 2007): *G. platys*, broad; *chaete*, bristle. Awns flattened.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 15–50 cm long, 1–2 -noded. Culm-internodes smooth, distally glabrous. Leaf-sheaths striately veined. Leaf-sheath oral hairs bearded, 3 mm long. Ligule a fringe of hairs, 1 mm long. Collar glabrous. Leaf-blades curled or flexuous, flat, 4–8 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–23 cm long, 2–3 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 5–7 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5–6 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 12–18 mm long limb, without a column, persistent. Lateral lemma awns present, 12–18 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 3 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Queensland.

**TDWG4.** South East, Inland. Western Slopes, Western Plains.

**Aristida polyclados** Domin. *Biblioth. Bot.* 1, 5 : 338 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K. Domin s.n.*, Feb 1910, Australia: Nord-Queensland: Cook Dist.: bei Chillagoe (L (photo, BRI); IT: BRI).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(7)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.13).

**Derivation** (Clifford & Bostock 2007): Gk. polys, several; klados, branch. Plants with much branched culms often with the branches in fascicles.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending, 29–40 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths scaberulous, glabrous on surface or pilose. Leaf-sheath oral hairs ciliate, 0.5–1 mm long. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades filiform, involute, 8–11 cm long, 0.5–1.8 mm wide. Leaf-blade surface scabrous, rough on both sides, pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 7–19 cm long, 8 cm wide. Primary panicle branches 3 -nate, 1–3.5 cm long. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 17–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.2–1.7 mm long, pubescent, pungent. Floret callus hairs 0.5–1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 17–30 mm long, 1.3–1.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface glabrous or pubescent. Lower glume apex emarginate or obtuse, awned, 1 -awned, awn 2–4 mm long. Upper glume lanceolate, 13–20 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface glabrous or pubescent. Upper glume apex emarginate or obtuse, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 7–8 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface tuberculate, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 32–76 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 15–35 mm long. Lateral lemma awns present, 26–70 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 0.7 mm long. Caryopsis with adherent pericarp, 3.7–5.6 mm long. Hilum linear, 0.5–0.6 length of caryopsis.

**Distribution (TDWG). Continent.** Tropical Asia, Australasia.

**Country /Province /State.** **Malesia.** Lesser Sunda Is. **Australia.** Northern Territory, Queensland, Western Australia.

**TDWG4.** Kimberley, Darwin & Gulf. North, Inland.

**Aristida portoricensis** Pilger. *Urb. Symb. Antill.* 4: 100. (1903).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Puerto Rico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. Sintenis* 77, 24 Oct 1884, Puerto Rico: prope Mayaguez in Monte Mesa (B (photo, US); IT: US-820706).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ense*, denoting origin. From Puerto Rico.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 30–50 cm long. Lateral branches sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty. Ligule a fringe of hairs. Leaf-blades curved or flexuous, involute, 5–10 cm long, 0.5–1 mm wide. Leaf-blade surface hirsute, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 3–8 cm long, contracted about primary branches. Primary panicle branches ascending or spreading, 2–4 cm long, bearing spikelets almost to the base. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.75 mm long, pubescent, pungent.

**Glumes.** Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume linear, 7 mm long, 0.7 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex setaceously acuminate. Upper glume linear, 10 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 12 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, with 20–30 mm long limb, with a straight or slightly twisted column. Column of lemma awn 2–3 mm long. Lateral lemma awns present, spreading less than principal, 20–30 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** **Caribbean.** Puerto Rico.

**Aristida pradana** Leon. *Bull. Torr. Bot. Cl.* 53: 458. (1926).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Bro. Lesn* 12299, 17 Jul 1924–4 Aug 1924, Cuba: southern Baracoa region, Peladeros de Yauco, upper Yauco River valley, south of Baracoa (NY-71001, US-1258952).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Enrique who collected in Prada, Cuba.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–80 cm long, wiry. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flexuous, involute, 30–60 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 25–35 cm long. Primary panicle branches appressed, distant, 4–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 15–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes lower deciduous, upper persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume linear, 10–12 mm long, 1–1.05 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume linear, 10–12 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 15–17 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, with 20–30 mm long limb. Lateral lemma awns present, spreading less than principal, 10–15 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Aristida protensa** Henrard. *Meded. Herb. Leid.* No. 54 E. 467 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Somalia, Gharabwin prope Obbia (Harajab Mts.), *Dr. R. E. Drake-Brockman 957* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. protendo*, stretch out. Inflorescence a long spike.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 20–40 cm long. Ligule a fringe of hairs. Leaf-blades filiform, involute, 15–25 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, lanceolate (cuneate), 12–16 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 20–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 12–14 mm long, 0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume linear or lanceolate, 20–25 mm long, 4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, caudate, awned, 1 -awned, awn 5–10 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 5–6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 80–90 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 6–8.5 mm long. Lateral lemma awns present, 80–90 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Lodicules 2, oblanceolate, 1.5 mm long, membranous, veined, acute. Anthers 3. Caryopsis with adherent pericarp, linear, 5 mm long.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Somalia.

**Aristida pruinosa** Domin. *Biblioth. Bot.* 1, 5: 345 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *M. Lazarides 4369*, 15 Mar 1954, Australia: Queensland: Burke Dist.: Mt. Isa (BRI; INT: AD, CANB, MEL, NSW, NT, PERTH). NT designated by Simon, *Austr. Syst. Bot.* 5: 169 (1992).

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (167, Pl 49), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(34)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 168, Fig.5 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. bluish-green*. Leaf-blades are covered with short white hairs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 60–153 cm long. Culm-internodes glaucous, smooth, distally glabrous. Culm-nodes glabrous. Lateral branches sparse. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate, 1–2 mm long. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous or pubescent. Leaf-blades straight or flexuous, 20–40 cm long, 2–4.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, continuous or interrupted, 15–37 cm long, 2–4 cm wide. Panicle branches scaberulous or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–25 mm long, 1.3–1.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 7.6–15 mm long, 1.1–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate to acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5.4–13.5 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scabrous, rough above. Lemma margins involute, covering most of palea, scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn flat below, with 14–48 mm long limb, without a column, persistent. Lateral lemma awns present, 14–37 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 5–8.3 mm long. Hilum linear, 0.4 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland, Western Australia.

**TDWG4.** Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. North, Central, Inland.

**Aristida psammophila** Henrard. *Meded. Herb. Leid.* No. 58 A. 229 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *C.T. White s.n.*, Apr 1916, Australia: Queensland: Darling Down Dist.: Dalby (K (photo, BRI); IT: BRI). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 735 (1933).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (131), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(14)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 192, Fig.10 (1992).

**Derivation** (Clifford & Bostock 2007): Gk. psammos, sand; phileo, love. Growing in sandy places.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–120 cm long. Culm-internodes smooth or scaberulous, distally glabrous. Lateral branches sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Ligule a fringe of hairs, 0.3 mm long. Collar glabrous or pubescent. Leaf-blades involute, 7–15 cm long, 1.5 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 12–16 cm long, 3–4 cm wide. Primary panicle branches 4–8 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–13 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate, awned, 1 -awned, awn 1–1.5 mm long. Upper glume lanceolate, 7–13 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 7–10.5 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness or scabrous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, reflexed, with 18–25 mm long limb, with twisted column, persistent. Column of lemma awn 1.3–3 mm long. Lateral lemma awns present, 16–23 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 4.8–5.3 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Queensland.

**TDWG4.** North, South East, Inland. Western Slopes, Western Plains.

### **Aristida pubescens** E. Sanchez. *Darwiniana* 19(3–4): 417 (1975).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina: Jujuy: Departamento Yavi: Quebrada de Toquero, 3500 m, 9 Jan 1972, *B.J. Ruthsatz 2502 pro parte* (HT: BAF; IT: BAA) "estaba mezclada con *Aristida asplundii* Henrard," *fide* Caro & Sanches, *Darwiniana* 9: 421 (1975).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pubesco*, become hairy. Plant whole or in part hairy.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms erect, 10–22 cm long, 2 -noded. Culm-internodes elliptical in section, distally pubescent. Lateral branches lacking. Leaf-sheaths pubescent. Leaf-sheath oral hairs bearded, 3.5 mm long. Ligule a fringe of hairs. Collar pubescent. Leaf-blades straight or curved or flexuous, flat or conduplicate, 4–6 cm long, 2–2.5 mm wide. Leaf-blade surface ribbed, grooved adaxially, scaberulous, rough abaxially, puberulous, hairy adaxially. Leaf-blade margins scaberulous. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 4–10 cm long. Panicle axis pubescent. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 9–10.5 mm long, 0.75 length of upper glume, membranous, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume surface glabrous or puberulous. Lower glume apex awned, 1 -awned, awn 0.8 mm long. Upper glume linear or lanceolate, 11–12 mm long, 1.2 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate or awned, 1 -awned, awn 0.8 mm long.

**Florets.** Fertile lemma linear, subterete, 9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 14 mm long limb. Lateral lemma awns present, 12 mm long, subequal to principal or shorter than principal. Palea 1.5 mm long, 0.1–0.2 length of lemma, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, 1.5 mm long. Anthers 3, 2 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northwest.

**TDWG4.** Jujuy, Salta.

### **Aristida purpurascens** Poir. *Encyc. Suppl.* 1: 452 (1810).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.A.G. Bosc s.n.*, no date, USA: "carolina" (P; IT: US-81167 (fragm. ex P)).

**Recent Synonyms:** *Aristida affinis* (Schult.) Kunth, *Rev. Gram.* 1: 61 (1829). *Aristida tenuispica* Hitchcock, *Contrib. U. S. Nat. Herb.* 22: 581 (1924).

*Aristida virgata* Poir., Spreng. *Neue Entdeck.* 2: 60. (1821).

*Aristida wrightii* Nash, Small, *Fl. S.E. U.S.* 116. (1903).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (341 as var. *purpurascens* & *tenuispica* & *virgata*), F.W.Gould, *The Grasses of Texas* (1975) (391, Fig. 207), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (96, Fig. 56 as *A. affinis*).

**Derivation** (Clifford & Bostock 2007): *L. purpurasco*, become purple. Inflorescences reddish-purple.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Rhizomes short. Culms slender, 30–80 cm long, 1–2 mm diam. Lateral branches sparse. Leaf-sheaths without keel, glabrous on surface or pubescent. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades flat or involute, 15–30 cm long, 1–2.5 mm wide. Leaf-blade surface glabrous, hairless except near base.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–35 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–10 mm long, 1.1–1.4 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acuminate. Upper glume lanceolate, 6–7 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 5–7 mm long, coriaceous, purple, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, 15–28 mm long overall, with 15–28 mm long limb, without a column. Lateral lemma awns present, spreading less than principal, 13–18 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Eastern Canada, North-central USA, Northeast USA, South-central USA, Southeastern USA, Mexico. Illinois, Iowa, Kansas, Missouri, Oklahoma, Wisconsin. Connecticut, Pennsylvania. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Southeast Mexico. Mesoamerica. Belize, Honduras, Nicaragua.

Chiapas.

**Aristida purpurea** Nutt. *Trans. Am. Phil. Soc.* 5: 145. (1837).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Nuttall s.n.*, USA: Oklahoma: Choctow Co.: Red River (PH; IT: LE-TRIN-1330.01 (fragm.), US-18631 (fragm. ex PH)).

**Recent Synonyms:** *Aristida fendleriana* Steud., *Syn. Pl. Gram.* 420. (1854). *Aristida roemeriana* Scheele, *Linnaea* 22: 343. (1849).

*Aristida longiseta* Steud., *Syn. Pl. Gram.* 420. (1854).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (334 as var. *purpurea* & *parishii* & *nealleyi* & *fendleriana* & *wrightii* & *perplexa* & *longiseta*), F.W.Gould, *The Grasses of Texas* (1975) (405, Fig. 216).

**Illustrations (Journals):** *Novon* (5:219, Fig.6 (1995) as var. *perplexa*).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): *L. purple* to reddish. Usually of purple spikelets.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms slender, 25–70 cm long. Leaves mostly basal or basal and cauline. Leaf-sheaths glabrous on surface or puberulous. Leaf-sheath oral hairs pubescent or ciliate. Ligule a fringe of hairs, 0.3–0.6 mm long. Leaf-blades involute, 3–18 cm long, 0.7–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, nodding, 10–25 cm long. Primary panicle branches appressed or spreading. Panicle branches capillary, flexuous. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile



or the upper sterile. Spikelets linear, subterete, 11–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, pungent.

**Glumes.** Glumes dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–8 mm long, 0.5 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 11–15 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 10–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above or in lines. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 35–45 mm long limb, without a column. Lateral lemma awns present, 35–45 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** **Western Canada, Northwest USA, North-central USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Alberta, British Columbia, Manitoba, Saskatchewan. Colorado, Idaho, Montana, Oregon, Wyoming. Iowa, Minnesota. Arizona, California, Nevada, Utah. New Mexico, Texas. South Carolina. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico. **Western South America.** Colombia.

Distrito Federal, Mexico State, Puebla. Coahuila, Chihuahua, Durango, Guanajuato, Neuvo Leon, Queretaro, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Baja California, Sinaloa. Oaxaca.

**Aristida purpusiana** Hitchcock. *Contrib. US. Nat. Herb.* 17: 276 (1913).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *C.A. Purpus 394*, Jan 1901-Mar 1901, Mexico: Baja California Sur: San Josi del Cabo (US-470407; IT: L (fragm. ex US), MO-2526401).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Carl Albert Purpus (1853–1941) German-born United States botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms erect, slender, 50–60 cm long. Culm-internodes distally glabrous. Lateral branches ample. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades involute, 5–10 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 15–25 cm long. Primary panicle branches spreading or reflexed, 5–6 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 6 mm long, 0.75 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume apex emarginate. Upper glume lanceolate, 5 mm long, 0.75 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate.

**Florets.** Fertile lemma linear, subterete, 10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface asperulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, recurved at base of limb, with 8 mm long limb, with twisted column. Column of lemma awn 10 mm long. Lateral lemma awns present, 0.5–1 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** **Mexico.** Northwest Mexico. Baja California Sur.

**Aristida pycnostachya** T.A. Cope. *Kew Bull.* 47(2): 277 (1992).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Somalia: Galguduud: Ceel Dheer (3.53N 46.52E), 200 m, 28 Jun 1979, *Beckett 390* (HT: K; IT: EA).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. pyknos, thick; stachys, ear of corn. Inflorescence a contracted panicle.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Culms 50–90 cm long. Ligule a fringe of hairs. Leaf-blades convolute, 20–50 cm long, 1.5–3 mm wide. Leaf-blade surface ribbed, pubescent, hairy adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle, exserted. Panicle spiciform, oblong (oblanceolate), 15–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 29–38 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.7 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 23.5–27 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 29–38 mm long, 4–5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate, awned.

**Florets.** Fertile lemma lanceolate, subterete, 7.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 70–85 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 16 mm long. Lateral lemma awns present, 70–85 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Somalia.

**Aristida queenslandica** Henrard. *Meded. Herb. Leid.* No. 54 a. 488 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P.A. O'Shanesy 13*, 1879, Australia: Queensland: Leichhardt Dist.: on ridges near Cometville (L-925.125–52 (photo, BRI); IT: MEL).

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (131 as var. *queenslandica*), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(4)), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (153, Fig. 23).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 165, Fig.4 (1992)), *Proc.Roy.Soc.Qld.* (51:176,Pl.4 (1940) as *A. dissimilis*).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Queensland, Australia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 25–100 cm long, 1–2 mm diam., 2–4 -noded. Culm-internodes smooth or scaberulous, distally glabrous or hirsute. Lateral branches lacking or sparse or ample or fastigiate. Leaf-sheaths smooth or scaberulous, glabrous on surface or pilose. Leaf-sheath oral hairs ciliate, 1–3 mm long. Ligule a fringe of hairs, 0.2–0.5 mm long. Collar glabrous or pubescent. Leaf-blades curled, 20–40 cm long, 2 mm wide. Leaf-blade surface scaberulous, rough abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 9–64 cm long, 2–4.5 cm wide. Primary panicle branches 5–11 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6.2–10.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5–0.9 mm long, pubescent, acute.

**Glumes.** Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.2–11 mm long, 0.8–1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate, mucronate. Upper glume lanceolate, 6.2–10.5 mm long, 0.8–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex acute or acuminate, mucronate, 1 -awned.

**Florets.** Fertile lemma lanceolate, subterete, 5–12 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins involute, covering most of palea, without distinctive roughness. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 8–16 mm long limb, without a column, persistent. Lateral lemma awns present, 3–10 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 0.9–1.9 mm long. Caryopsis with adherent pericarp, sulcate on hilar side, 4.1–6.1 mm long. Hilum linear, 0.3–0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Northern Territory, Queensland.

**TDWG4.** Darwin & Gulf. North, Central, South East, Inland. Coast.

### **Aristida ramosa** R. Br. *Prod.* 1: 173. (1810).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6199*, Australia: New South Wales: Central Coast, Port Jackson (BM; IT: BRI, E, K).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (551, Fig 109), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (132), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(27)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), E.Edgar. & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000) (505, Fig. 15).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 197, Fig.11 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): *L. ramus*, branch; -osa, abundance. Inflorescences or culms much branched.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 37–103 cm long, 2 -noded. Culm-internodes smooth, distally glabrous. Lateral branches ample. Leaf-sheath oral hairs lacking or ciliate, 1.2–2.2 mm long. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous or pubescent. Leaf-blades involute, 6–12 cm long, 0.6–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 8–27 cm long, 1.5–6 cm wide. Primary panicle branches 2–5 cm long, bearing spikelets almost to the base. Panicle branches with insignificant pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5–1.2 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.7–9 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1(–3) -veined. Lower glume primary vein smooth to scabrous. Lower glume lateral veins absent or obscure. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 5.2–10.7 mm long, 0.7–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface smooth to scabrous. Upper glume apex obtuse to acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6–14 mm long, coriaceous, pallid or light brown, concolorous or mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous or papillose. Lemma margins involute or convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn straight or curved, spreading, flat below, with 8–20 mm long limb, without a column, persistent. Lateral lemma awns present, spreading as much as principal, 7–17 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 1.3–1.9 mm long. Caryopsis with adherent pericarp, without sulcus or sulcate on hilar side, 5–8.7 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Europe (\*), Australasia, Pacific.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia, New Zealand.** New South Wales, A.C.T., Northern Territory, Queensland, Western Australia. New Zealand North I. **Southwestern Pacific.** Fiji, New Caledonia, Vanuatu. Tubuai Is.

**TDWG4.** South-West. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

**Aristida ramosissima** Engelm. ex A. Gray. *Man. Bot. U. St.* ed. 5, 618. (1856).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *E. Engelmann s.n.*, no date, USA: Illinois: St. Clair Co.: dry slopes (GH; ILT: US-745328). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 22(7): 538 (1924).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (327).

**Derivation** (Clifford & Bostock 2007): L. ramus, branch; -osa, abundance; -issima, most.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms 25–50 cm long. Lateral branches ample. Leaf-sheaths without keel, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades flat or involute, 0.5–1 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–12 cm long. Primary panicle branches indistinct the panicle almost racemose. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 18–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 13–20 mm long, 0.9 length of upper glume, membranous, 3–7 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 18–22 mm long, 1.1 length of adjacent fertile lemma, membranous, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume apex dentate, 2 -fid, acute, awned, 1 -awned, awn 2–6 mm long.

**Florets.** Fertile lemma linear, subterete, 16–25 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, recurved at base of limb, with 18–28 mm long limb, with a straight or slightly twisted column. Column of lemma awn 5 mm long. Lateral lemma awns present, 0.5–4 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** North-central USA, Northeast USA, South-central USA, Southeastern USA. Iowa, Missouri, Oklahoma. Ohio. Texas. Arkansas.

**Aristida recta** Franch. *Bull. Soc. Hist. Nat. Autun.* 8: 365. (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Congo. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J. de Brazza & Thollon* 226, Oct 1883, Congo Français: Hab.-Congo, aux environs de Franceville (P; IT: K).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (312, Fig 277).

**Derivation** (Clifford & Bostock 2007): L. upright. Panicle branches erect or spike-like.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Roots simple (wiry). Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 10–30 cm long. Culm-internodes distally glabrous. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades filiform, involute, 5–20 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or ovate, 3–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.3 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.5–6 mm long, 0.5–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume cuneate, 5–7.5 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-

keeled, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 4–5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex rostrate, with a short cylindrical neck, with this appendage 0.5 mm long, awned, 3 -awned. Principal lemma awn 3-branched, with 6–8 mm long limb, without a column, persistent. Lateral lemma awns present, gyrate, 6–8 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Ghana, Guinea, Nigeria. Central African Republic, Cameroon, Gabon, DRC. Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Limpopo, Gauteng, Mpumalanga, Swaziland.

**Aristida recurvata** H. B. & K. *Nov. Gen. et Sp.* 1: 123. (1815).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & M.A. Bonpland s.n.*, May, Venezuela: Bolmvar: prope Santo Thomas de la Angostura (P-Bonpl.; IT: B-W, P, US-81272 (fragm. ex P & photo)).

**Recent Synonyms:** *Aristida neesiana* Trin. & Rupr., *Mem. Acad. Petersb. Ser.* 6 (7) 113. (1849).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (33, Fig. 15).

**Derivation** (Clifford & Bostock 2007): L. reflexed. Spikelets with spreading or reflexed awns.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 53–150 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking or bearded (deciduous hairs). Ligule a ciliolate membrane, 0.2–0.3 mm long. Collar glabrous. Leaf-blades curled (lower) or straight (upper), flat (lower) or conduplicate (upper), 12–50 cm long, 1–4 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 16–40 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.2–0.4 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar (lower in general slightly longer than upper, sometimes subequal or lower slightly shorter than upper). Lower glume lanceolate, 7.5–12.6 mm long or 5 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex setaceously acuminate. Upper glume lanceolate, 7.3–11.5 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate.

**Florets.** Fertile lemma subterete, 3–5 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above, with a median groove (ventral,longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn coiled (at base), ascending, simple at base, with 9.5–21 mm long limb, with twisted column. Column of lemma awn 0.8–2 mm long. Lateral lemma awns present, wrapped around principal, 6–17 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America, Western South America, Brazil. Belize, Costa Rica, Panama. Guyana, Surinam, Venezuela. Bolivia, Colombia, Peru. Brazil West Central, Brazil Southeast, Brazil North.

**TDWG4.** Goias, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

**Aristida redacta** Stapf. *Kew Bull.* 85. (1892).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma*, Ceylon, India and Pakistan (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *G.M. Woodrow 19=124*, May 1880, India: Deccan (K (photo, US-1447177)). LT designated by Henrard, *Meded. Rijks-Herb.* 54(B): 505 (1928).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. reduco, reduce. Lateral branches of awn very reduced.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms 20–90 cm long. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths 1.5–7 cm long, keeled. Ligule a fringe of hairs. Leaf-blades convolute, 7–30 cm long, 1–2 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 10–40 cm long, 5–10 cm wide. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, bearded, pungent.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–17 mm long, 1 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex awned, 1 -awned. Upper glume lanceolate, 10–17 mm long, 1 length of adjacent fertile lemma, scarious, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume awned, 1 -awned.

**Florets.** Fertile lemma elliptic, subterete, 10–17 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 1 -awned or 3 -awned. Principal lemma awn straight or 3-branched, with 15–20 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 8–10 mm long. Lateral lemma awns absent or present, 0–3 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Karnataka. Madhya Pradesh, Maharashtra, Rajasthan, Tamilnadu, West Bengal.

**Aristida refracta** Griseb. *Cat. Pl. Cub.* 228. (1866).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Wright 3431*, 1860–1864, Cuba (GOET; IT: LE, US-81271, US-991856 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. curved back abruptly. Mostly applied to species whose mature inflorescence branches curve back.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms prostrate, 20–60 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades filiform, involute, 5–15 cm long, 0.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–15 cm long. Primary panicle branches ascending, 1–3 cm long. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 4–5 mm long, 0.7–0.8 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, acute, mucronate. Upper glume linear, 5–7 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, acute, mucronate.

**Florets.** Fertile lemma linear, subterete, 4.5 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 10 mm long limb. Lateral lemma awns present, gyrate, 10 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico.

**Aristida repens** Trin. *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 1(1): 87. 1830.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.D. Prescott s.n.*, 1928–1929, Galapagos Islands (LE; IT: K, US-81270 (fragm. ex LE)). HT: *Douglas s.n.*, Ecuador: Galapagos (LE; IT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. repo, crawl. Rhizome well developed.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, 15–50 cm long, rooting from lower nodes. Culm-internodes terete, smooth or scaberulous. Lateral branches ample. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Collar glabrous. Leaf-blades flat or convolute, 10–15 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–15 cm long. Primary panicle branches appressed, 1-nate, 1–3 cm long, bearing spikelets almost to the base. Panicle axis angular, scaberulous. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–1.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 5–7 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma oblong, subterete, 3–5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 5–10 mm long limb, with twisted column, deciduous, abscissing from top of column. Column of lemma awn 0.5–2.5 mm long. Lateral lemma awns present, 5–7 mm long, subequal to principal.

**Distribution (TDWG). Continent.** Pacific and South America.

**Country /Province /State.** South-central Pacific (Henrard 1999). Marquesas. Western South America. Galapagos.

**Aristida rhiniochloa** Hochst. *Flora*, 8: 200. (1855).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ethiopia, Gageros: *Schimper in Buchinger 1229* (P iso, K).

**Illustrations (Books):** M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): Gk. rhine, file; chloa, grass. Leaf-blades scabrid.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 20–60 cm long. Culm-internodes antrorsely scabrous, distally glabrous. Culm-nodes pubescent. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades 10–20 cm long, 2–4 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, interrupted, 8–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–17 mm long, 1.1–1.2 length of upper glume, chartaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex setaceously acuminate. Upper glume lanceolate, 5–15 mm long, 0.7–1.2 length of adjacent fertile lemma, chartaceous, 1-keeled, 1 -veined.

Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume apex dentate, 2 -fid, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 7–13 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough in lines. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 15–30 mm long limb, persistent. Lateral lemma awns present, 15–30 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Mali, Mauritania, Niger. Eritrea, Ethiopia (inc. Eritrea), Sudan. Tanzania. Angola, Zambia, Zimbabwe. Botswana, Limpopo, North-West, Mpumalanga.

**Aristida rhizomophora** Swallen. *J. Wash. Acad. Sci.* 19(10): 196, f. 1. 1929.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Paul Weatherwax 1081*, 30 Jun 1928, USA: Florida: prairie region north of Lake Okeechobee, near Fort Bassenger (US-1435634; IT: L, US-1389883).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (336).

**Derivation** (Clifford & Bostock 2007): Gk. rhizoma, a root; phero, bear. Plant with well developed scaly rhizomes.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated, scaly. Culms erect, 65–80 cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flexuous, flat or conduplicate, 7–10 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 20–30 cm long. Primary panicle branches ascending, distant, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 8–14 mm long, 0.66–0.8 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate or setaceously acuminate. Upper glume linear, 12–17 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate or setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 9–12 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn reflexed or recurved at base of limb, with 18–24 mm long limb. Lateral lemma awns present, spreading as much as principal, 15–20 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Southeastern USA. Florida.

**Aristida riograndensis** B.M.A. Severo & I.I. Boldrini. *Bradea* 3(30): 239 (1982).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brasil: Rio Grande do Sul: Arroio dos Ratos, BR 290, Km. 58, *Valls, Severo et al. 4241* (HT: ICN-43616).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Rio Grande de Sul, Brazil.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 53–115 cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.1–0.2 mm long. Collar pubescent (discontinuous on the mid vein). Leaf-blades straight or curved (slightly), conduplicate, (4–)11–84 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.



**Inflorescence.** Inflorescence a panicle. Panicle contracted (subcontracted, not linear), 16–34 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.7–1.2 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 15–23 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface asperulous, rough generally. Lower glume apex setaceously acuminate. Upper glume lanceolate, 23–35 mm long, 1 -veined. Upper glume primary vein scaberulous. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate, awned.

**Florets.** Fertile lemma subterete, 13–22(–25) mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 50–100 mm long limb, without a column. Lateral lemma awns present, ascending, 50–100 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil South.

**Aristida riparia** Trin. *Bull. Acad. Petersb.* 1: 68. (1836).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *L. Riedel s.n.*, Dec 1824, Brazil: Parana: in arenosis ripae rivuli Jacari (LE-TRIN-1340.01; IT: US-81265 (fragm. ex LE)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (275, Fig 55), S.A.Renvoize, *The Grasses of Bahia*, 1984 (53, Fig. 18), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (32, Fig. 12), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (67, Fig 8).

**Derivation** (Clifford & Bostock 2007): *L. ripa*, river bank; -aria, pertaining to. Growing on river banks.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms (60–)90–130(–180) cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.4–0.8 mm long. Collar glabrous. Leaf-blades straight or curled (lower, very rarely), flat or convolute (upper, rarely), 19–70 cm long, (2.8–)3–5 mm wide. Leaf-blade surface scabrous, rough on both sides, pilose (at base), densely hairy (lanose at base, adaxially), hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, 20–44 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1–1.5 mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, 12–22 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex acute or acuminate, awned. Upper glume lanceolate, 10–22 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute or acuminate.

**Florets.** Fertile lemma subterete, 6–8 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface smooth, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with (26–)32–64 mm long limb, with twisted column. Column of lemma awn (6–)14–24(–52) mm long (sometimes variation in the same inflorescence). Lateral lemma awns present, ascending, 22–42(–60) mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia, Colombia. Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Argentina Northwest, Argentina Northeast.

**TDWG4.** Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana. Santiago del Estero. Cordoba, Entre Rios.

**Aristida rosei** Hitchcock. *Contrib. U. S. Nat. Herb.* 22: 584 (1924).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Dominican Republic. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.N. Rose, W.R. Fitch & P.G. Russell 4027*, 1 Mar 1913, Dominican Republic: Hispaniola I.: Azua, hillside west of town (US-760164; IT: L (fragm. ex US), NY-71003 [as 18 Mar 1913]).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph Nelson Rose (1862–1928) who collected widely in the Americas.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, slender, 30–50 cm long, wiry. Leaf-sheaths keeled, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.4 mm long. Leaf-blades ascending or spreading, involute, 2–5(–10) cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–15 cm long. Primary panicle branches appressed or ascending. Panicle branches flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 5 mm long, 0.7–0.8 length of upper glume, membranous, 1 -veined. Lower glume primary vein smooth. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 6–7 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma linear, subterete, 6 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 10 mm long limb. Lateral lemma awns present, gyrate, 10 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Cuba, Dominican Republic, Haiti.

### **Aristida rufescens** Steud. *Syn. Pl. Gram.* 421. (1854).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Boivin s.n.*, Madagascar: insulae Nossibi et Maynote (P; IT: W).

**Illustrations (Books):** J. Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (99, Fig 27).

**Derivation** (Clifford & Bostock 2007): L. *refesco*, grow reddish. Spikelets or inflorescence reddish-brown.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 70–100 cm long. Culm-nodes swollen. Lateral branches lacking or sparse. Leaf-sheaths hirsute. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades convolute, 30–40 cm long, 3 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough adaxially, pubescent, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear to elliptic, dense, 12–25 cm long. Primary panicle branches 2–6 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pilose, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7.5 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or obscure. Lower glume surface pubescent. Lower glume apex attenuate, awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 8.5 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein scabrous. Upper glume apex attenuate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 4.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 13–14 mm long limb, with a straight or slightly twisted column. Column of lemma awn 2 mm long. Lateral lemma awns present, 13–14 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.  
**Country /Province /State.** Western Indian ocean. Madagascar.

**Aristida sanctae-luciae** Trin. *Diss.* 2: 25. (1826).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Riedel s.n.*, Brazil: in declivibus prope Santa Luzia (LE-TRIN-1342.01; ILT: US-991969 (fragm. ex LE)). LT designated by Henrard, *Meded. Rijks-Herb.* 58(C): 531 (1928); cited by Longhi-Wagner, *Bol. Inst. Bot. (Sco Paulo)* 12: 145 (1999). IT: *G.H. von Langsdorff s.n.*, 1826, Brazil (US-991969). "sent by Langsdorff, probably collected by Riedel"; cited by Longhi-Wagner, *Bol. Inst. Bot. (Sco Paulo)* 12: 145 (1999).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): from St. Luzia, Brazil.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms 10–25 cm long. Leaf-sheath oral hairs scanty. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades erect, straight, conduplicate, 2.9–8 cm long, 0.8–1.2 mm wide. Leaf-blade surface scabrous, rough abaxially. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 4–9 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, 3.4–3.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.2–0.3 mm long, pilose, obtuse.

**Glumes.** Glumes similar. Lower glume lanceolate, 2.8–3.5 mm long, 0.8–0.9 length of upper glume, purple, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, setaceously acuminate. Upper glume lanceolate, 3.4–3.8 mm long, 1.2 length of adjacent fertile lemma, purple, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, attenuate.

**Florets.** Fertile lemma lanceolate, subterete, 2.8–3.2 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 7.5–10 mm long limb, with twisted column. Column of lemma awn 0.8–1 mm long. Lateral lemma awns present, ascending, 7.5–10 mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil West Central, Brazil Southeast.

**TDWG4.**

**Aristida sandinensis** Catasz. *Novosti Sist. Vyssh. Rast.* 21: 21. 1984.

Not on *GrassBase*.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Pinar del Rmo: Guane, entre Sandino y el Cayuco sobre sabanas de arenas blancasm 21 Jan 1976, *Catasus* 962 (HT: HAC).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Sandino, Cuba.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Aristida sayapensis** Caro. *Kurtziana* 1: 159 (1961).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina: San Luis: Sayape, 28 Dec 1925, *Castellanos s.n.* (HT: BA-25/2732).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Laguna Sayape, Argentina.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal, subterete. Culms erect, 30–50 cm long, 2–3 -noded. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths mostly shorter

than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs bearded, 3–4 mm long. Ligule a fringe of hairs. Collar glabrous. Leaf-blades flat or convolute, 7–15.5 cm long, 2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, bearing few spikelets. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 15–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 13–17 mm long, 0.9–1 length of upper glume, membranous, 3 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent or obscure. Lower glume apex awned, 1 -awned, awn 1–1.5 mm long. Upper glume linear, 15–17 mm long, 1.5 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate or awned, 1 -awned, awn 0.5–1 mm long.

**Florets.** Fertile lemma linear, subterete, 10–11 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 40–45 mm long limb. Lateral lemma awns present, 35–40 mm long, subequal to principal or shorter than principal. Palea 1.75–2 mm long, 0.1–0.2 length of lemma, hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2, 1.75 mm long. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northwest.

**TDWG4.** San Luis.

### **Aristida scabrescens** L. Liou. *Fl. Xizangica* 5: 84 (1987).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Qamdo: Qinghai-Xizang Complex Exped. 97 (HP holo).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 635).

**Derivation** (Clifford & Bostock 2007): *L. scabrescens*, becoming rough. Leaf-blades rough.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40 cm long, 0.5–1 mm diam., 1–2 -noded. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades involute, 10 cm long, 1–2 mm wide. Leaf-blade surface pilose.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 6–10 cm long. Primary panicle branches bearing 1–2 fertile spikelets on each lower branch. Panicle axis scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 8–10 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 7–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 8–10 mm long limb, with twisted column, persistent, limb scabrous. Column of lemma awn 2–3 mm long. Lateral lemma awns present, 5–7 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. Tibet.

**Aristida scabrivalvis** Hackel. *Bull. Herb. Boiss. Ser. 2*, 6: 708 (1906).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *A. Schlechter 4689*, 1894, South Africa: Transvaal: in arenosis prope Makapans-Poort, 1600 m (Z; IST: BM, BO, G, GRA, K, TRV, US-81264, W (photo, US)). ST: *Schlechter 4217*, 1894, South Africa: Transvaal: in graminosis prope Pienaarsrivier-Brug, 1430 m (BM, G, GRA, K, P, PRE, TRV, W, Z).

**Illustrations (Books):** No illustration found (BKS).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. scaber*, rough; valva, leaf of a folding door. The lemmas and/or glumes are densely hispid.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 15–50 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades 3–30 cm long, 2–3.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 7–30 cm long, evenly furnished or with spikelets clustered towards branch tips. Primary panicle branches branching divaricately. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–6 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface glabrous or puberulous. Lower glume apex acute, awned, 1 -awned, awn 1–2.5 mm long. Upper glume lanceolate, 5–8 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume surface glabrous or puberulous. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 1–2.5 mm long.

**Florets.** Fertile lemma elliptic, subterete, 5–7 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma surface smooth or scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 10–20 mm long limb, persistent. Lateral lemma awns present, 10–20 mm long, subequal to principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa, Southern Africa. Tanzania. Angola, Malawi, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Kwazulu-Natal, Northern Cape.

**Aristida schebheliansis** Henrard. *Meded. Herb. Leid.* No. 54 a. 537 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Paoli 1327*, 26 Nov 1913, Somalia: R. Shebelle between Giabadgeh and Muccoiddere (FI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Wabi-Shabali, Ethiopia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–50 cm long, wiry. Ligule a fringe of hairs. Leaf-blades involute, 15–30 cm long, 1.5–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 18–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, thinner than fertile lemma. Lower glume lanceolate, (10.5–)12–13 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn (5–)8–9 mm long. Upper glume lanceolate, 18–20 mm long,

membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn (6.5–)13–14 mm long.

**Florets.** Fertile lemma lanceolate, subterete, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 50–65 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 10 mm long. Lateral lemma awns present, 50–65 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Somalia.

### **Aristida schiedeana** Trin. & Rupr. *Mem. Acad. Petersb. Ser. 6, 7: 120.* (1849).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: C.J.W. Schiede & F. Deppe 909, 1837, Mexico: Veracruz: prope Jalapa (LE-TRIN-1343.01 (& illust.); IT: LE-TRIN-1343.02 (fragm.), US-2947076 (fragm. ex LE)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (325 as var. *orcuttiana*), F.W.Gould, *The Grasses of Texas* (1975) (399, Fig. 212 as *A. orcuttiana*), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 45, Fig. 8 (1997)).

**Illustrations (Journals):** *Ruizia* (13:233, Fig 26g-h (1993)).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Christian Julius Wilhelm Schiede (1798–1836) German-born Mexican botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 75–150 cm long. Ligule a fringe of hairs. Leaf-blades flat or involute, 20–40 cm long, 1–3 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or elliptic, 10–30 cm long. Primary panicle branches 5–15 cm long. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.7 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–11 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface puberulous, hairy generally or in lines. Lower glume apex acuminate. Upper glume lanceolate, 6–11 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 5–11 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned or 3 -awned. Principal lemma awn geniculate or 3-branched, with 5–15 mm long limb, with twisted column. Column of lemma awn 5–6 mm long. Lateral lemma awns absent or present, 0–2.5 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

$2n = 22$  (1 ref TROPICOS), or 44.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** **Southwestern USA, South-central USA, Mexico.** Arizona, California. New Mexico, Texas. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Western South America.** El Salvador, Guatemala, Honduras, Nicaragua. Bolivia, Colombia, Ecuador, Peru.

**TDWG4.** Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo Leon, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Baja California, Baja California Sur, Sonora. Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Chiapas.

**Aristida schultzii** Mez. Fedde, *Repert.* 17: 149 (1921).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Schultz* 765, Jun 1870, Australia: Northern Territory: Darwin & Gulf Dist.: Port Darwin (B; IT: BRI, FI, K, LE, US-81260 (fragm. ex B)).

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 188, Fig.9 (1992)).

**Derivation** (Clifford & Bostock 2007): in honor of Frederick Schultze (fl. 1869) who collected in northern Australia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 35–65 cm long. Culm-internodes smooth, distally glabrous. Lateral branches fastigiate. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate, 3–4 mm long. Ligule a fringe of hairs, 0.4–0.6 mm long. Collar glabrous. Leaf-blades flexuous, involute, 10–25 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, elliptic, 22 cm long, 6 cm wide. Primary panicle branches 2–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 11–21 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–18 mm long, 0.6–0.9 length of upper glume, membranous, 1-keeled, 3–7 -veined. Lower glume surface asperulous or scabrous, rough above. Lower glume apex acute or acuminate, awned, 1 -awned, awn 1–2.3 mm long. Upper glume lanceolate, 11–21 mm long, 1.1–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate, awned, 1 -awned, awn 1–2.5 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 10–12 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, subterete below, with 20–30 mm long limb, with twisted column, persistent. Column of lemma awn 5–7 mm long. Lateral lemma awns present, 18–26 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 7–8 mm long. Hilum linear, 0.2 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland.

**TDWG4.** Darwin & Gulf. North, Central.

**Aristida sciuroides** Domin. *Biblioth. Bot.* 1, 5: 347 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *K. Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: Barcaldine (L; ILT: BRI). LT designated by Simon, *Austr. Syst. Bot.* 5: 178 (1992). ST: *Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: Jericho (PR).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(36)), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (153, Fig. 23), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (115, Fig. 20), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5): 179, Fig.7 (1992)).

**Derivation** (Clifford & Bostock 2007): Gk. skiouros, squirrel; -oides, resembling. Inflorescence resembles a squirrel's tail.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 70–200 cm long, 3–6 -noded. Culm-internodes glaucous, smooth, distally glabrous. Lateral branches sparse. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.2–0.5 mm long. Collar glabrous or pubescent. Leaf-blades curled or flexuous, 10–21 cm long, 2 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous or pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear, 16–60 cm long, 1–4 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10.5–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10.5–17 mm long, 1 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface smooth to scabrous. Lower glume apex obtuse, awned, 1 -awned, awn 1.5–4 mm long. Upper glume lanceolate, 10.5–17 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate.

**Florets.** Fertile lemma lanceolate, subterete, 8.5–13 mm long, coriaceous, pallid or light brown or purple, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or papillose, rough above. Lemma margins involute, covering most of palea, scabrous. Lemma apex acute, awned, 3 -awned. Principal lemma awn curved, flat below, 2 mm long overall, with 15–36 mm long limb, without a column, persistent. Lateral lemma awns present, spreading as much as principal, 11–30 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side, 7.5–9 mm long. Hilum linear, 0.4–0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** North, Central, Inland.

**Aristida sciurus** Stapf. Dyer, *Fl. Cap.* 7: 557. (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *W. Nelson* 26, 1880, South Africa: Transvaal: Zebedelis Kraal, near the Inkumpi River (K; ILT: PRE). LT designated by Henrard, *Meded. Rijks-Herb.* 54(B): 549 (1928). ST: *Gerrard* 471, South Africa: Natal (BM, K, PRE).

**Illustrations (Books):** No illustration found (BKS).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. sciurus*, squirrel. Culms covered with snow-white woolly indument.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, robust, 70–140 cm long, 5–6 mm diam., 4–5 -noded. Culm-internodes distally woolly. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface or woolly. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades conduplicate, 30–60 cm long, 2–5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 20–45 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1 mm long, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface asperulous, rough above. Lower glume apex acute. Upper glume oblong, 11–13 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume mucronate.

**Florets.** Fertile lemma elliptic, subterete, 10–12 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex rostrate, awned, 3 -awned. Principal lemma awn with 15–23 mm long limb, persistent. Lateral lemma awns present, 15–23 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Limpopo, Mpumalanga, Swaziland, Free State, Kwazulu-Natal.



**Aristida scribneriana** Hitchcock. *Contrib. U. S. Nat. Herb.* 22: 566 (1924).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: C.G. Pringle 2375, 28 Oct 1889, Mexico: Jalisco: hills near Guadalajara (US-691230; IT: CM, GA, MO, NY, NY).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Frank Lamson Scribner (1851–1938) United States agrostologist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–100 cm long. Leaves basal and cauline. Leaf-sheaths woolly. Ligule a fringe of hairs. Leaf-blades 10–30 cm long, 1–4 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–20 cm long. Primary panicle branches appressed, 3–10 cm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–9 mm long, 0.75 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume surface woolly. Lower glume apex acuminate or setaceously acuminate. Upper glume lanceolate, 8–11 mm long, 1.6–2 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume surface woolly. Upper glume apex acuminate or setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 10–15 mm long limb, with twisted column. Column of lemma awn 4–5 mm long. Lateral lemma awns present, 10–15 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

$2n = 22$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Northeast Mexico, Southwest Mexico.

**TDWG4.** Aguascalientes, Durango, Guanajuato, Zacatecas. Guerrero, Jalisco, Michoacan.

**Aristida setacea** Retz. *Observ. Bot.* 4: 22. 1786.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

**TYPE** from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Kvning s.n.*, India: in aridis sterilioribus Malabaricae (LD; IT: B-W).

**Illustrations (Books):** K.M.Matthew, Further Illustrations on the *Flora of Tamilnadu Carnatic* (1988) (pl.714).

**Derivation** (Clifford & Bostock 2007): L. seta, bristle; -acea, indicating resemblance. With bristle-like leaf-blades.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths coriaceous, yellow, glossy. Culms erect, 50–120 cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades filiform, flat or convolute, 20–40 cm long, 2–2.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 15–40 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume oblong, 9–13 mm long, 0.75–0.9 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate, awned, 1 -awned, awn 2–5 mm long. Upper glume oblong, 12–15 mm long, 1 length of adjacent fertile lemma, scarious, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 2–5 mm long.

**Florets.** Fertile lemma linear, subterete, 11–13 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 25–40 mm long overall, persistent. Lateral lemma awns present, 25–40 mm long, subequal to principal. Palea 1.3 mm long, 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

$2n = 22$ .

**Distribution (TDWG). Continent.** Africa, Tropical Asia.

**Country /Province /State.** **Western Indian ocean.** Mauritius (\*), Madagascar, Rodrigues, Seychelles. **Indian Subcontinent, Indo-China, Malesia.** Bangladesh, India, Sri Lanka. Myanmar, Thailand. Malaya.

**TDWG4.** Andhra Pradesh, Bihar, Gujarat, Karnataka, Kerala. Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamilnadu, Uttah Pradesh, West Bengal. Himachal Pradesh.

**Aristida setifolia** H. B. & K. *Nov. Gen. et Sp.* 1: 122. (1815).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Aristida doelliana* Henrard, *Meded. Herb. Leid.* No. 54, 154, 163 (1926). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Humboldt & A. M. Bonpland *s.n.*, Sep, Venezuela: Monagas: inter Bordones et Cumana (P-Bonpl.; IT: B-W, US-1448324 (fragm. ex P & photo)).

**Recent Synonyms:** *Aristida doelliana* Henrard, *Meded. Herb. Leid.* No. 54, 154, 163 (1926).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (51, Fig. 17 & 53, Fig. 18 as *A. doelliana*), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (33, Fig. 16).

**Illustrations (Journals):** *Ruizia* (13:233, Fig 26c-d (1993)).

**Derivation** (Clifford & Bostock 2007): L. seta, bristle; folium, leaf. Leaf-blades bristle-like.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 40–100(–150) cm long. Lateral branches sparse, arising from mid culm or upper culm. Leaf-sheath oral hairs lacking (or pilose, deciduous hairs). Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades straight, conduplicate or flat (less frequent), (4–)7–25(–46) cm long, 1–6 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous (generally) or pilose, hairless except near base, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (or subcontracted), 9–16(–32) cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.8–1 mm long, bearded, acute.

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, 4.2–7 mm long, 1–3 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough generally. Lower glume apex acute, muticous. Upper glume lanceolate, 5.2–8.5 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex dentate, 2 -fid, acute.

**Florets.** Fertile lemma subterete, 4–5 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma midvein scabrous (on keel). Lemma surface scaberulous, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending (generally) or reflexed (less frequent), with 10–24 mm long limb, with twisted column, deciduous, abscissing from top of column. Column of lemma awn 2–5 mm long. Lateral lemma awns present, ascending, 4–5 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** **Mesoamerica, Northern South America, Western South America, Brazil.** Belize, Honduras. Guyana, Surinam, Venezuela. Colombia, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

**TDWG4.** Roraima, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Penambuco, Alagoas, Sergipe, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

**Aristida sieberiana** Trin. Spreng. *Neue Entdeck.* 2: 61. (1821).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Israel. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sieber s.n.*, Israel: pr. Joppe (LE; IT: K). herb. Meyer.

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 359).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Franz Wilhelm Sieber (1789–1844) Bohemian botanist and traveller.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–100 cm long, 2–4 mm diam., woody. Culm-internodes distally glabrous. Lateral branches suffrutescent. Ligule a fringe of hairs. Leaf-blades involute, 5–30 cm long, 1–2 mm wide, glaucous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 8–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, pubescent, with longer hairs above, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–15 mm long, 0.5–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn (1–)2–5 mm long. Upper glume linear, 15–20 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex lobed, 2 -fid, awned, 1 -awned, awn (1–)3–9 mm long.

**Florets.** Fertile lemma oblong (cylindrical), subterete, (7–)9–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous or scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 45–85 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn (12–)18–30 mm long. Lateral lemma awns present, 30–70 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State.** Northern Africa, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Algeria, Tunisia. Benin, Burkina, Ghana, Guinea, Ivory Coast, Mali, Mauritania, Nigeria, Senegal, Togo, Niger. Cameroon. Somalia, Sudan. Kenya. Western Asia, Arabian Peninsula. Lebanon-Syria. Yemen.

**Aristida similis** Steud. *Syn. Pl. Gram.* 420. (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Boivin 1630*, Madagascar: St. Maria (P; IT: FI, W).

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (103, Fig 29).

**Derivation** (Clifford & Bostock 2007): L. like. Readily confused with one or more other species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 40–60 cm long. Lateral branches sparse. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades convolute, 5–15 cm long, 1 mm wide. Leaf-blade surface smooth, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 7–10 cm long, 0.5–1 cm wide. Primary panicle branches 1–2 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 7–8 mm long, 2.5 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein smooth. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 12–13 mm long limb, with twisted column. Column of lemma awn 2–3 mm long. Lateral lemma awns present, 9–10 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Aristida simpliciflora** Chapm. *Cault. Bot. Gaz.* 3: 18. (1878).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ILT: A.W. Chapman s.n., 18--, USA: Florida (US-81257; ILT: W-15065). LT designated (as duplicate type) by Hitchcock, *Contr. U.S. Natl. Herb.* 22(7): 580 (1924); US sheet designated (as type) by Henrard, *Meded. Rijks-Herb.* 54(B): 568 (1928).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (339).

**Derivation** (Clifford & Bostock 2007): *L. simplex*, simple; flos, flower. Inflorescence a raceme.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, slender, 30–60 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat, 5–15 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, curved, 10–20 cm long, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.75 mm long, pubescent, pungent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 6–7 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex setaceously acuminate. Upper glume linear, 6–7 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex scabrous, awned, 3 -awned. Principal lemma awn recurved at base of limb, with 15 mm long limb. Lateral lemma awns present, spreading less than principal, 12 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southeastern USA.** Alabama, Florida, Georgia, Mississippi, North Carolina.

**Aristida somalensis** Stapf. *Kew Bull.* 1907. 216. (1907).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Somalia, Golis Range: *Drake-Brockman 127* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Somalia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 10–30 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 8–25 cm long, 1–2.5 mm wide, stiff. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, loose or effuse, 10–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 13–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–12 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, muticous or mucronate. Upper glume linear, 13–18 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 6–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute,

awned, 3 -awned. Principal lemma awn 3-branched, with 25–40 mm long limb, with twisted column, persistent. Column of lemma awn 7–10 mm long. Lateral lemma awns present, 25–40 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea), Somalia. Kenya.

**Aristida spanospicula** K.W. Allred J. Valdes-Reyna & J. Sanchez-Ken. *Novon* 5(3): 214 (1995).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chihuahua: Sierra Madre Occidental, at Cuesta Prieta, along road from San Juanito to Creel, 3.1 mi S of San Juanito, pine forest with scrub oak understory of *Lupinus*, *Muhlenbergia*, and *Trisetum*, thin forest loam calcareous soil, numerous clumps among the scrub oak, 7500 ft (2280 m), 22 Sep 1992, K.W. Allred & J. Valdis-Reyna 5787 (HT: NMCR; IT: ANSM, NMC, TAES).

**Illustrations (Journals):** *Novon* (5:215, Fig.4 (1995)).

**Derivation** (Clifford & Bostock 2007): Gk *spanos*, scarce; L. *spika*, spike; *-ula*, diminutive. Spikelets fewer than in related species.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, 20–60 cm long. Culm-internodes terete, smooth or scaberulous, distally glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, without keel, glabrous on surface or pilose. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 14–25 cm long, 1.5–2 mm wide. Leaf-blade surface glabrous or puberulous, hairy adaxially. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle, comprising 3–12 fertile spikelets. Panicle open, oblong, equilateral or nodding, 8–22 cm long, 1–2 cm wide, bearing few spikelets. Primary panicle branches ascending, bearing 1–2(–4) fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 16–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–1 mm long, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–15 mm long, 1 length of upper glume, membranous, light brown, 1 -veined. Lower glume lateral veins absent. Upper glume lanceolate, 9–15 mm long, 1–1.5 length of adjacent fertile lemma, membranous, light brown, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, with 10–20 mm long limb, with twisted column. Column of lemma awn 6–15 mm long. Lateral lemma awns absent. Palea 1 mm long, hyaline, 2-keeled.

**Flower and Fruit.** Lodicules 2, 1–1.5 mm long. Anthers 3, 2 mm long, brown. Caryopsis with adherent pericarp, fusiform, 7–9 mm long.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Northeast Mexico, Northwest Mexico. Chihuahua, Durango. Sonora.

**Aristida spectabilis** Hack. *Bull. Herb. Boiss.* 3: 380. (1895).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Rehmann 4695, 1875–1880, South Africa: Transvaal: Pretoria, Kuduspoort (W (photo, US-81254); IT: B, US-81254 (fragm. ex W), Z).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. showy. Attractive or outstanding in some respect such as height.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 100–180 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths longer than adjacent

culm internode, glabrous on surface. Leaf-sheath oral hairs lacking or woolly. Ligule a fringe of hairs. Leaf-blades flat or involute, 30–60 cm long, 4–5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, nodding, 30–40 cm long, 10–25 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, bearded, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 6–12 mm long, 0.5–1 length of upper glume, membranous, much thinner above, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume linear or lanceolate, 10–12 mm long, 1.5 length of adjacent fertile lemma, membranous, much thinner above, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 6.5–7.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface smooth or scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 35–44 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 5–6 mm long. Lateral lemma awns present, 20–28 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Limpopo, North-West, Gauteng.

**Aristida spegazzinii** Arechav. *Anal. Mus. nac. Buenos Aires*, 4: 177 fig. I. (1895).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *J. Arechavaleta* 34, Nov 1891, Uruguay: campos gramínicos del Uruguay, terrenos pedregosos sierrita de Independencia (W; ILT: BAA). LT designated by Henrard, *Meded. Rijks-Herb.* 54(B): 580 (1928); cited by Longhi-Wagner, *Bol. Inst. Bot. (Sao Paulo)* 12: 147 (1999). ST: *Arechavaleta s.n.*, Uruguay: en terrenos con sienita descompuesta de Independencia (MVN; IST: BAA, MUN).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (507, Fig. 108 & 535, Fig. 116), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (219, Fig. 82), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (366, Fig. 93), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (473, Fig. 316), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (214, Fig. 88).

**Derivation** (Clifford & Bostock 2007): in honor of Carlo Luigi Spegazzini (1858–1926) Italian-born Argentinian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms 22–70 cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.8–1.2 mm long. Collar glabrous. Leaf-blades curled or flexuous, convolute, 5–27 cm long, 0.5–1.2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, smooth.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (subcontracted), 10–15 cm long. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.5–1 mm long, pilose, acute (or subacute).

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, 11–17(–20) mm long, 1–3 -veined (lateral veins free). Lower glume surface scabrous, rough generally. Lower glume apex acute (shortly awned), muticous. Upper glume lanceolate, 8–12 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute or acuminate or setaceously acuminate.

**Florets.** Fertile lemma subterete, 10–14(–16) mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above, with a median groove (ventral, longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 30–118 mm long limb, without a column. Lateral lemma awns present, ascending, 30–118 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil Southeast, Brazil South. Argentina Northeast, Argentina South, Chile Central, Uruguay.

**TDWG4.** Catarina, Rio Grande do Sul. Catamarca, Jujuy, La Rioja, Mendoza, Salta, San Luis, Tucuman. Buenos Aires, Cordoba, Corrientes, Entre Rios, La Pampa, Misiones, Santa Fe. Chubut, Neuquén, Río Negro. Biobio, La Araucania.

**Aristida spiciformis** Ell. *Sketch* 1: 141. (1816).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: USA: vicinity of Charleston? (CHARL).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (331), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (90, Fig. 54).

**Derivation** (Clifford & Bostock 2007): *L. spica*, thorn; forma, appearance. Inflorescence a condensed spike-like panicle.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs. Leaf-blades erect, flat or involute, 15–30 cm long, 1–3 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear or oblong, 10–15 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 2 mm long, pubescent, pungent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 4 mm long, 0.5 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 10–12 mm long. Upper glume linear, 8–10 mm long, 1.6 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 10–12 mm long.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading, with 20–30 mm long limb, with twisted column. Column of lemma awn 10–30 mm long. Lateral lemma awns present, spreading as much as principal, 20–30 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Southeastern USA.** Alabama, Florida, Georgia, Mississippi, South Carolina. **Caribbean.** Cuba, Puerto Rico.

**Aristida spuria** Domin. *Biblioth. Bot.* 1, 5: 241 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *S. T. Blake 8349*, 30 Mar 1935, Australia: Queensland: North Kennedy Dist.: Castle Hill, Townsville (BRI; INT: AD, B, BO, CANB, CBG, DNA, EA, K, L, LAE, MBA, MEL, MO, NOU, NSW, NT, PERTH, PRE, QRS, SP, SRGH, US). NT designated by Simon, *Austr. Syst. Bot.* 5: 150 (1992).

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (132), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(3)), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (153, Fig. 23).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 151, Fig.1 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. spuriosus*. The lateral awns of the lemma are insignificant or absent, the spikelets then resembling those of *Stipa*.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms decumbent, 20–91 cm long. Culm-internodes smooth, distally glabrous. Culm-nodes glabrous. Lateral branches fastigiate. Leaf-sheaths striately veined, smooth or scaberulous, glabrous on surface or pilose. Leaf-sheath oral hairs lacking or ciliate, 1–2 mm long. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades curled or flexuous, filiform, involute, 8–12 cm long, 0.5 mm wide. Leaf-blade surface smooth or scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 11–29 cm long, 0.9–1 cm wide. Primary panicle branches 2-nate, 4–6.5 cm long. Panicle branches scaberulous or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–1.3 mm long, pubescent, acute. Floret callus hairs 1–1.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.5–13 mm long, 0.9–1 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume primary vein scabrous. Lower glume surface smooth or asperulous, glabrous or pilose. Lower glume apex acute or acuminate, awned, 1-awned, awn 1.5 mm long. Upper glume lanceolate, 6.5–13 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume surface glabrous or pilose. Upper glume apex dentate, 2-fid, acute or acuminate, awned, 1-awned, awn 2.5 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 7–12.5 mm long, coriaceous, without keel, 3-veined, 0–3-veined. Lemma surface smooth or scaberulous. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3-awned. Principal lemma awn geniculate or 3-branched, with 6–20 mm long limb, with twisted column, persistent. Column of lemma awn 4–9 mm long. Lateral lemma awns absent or present, 0–4 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 1.1–1.7 mm long. Caryopsis with adherent pericarp, sulcate on hilar side, 4.8–8 mm long. Hilum linear, 0.3 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Queensland.

**TDWG4.** North, Central, South East, Inland. Western Slopes.

**Aristida stenophylla** Henrard. *Meded. Herb. Leid.* No. 54 a. 587 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Somaliland: Da Obba a Wuarandi, Jul-Aug 1891, *Robecchi Bricchetti s.n.* (HT: FI).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (83, Fig 34).

**Derivation** (Clifford & Bostock 2007): Gk. *stenos*, narrow; *phyllon*, leaf. Leaf-blades filiform.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 30–40 cm long, wiry. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 7–20 cm long, 0.5–1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 5–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 14–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, pubescent, with longer hairs above, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–9 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute, muticous or mucronate. Upper glume lanceolate, 14–20 mm long, 3 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume apex entire or dentate, 2-fid, obtuse or acute, muticous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 5–6 mm long, coriaceous, without keel, 3-veined, 0–3-veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3-awned. Principal lemma awn 3-branched, with 35–55 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 10–20 mm long. Lateral lemma awns present, 35–55 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea), Somalia. Kenya.



**Aristida stenostachya** W. D. Clayton. *Bol. Soc. Argent. Bot.* 12: 111 (1968).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Saranda-Manyoni: Burt 5393 (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. *stenos*, narrow; *stachys*, ear of corn. Inflorescence a narrow spike or spike-like panicle.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–120 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades convolute, 20–60 cm long, 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear, continuous or interrupted, 25–30 cm long, 1–2 cm wide. Panicle branches glabrous in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–19 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–19 mm long, 1–1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, acute, mucronate or awned, awn 0–2 mm long. Upper glume lanceolate, 10–19 mm long, 1–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, mucronate or awned, 1 -awned, awn 0–2 mm long.

**Florets.** Fertile lemma elliptic, subterete, 10–13 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness or scaberulous. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 20–30 mm long limb, without a column or with a straight or slightly twisted column, persistent. Column of lemma awn 0–4 mm long. Lateral lemma awns present, 20–30 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa, South tropical Africa. Somalia. Kenya, Tanzania. Zambia.

**Aristida stipitata** Hack. *Verh. Bot. Ver. Brand.* 143. (1888).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Namibia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *H. Schinz* 658, Feb 1886, Namibia: Omatope (K, PRE, US-81250, W (US, photo), Z).

**Illustrations (Books):** M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984) (as subspecies *stipitata*, *graciliflora*, *robusta*, *spicata*).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. *stipes*, stalk; -ata, possessing. Pedicels long.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–150 cm long, 4–6 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades flat or involute, 5–30 cm long, 2–4 mm wide, glaucous. Leaf-blade surface scaberulous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted or spiciform, linear, continuous or interrupted, 10–25 cm long. Primary panicle branches appressed or ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 18–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–3 mm long, bearded, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–13 mm long, 0.6 length of upper glume, chartaceous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 18–22 mm long, 2.2–2.5 length of adjacent fertile lemma, chartaceous, 1-keeled, 1 -veined. Upper

glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex entire or dentate, 2 -fid, attenuate, awned, 1 -awned, awn 1–5 mm long.

**Florets.** Fertile lemma elliptic, subterete, 8–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface punctate. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 25–60 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 20–40 mm long. Lateral lemma awns present, 25–60 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** South tropical Africa, Southern Africa. Angola, Mozambique, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Northern Cape.

### **Aristida stipoides** Lam. *Encycl.* 1: 157 (1783).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Senegal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Roussillon s.n.*, Senegal (P-LAM).

**Illustrations (Books):** M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. With spikelets resembling those of *Stipa*.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 90–150 cm long. Culm-internodes distally glabrous. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades flat or involute, 15–30 cm long, 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, equilateral or nodding, 20–50 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 14–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2 mm long, pilose, 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, 0.3–0.4 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 14–20 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

**Florets.** Fertile lemma elliptic, subterete, 7–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 35–60 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 15–30 mm long. Lateral lemma awns present, 30–50 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Guinea, Mali, Mauritania, Nigeria, Senegal, Niger. Sudan. Tanzania. Angola, Zambia, Zimbabwe. Namibia, Botswana.

### **Aristida stocksii** (Hook.f.) Domin. *Biblioth. Bot.* 1, 5: 338 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Aristida funiculata* var. *stocksii* Hook. f., *Fl. Brit. India* 7:227 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Stocks s.n.*, Concan (K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of John Ellerton Stocks (1822–1854) English-born physician and plant collector in India.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms 10–20 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades convolute, 2–6 cm long, 1–2.5 mm wide, stiff. Leaf-blade surface ribbed. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 7–9 cm long. Panicle branches with scattered hairs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 22–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 22–25 mm long, 3.5–4 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 3 mm long. Upper glume linear, 6 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, subterete, 5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 60–70 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 20 mm long, pubescent. Lateral lemma awns present, 60–70 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Gujarat, Karnataka. Maharashtra.

**Aristida stricta** Michx. *Fl. Bor. Am.* 1: 41. (1803).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from USA. **Basionym or Replaced Name:** *Aristida beyricheana* Trin. & Rupr., *Mem. Acad. Petersb. Ser.* 6 (7) 104. (1849). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Michaux s.n.*, USA: in Carolina (P-MICHX; IT: P, US-81246 (fragm.)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (336).

**Images:** R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);

**Derivation** (Clifford & Bostock 2007): L. erect. Inflorescence branches erect.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades flexuous, involute, 30–40 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 25–35 cm long. Primary panicle branches appressed, 2–5 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.75 mm long, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 7–9 mm long, 1 length of upper glume, membranous, 1–2 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent or distinct. Lower glume apex setaceously acuminate. Upper glume linear, 7–9 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 6 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn ascending or spreading, with 10–15 mm long limb. Lateral lemma awns present, spreading as much as principal, 8–12 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Southeastern USA.** Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina.

**Aristida strigosa** (Henrard) S. T. Blake. *Trans. Roy. Soc. S. Austral.* 67: 45 (1943).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Aristida calycina* var. *strigosa* Henrard, *Med. Rijks Herb. Leiden* 58 A :297 (1932). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *R. Helms* 23, 15 May 1891, Australia: South Australia: Arkaringa Creek, Elder Exploring Expedition (K (photo, BRI); IT: AD, BRI, BRI (fragm. ex K), MEL). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 708 (1933).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (329, Fig 262), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (167, Pl 49), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (132), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (106(32)), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (113, Fig 19), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. covered with short, bristle-like hairs. One or more organs covered with bristle-like hairs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–120 cm long, 3–6 -noded. Culm-internodes scaberulous, distally glabrous. Lateral branches sparse. Leaf-sheaths longer than adjacent culm internode, striately veined, scaberulous or antrorsely scabrous. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs, 0.5–1 mm long. Collar glabrous. Leaf-blades 9–18 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 16–36 cm long, 1.5–3 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8.5–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–10 mm long, 0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth to scabrous. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 7–12 mm long, 0.8–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate or acute, muticous or mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 8.5–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 13–26 mm long limb, without a column, persistent. Lateral lemma awns present, 12–20 mm long, subequal to principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 5–8 mm long. Hilum linear, 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Northern Territory, Queensland, South Australia, Western Australia.

**TDWG4.** Eremean. Central Australia. NW & Lake Eyre. Inland. Western Plains.

**Aristida subaequans** Doell. Mart. *Fl. Bras.* 2, 3:19. (1878).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *W.J. Burchell* 5025 *pro parte*, no date, Brazil: Sao Paulo (S; IT: BR, K, US-81245 (fragm. ex Dvll herb, Freiburg), W).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms 60–80 cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking. Ligule a ciliolate membrane, 0.2 mm long. Collar glabrous. Leaf-blades straight, flat (generally) or convolute, 35–40 cm long, 3–4.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, smooth.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, 14–16 cm long. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 1 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower longer than upper). Lower glume lanceolate, 8–13(–15) mm long, 1 -veined. Lower glume surface scabrous, rough generally. Lower glume apex acuminate, muticous. Upper glume lanceolate, 10–20 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acuminate.

**Florets.** Fertile lemma subterete, 10–11 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above, with a median groove (ventral, longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn curved, reflexed, simple at base, with 25 mm long limb (from x to 25), without a column. Lateral lemma awns present, spreading as much as principal, 25 mm long (from x to 25), subequal to principal.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil. Brazil Southeast. Catarina, Rio Grande do Sul.

**Aristida subspicata** Trin. & Rupr. *Sp. Gram. Stipac.* 125–126. 1842.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Macrae s.n.*, Ecuador: Galapagos: Albemarle Island (LE; IT: CGE, K, US-991975, US-81244 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. sub, approaching; spica, spike; -ata, possessing. Inflorescence a spike-like panicle.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 20–50 cm long, 2–3 -noded. Culm-internodes terete, smooth or scaberulous. Lateral branches lacking or sparse. Leaf-sheaths mostly shorter than adjacent culm internode, keeled, scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Collar glabrous. Leaf-blades filiform or linear, flat or convolute, 5–20 cm long, 0.5–3 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade venation distinct. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, exerted or embraced at base by subtending leaf. Peduncle pubescent above to hirsute above. Panicle spiciform, linear or oblong, 6–15 cm long. Primary panicle branches 1-nate. Panicle axis terete or angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume surface glabrous or hispidulous. Lower glume apex acuminate, awned, 1 -awned, awn 1–3 mm long. Upper glume lanceolate, 6–7 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 2–3 mm long.

**Florets.** Fertile lemma oblong, subterete, 3–4 mm long, coriaceous, keeled, lightly keeled, 3 -veined, 0–3 -veined. Lemma surface smooth or papillose, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 10–15 mm long limb, with twisted column, deciduous, abscissing from top of column. Column of lemma awn 1.5–4 mm long. Lateral lemma awns present, 12–15 mm long, subequal to principal.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Marquesas. Western South America. Galapagos.

**Aristida subulata** Henrard. *Meded. Herb. Leid.* No. 54 a. 612 (1928).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Castellanos s.n. [herb. Lorenzo R. Parodi no. 1839]*, 8 Jan 1927, Argentina: La Pampa: Maracs (L-927.250–232; IT: BAA-17/117, US-1447540 (also fragm. ex L)).

**Illustrations (Books):** M.N. Correa, *Flora Patagonica* Parte III, Gramineae (1978) (478, Fig 321).

**Illustrations (Journals):** *Darwiniana* (41: 183, fig.10 (2003)).

**Derivation** (Clifford & Bostock 2007): *L. subulus*, a fine point; -ata, possessing. Glumes, lemmas or calluses sharply tapered.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 15–50 cm long, 2–4 -noded. Lateral branches sparse. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Collar glabrous. Leaf-blades filiform, convolute, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–15 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12.5–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 9–12 mm long, 0.75–0.85 length of upper glume, membranous. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume linear, 10.5–14 mm long, membranous. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 12–13 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface asperulous, rough above. Lemma margins involute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn straight, with 3.5–4 mm long limb. Lateral lemma awns present, 3.5–4 mm long, subequal to principal.

**Flower and Fruit.** Caryopsis with adherent pericarp, fusiform, light brown.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northwest, Argentina Northeast, Argentina South.

**TDWG4.** Catamarca, Mendoza, San Luis, Tucuman. Buenos Aires, Cordoba, La Pampa. Río Negro.

**Aristida succedanea** Henrard. *Meded. Herb. Leid.* 54 C. Suppl., 740 (1933).

Regarded by K as a synonym (*A. circinalis*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *A. Lyfgren 242*, 21 Nov 1907, Brazil: Sao Josi dos Campos (S; ILT: RB). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 741 (1933).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms (27–)35–50(–90) cm long. Lateral branches lacking. Leaf-sheath oral hairs scanty or bearded (innovations). Ligule a ciliolate membrane, 0.2–0.5 mm long. Collar glabrous. Leaf-blades straight, flat (generally), (15–)18–25(–30) cm long, (1.5–)2–3 mm wide. Leaf-blade surface scabrous (ventral) or scaberulous (dorsal), rough on both sides, glabrous. Leaf-blade apex acute, smooth.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (subcontracted), 10–18(–23) cm long. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.5–0.6 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper, sometimes subequal, rarely lower slightly longer than upper). Lower glume lanceolate, (6.2–)7–10.5 mm long, 1 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex obtuse or cuspidate, muticous. Upper glume lanceolate, 7.2–11 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, obtuse or cuspidate.

**Florets.** Fertile lemma subterete, 9–10.5 mm long (beaked), without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma surface scaberulous, rough above, with a median groove (ventral, longitudinal). Lemma margins involute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 22–28(–35) mm long limb, without a column. Lateral lemma awns present, ascending, 18–22(–32) mm long, shorter than principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Western South America (Bolivia). Bolivia. Brazil Southeast.

**Aristida superpendens** Domin. *Biblioth. Bot.* 1, 5: 339 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: K. Domin *s.n.*, Feb 1910, Australia: Queensland: Cook Dist.: in den Savannenwaldern bei Mareba (L (2 sheets; photo, BRI); IT: BRI).

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.Domin, *Bibliotheca Botanica* 85 (1915) (Pl.13).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 155, Fig.2 (1992)).

**Derivation** (Clifford & Bostock 2007): L. super, above; pendeo, hang. Spikelets pendulous in upper part of spikelet.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 60–120 cm long. Culm-internodes antrorsely scabrous, distally glabrous. Leaf-sheaths scaberulous or antrorsely scabrous, glabrous on surface. Leaf-sheath oral hairs ciliate, 4–5 mm long. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades curled, filiform or linear, involute, 15–27 cm long, 0.6–1.2 mm wide. Leaf-blade surface scaberulous or scabrous, rough on both sides, pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 14–34 cm long, 5–8 cm wide. Primary panicle branches 2-nate, 2–5 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 16–21 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.6–2.2 mm long, pubescent, pungent. Floret callus hairs 0.2–1.8 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–13.2 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume apex acute or acuminate, awned, 1-awned, awn 1.5 mm long. Upper glume lanceolate, 16–21 mm long, 1.6–2 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate, awned, 1-awned, awn 1.5 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8–12.6 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3-veined, 0–3-veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3-awned. Principal lemma awn 3-branched, spreading, with 35–99 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 11–34 mm long. Lateral lemma awns present, spreading less than principal, 26–86 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 5.6–7.2 mm long. Hilum linear, 0.75 length of caryopsis.

**Distribution (TDWG). Continent.** Tropical Asia, Australasia.

**Country /Province /State.** Malesia, Papuasias. Moluccas. New Guinea PNG. New Guinea. Australia. Northern Territory, Queensland.

**TDWG4.** Darwin & Gulf. North.

**Aristida suringarii** Henrard. *Meded. Rijks-Herb.* 616–618, f.. 1928.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Netherland Antilles. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: W.F.R. Suringar 1885, 11 May 1885, Netherlands Antilles: St. Eustatius (L-908.84–1084; IT: US-81242 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of W.F.R. Suringar (fl. 1885) who collected in Antilles.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 50–60 cm long. Culm-internodes striate, smooth. Lateral branches ample. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined, smooth, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs.

Leaf-blades filiform, convolute, 10–15 cm long, 0.5–1 mm wide. Leaf-blade surface scaberulous, rough on both sides, glabrous or pilose, sparsely hairy, hairy abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, loose, 20 cm long. Primary panicle branches appressed or ascending, 1–2-nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, pilose, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 4–5 mm long, 0.7–0.8 length of upper glume, membranous, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume linear, 5.5–6.5 mm long, membranous, 1-veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, 3-veined, 0–3-veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3-awned. Principal lemma awn 3-branched, 15 mm long overall. Lateral lemma awns present, 15 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Windward Islands, Venezuelan and Netherlands Antilles.

### ***Aristida swartziana*** Steud. *Syn. Pl. Gram.* 137 (1854).

Regarded by K as a synonym (*A. adscensionis*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Jamaica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *Swartz s.n.*, *Sabulosis aridis Jamaicae australis* (S; INT: M-4876). NT designated by Henrard, *Meded. Rijks-Herb.* 54: 618–619 (1928).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Olof Peter Swartz (1760–1818) Swedish botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 40–70 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades erect, involute, 15–30 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 5–15 cm long. Primary panicle branches ascending, 1–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 7 mm long, 0.9 length of upper glume, membranous, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 8 mm long, membranous, 1-veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 8 mm long, coriaceous, 3-veined, 0–3-veined. Lemma midvein scaberulous. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, with this appendage 1 mm long, awned, 3-awned. Principal lemma awn 3-branched, with 15–25 mm long limb. Lateral lemma awns present, spreading less than principal, 15–25 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Northern South America, Western South America. Aruba, Bahamas, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico, Venezuelan and Netherlands Antilles. Venezuela. Bolivia, Ecuador, Galapagos, Peru.

### ***Aristida takeoi*** Ohwi. *Bot. Mag., Tokyo*, 45: 183. (1931).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).



**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Liukiu; Chibana in Nakaku-sugori, 12 Sep 1930, *T. Ito* (HT: KYO).

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (214, Fig 77).

**Derivation** (Clifford & Bostock 2007): in honor of Takeo.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Culms erect, slender, 40–60 cm long, 0.5–0.7 mm diam., 3 -noded. Leaf-sheaths tight, mostly shorter than adjacent culm internode, glabrous on surface. Ligule a fringe of hairs. Leaf-blades filiform, involute, 15–20 cm long, 0.3–0.7 mm wide, stiff. Leaf-blade surface scabrous, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 15–20 cm long. Primary panicle branches appressed, 1–2 -nate, 5–9 cm long. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, acute.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–8.5 mm long, 0.75 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 10–12 mm long, 1.2–1.3 length of adjacent fertile lemma, chartaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 8–9 mm long, coriaceous, light green, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 18–20 mm long limb, with twisted column. Column of lemma awn 11–13 mm long. Lateral lemma awns present, 13–16 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Nansei-Shoto.

### ***Aristida tarapotana*** Mez. Fedde, *Repert.* 17: 151 (1921).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Spruce* 4526, no date, Peru: San Martm: Prov. San Martm: near Tarapota, in burned campos (B?; IT: K, US-81241 (fragm. ex K), W).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating location. From Tarapoto, Peru.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–40 cm long. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 10–23 cm long, 1 mm wide, stiff.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 10–15 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 10–12 mm long, 1 length of upper glume, membranous. Lower glume apex dentate, 2 -fid. Upper glume linear, 10–12 mm long, 1.2 length of adjacent fertile lemma, membranous. Upper glume apex dentate, 2 -fid.

**Florets.** Fertile lemma linear, subterete, 8.5–10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 20–24 mm long limb. Lateral lemma awns present, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Peru.

### ***Aristida tenuifolia*** Hitchcock. *Proc. Calif. Acad. Sc. Ser.* 4, 21: 296 (1935).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J.T. Howell 8361*, 23 Mar 1932, Mexico: Colima; among rocks on ridge above Sulphur Bay, Clarion Island, Revillagigedo Islands (CAS; IT: US-1611672).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. tenuis*, slender; folium, leaf. Leaf-blades narrow.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 60 cm long, 1 mm diam. Leaf-sheaths without keel, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades involute, 10–20 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade margins cartilaginous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 15–20 cm long. Primary panicle branches appressed, 5 cm long. Panicle axis scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–12 mm long, 1 length of upper glume, membranous, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex setaceously acuminate. Upper glume lanceolate, 10–11 mm long, membranous, 3 -veined. Upper glume lateral veins obscure. Upper glume surface smooth. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 10 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface asperulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 10–15 mm long limb, with a straight or slightly twisted column. Column of lemma awn 2–3 mm long. Lateral lemma awns present, 10–15 mm long, subequal to principal.

**Distribution (TDWG), Continent.** North America.

**Country /Province /State.** Mexico. Southwest Mexico.

**TDWG4.** Colima.

**Aristida tenuiseta** T.A. Cope. *Kew Bull.* 47(2): 278 (1992).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Somalia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Somalia: mudug: 1 km S of Obbia, 4 Jun 1987, *Wieland 4439* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. tenuis*, weak; seta, bristle. Awns filiform.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 20–30 cm long. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 8–20 cm long, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 9–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 21–23 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–9.5 mm long, 0.4 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 2–3 mm long. Upper glume lanceolate, 21–23 mm long, 3.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 7–10 mm long.

**Florets.** Fertile lemma oblong, subterete, oblong in profile (cylindrical), 6–6.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 95–105 mm long limb, with twisted column, deciduous, abscissing from top of lemma. Column of lemma awn 12–25 mm long. Lateral lemma awns present, 95–105 mm long, subequal to principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG), Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Somalia.

**Aristida tenuissima** A. Camus. *Bull. Soc. Bot. France* 79: 844 (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar centr.: mont Belamboamy, *Perrier de la Bathie* 10.866.

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (119, Fig 37).

**Derivation** (Clifford & Bostock 2007): L. slender; -issima, most. Inflorescence slender.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms slender, 10–50 cm long, 0.3–0.5 mm diam. Culm-internodes distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths striately veined, glabrous on surface or pilose. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 2–12 cm long, 0.5–0.8 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 3–8 cm long, bearing few spikelets. Primary panicle branches 1–2 -nate, bearing 1–3 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 4–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent, truncate.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–4.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4–6.5 mm long, 1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex truncate, mucronate.

**Florets.** Fertile lemma lanceolate, subterete, 4–5 mm long, coriaceous, mid-green or purple, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 1 -awned or 3 -awned. Principal lemma awn geniculate or 3-branched, with 8–10 mm long limb, with twisted column, persistent. Column of lemma awn 3–4 mm long. Lateral lemma awns absent or present, when present 3–5 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Aristida teretifolia** Arech. *Anal. Mus. Montevid.* 4, 1: 79. (1902).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Archavaleta s.n.*, Nov 1899, Uruguay: campos gramíneos (MVM; IT: W-22193).

**Illustrations (Books):** B.Rosengurtt, *Gramineas Uruguayas I* (1970) (217, Fig. 89).

**Derivation** (Clifford & Bostock 2007): L. teres, narrow; folium, leaf. Leaf-blades narrow and generally rigid.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Culms erect or geniculately ascending, 20–40 cm long, 1 -noded. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths smooth. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Collar glabrous. Leaf-blades straight or curved, aciculate, convolute, 5–12 cm long, 1–1.5 mm wide, coriaceous, stiff. Leaf-blade venation with 9 secondary veins. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, interrupted, 10–15 cm long. Primary panicle branches appressed or ascending, 2 -nate, 3–8 cm long, bearing 5–10 fertile spikelets on each lower branch. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 16–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 10–12 mm long, 0.66 length of upper glume, membranous, 1 -veined. Lower glume primary vein scaberulous. Lower

glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, 16–17 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute, awned, 1 -awned, awn 1.5–2.5 mm long.

**Florets.** Fertile lemma linear, subterete, 10–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma surface smooth or granulose. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 30–35 mm long limb. Lateral lemma awns present, 30–35 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil South. Catarina, Rio Grande do Sul.

### **Aristida ternipes** Cav. *Ic. 5: 46. (1799).*

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Panama. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. Nie* 532, Nov, Panama (MA; IT: F (photo ex MA), MEXU (photo ex MA), US-81240 (fragm.)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (325 as var. *ternipes* & *gentilis*), R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (89, Fig. 52), W.Burger, *Flora Costaricensis* 15, *Gramineae: Fieldiana Botany New Series* 4 (1980) (54, Fig 13), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 41, Fig. 7 (1997)).

**Derivation** (Clifford & Bostock 2007): *L. terni*, three each; pes, foot. Lemma terminating in a three-branched awn.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 50–150 cm long, 1.5–4 mm diam., with 0.4–0.5 of their length below uppermost node. Culm-internodes solid, distally glabrous. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades flat or involute, 25–50 cm long, 3–5 mm wide. Leaf-blade surface ribbed, scaberulous, glabrous, hairless except near base. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 25–50 cm long. Primary panicle branches 1 -nate. Panicle axis scabrous. Panicle branches scabrous. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–1 mm long, pilose, acute. Floret callus hairs 2–3 mm long.

**Glumes.** Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume linear, 6.5–11.5 mm long, 0.8 length of upper glume, membranous, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acute, awned, 1 -awned, awn 1–2 mm long. Upper glume linear, 8–12 mm long, 0.5 length of adjacent fertile lemma, membranous, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile lemma linear, subterete, 15–22.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned or 3 -awned. Principal lemma awn curved, 10–15 mm long overall, with 10–15 mm long limb, without a column. Lateral lemma awns absent or present, 0–3 mm long, shorter than principal. Palea 0.5–1.3 mm long.

**Flower and Fruit.** Anthers 3, 2.7 mm long. Caryopsis with adherent pericarp, linear, 7–8.5 mm long.

$2n = 22$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America.** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Bahamas, Cuba, Dominican Republic, Haiti. Venezuela. Bolivia, Colombia, Ecuador.

**TDWG4.** Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Nuevo Leon, Queretaro, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Baja California, Baja California Sur, Sinaloa, Sonora. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

**Aristida thompsonii** B.K. Simon. *Austrobaileya* 4(2): 145 (1994).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: North Kennedy District: 9.5 km W of Homestead, 20.21S 1145.31E, 30 Aug 1992, *E.J. Thompson & P.R. Sharpe* CHA232 (HT: BRI; IT: AD, CANB, DNA, K).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (77, Fig 13), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor of Edward John Thompson (1949-) Australian ecologist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–40 cm long, 1–1.5 mm diam., 3–4 -noded. Culm-internodes glaucous, smooth, distally glabrous. Culm-nodes glabrous. Lateral branches sparse. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, striately veined, smooth, glabrous on surface. Ligule a fringe of hairs. Collar glabrous. Leaf-blades involute, 10–25 cm long, 0.5–0.75 mm wide, stiff, glaucous. Leaf-blade surface scaberulous, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 6–10 cm long, 0.3 cm wide. Primary panicle branches appressed, 1–2 cm long, bearing spikelets almost to the base. Panicle branches scaberulous, with insignificant pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse. Floret callus hairs 0.7 mm long.

**Glumes.** Glumes lower deciduous, upper persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.5–6 mm long, 0.9 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 5.5–6 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 3.5–4 mm long limb. Lateral lemma awns present, 0.5–1 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, linear, 4.5 mm long. Embryo 0.25 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** Central.

**Aristida torta** (Nees) Kunth. *Enum. Pl.* 1: 190. (1833).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Chaetaria torta* Nees, *Agrost. Bras.* 386 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K.F.P. von Martius s.n.*, no date, Brazil: Minas Gerais (M; IT: K (photo), LE-TRIN-1360.01 (fragm. & fig.), US-865706 (fragm. ex M & photo)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (283, Fig. 57), S.A.Renvoize, *The Grasses of Bahia*, 1984 (51, Fig. 17), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (32, Fig. 13), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (67, Fig 8).

**Derivation** (Clifford & Bostock 2007): L. torqueo, twist. Awn twisted.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 42–90 cm long. Lateral branches lacking. Leaf-sheath oral hairs scanty or bearded (deciduous hairs). Ligule a ciliolate membrane, 0.2 mm long. Collar glabrous. Leaf-blades straight, conduplicate, 8.5 cm long or 2–40 cm long, 1.5–4 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, sparsely hairy, hairy adaxially (at margins). Leaf-blade apex obtuse, smooth.

**Inflorescence.** Inflorescence a panicle. Panicle contracted (or subcontracted), 9–30 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, straight, 0.2 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar (lower generally shorter than upper, sometimes subequal or lower longer than upper). Lower glume lanceolate, 7.5–9 mm long, 1 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough on veins. Lower glume apex acute, muticous or awned (shortly). Upper

glume lanceolate, 4.5–8 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acute, muticous or awned (shortly).

**Florets.** Fertile lemma subterete, 3.5–5 mm long, without keel, rounded throughout, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn curved, recurved at base of limb (generally), simple at base, with 7–17 mm long limb, without a column. Lateral lemma awns present, ascending, 5–11.5 mm long (1/3–2/3 the length of the principal awn), shorter than principal (conspicuously).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America, Western South America, Brazil. Belize, Costa Rica, Honduras, Nicaragua, Panama. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

**TDWG4.** Roraima, Para, Amapa, Amazonas, Acre, Rondonia, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

**Aristida trachyantha** Henrard. *Meded. Herb. Leid.* No. 54 a. 636 (1928).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Lorenzo R. Parodi 8140, Jan 1927, Argentina: La Pampa: General Acha, in campis graminosis (L-927.250–231; IT: US-1447539 (also fragm. ex L)).

**Illustrations (Books):** M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (473, Fig. 318).

**Derivation** (Clifford & Bostock 2007): Gk. trachys, rough; anthos, flower. Lemmas scabrid.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 35 cm long, 2–3 -noded. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Collar pilose. Leaf-blades convolute, 1–3 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 15–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 13–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 8–9.5 mm long, 0.66 length of upper glume, membranous. Lower glume apex acute. Upper glume linear, 13–15 mm long, membranous. Upper glume apex dentate, 2 -fid, acute, muticous or mucronate.

**Florets.** Fertile lemma linear, subterete, 10–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins involute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn straight, with 35–37 mm long limb. Lateral lemma awns present, 35–37 mm long, subequal to principal.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northwest, Argentina Northeast, Argentina South.

**TDWG4.** Mendoza. Buenos Aires, La Pampa. Río Negro.

**Aristida transvaalensis** Henrard. *Meded. Herb. Leid.* No. 58 A. 235 (1932).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: C.E. Moss 14259, 3 Apr 1927, South Africa: Transvaal; prope Pretoria, Baviaanspoort (K). LT designated by Henrard, *Meded. Rijks-Herb.* 54: 743 (1933).

**Illustrations (Books):** L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (310, Fig 275).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From the Transvaal, South Africa.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 35–70 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 7–15 cm long, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 4–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–11.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pilose, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5–9 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned. Upper glume lanceolate, 6.5–10 mm long, 0.6–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex truncate, mucronate.

**Florets.** Fertile lemma elliptic, subterete, 10–11.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface granulose. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 6–13 mm long limb, with twisted column, persistent. Column of lemma awn 1–6 mm long. Lateral lemma awns present, 1–8 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Southern Africa. Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Kwazulu-Natal.

**Aristida tricornis** H. Scholz & P. König. *Willdenowia* 17: 111 (1988).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Saudi Arabia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Baird & Kuhnig 28-1667*, Saudi Arabia: 50 km NW Khamis Mushayt (B).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. tria, three; cornu, horn. Awn terminally divided into three short segments.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 5–20 cm long. Ligule a fringe of hairs. Leaf-blades involute, 1–5 cm long, 1 mm wide, coriaceous, stiff. Leaf-blade surface ribbed.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or oblong, 2–8 cm long, contracted about primary branches. Primary panicle branches appressed or ascending, simple, 1–2 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pubescent, with longer hairs above, acute.

**Glumes.** Glumes persistent, similar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 4.5–6.5 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5.5–7 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, subterete, 6–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough in lines. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn spreading, flat below (0.5–0.6 mm wide), stiff, pungent, with 10–20 mm long limb, without a column, persistent. Lateral lemma awns present, spreading as much as principal, 8–15 mm long, shorter than principal. Palea without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Arabian Peninsula. Saudi Arabia, Yemen.

**Aristida trisetata** Keng. *Sunyatsenia* 6: 102 (1941).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: on dry site, Shaowusze Agricultural station, Taining district, Sikang province, *K.L. Chu 7477*.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 636).

**Derivation** (Clifford & Bostock 2007): *L. tria*, three; seta, bristle. Awn trifold.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 12–22 cm long, 0.5–1 mm diam., 1–2-noded. Leaves mostly basal. Leaf-sheaths loose, 2.5–4 cm long. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades involute, 3.5–7 cm long, 1–2 mm wide, glaucous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 3.5–7.5 cm long. Primary panicle branches 1–2-nate, bearing 2–4 fertile spikelets on each lower branch. Panicle axis scaberulous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 1–10 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse. Floret callus hairs 0.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 6–8 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acuminate. Upper glume lanceolate, 7–10 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface smooth or asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 6.5–8 mm long, coriaceous, dark brown or black, without keel, 3-veined, 0–3-veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3-awned. Principal lemma awn straight, with 4–8 mm long limb, persistent. Lateral lemma awns present, 0.5–3.5 mm long, shorter than principal. Palea 1.5–2 mm long, 0.2 length of lemma, 2-veined, without keels. Palea apex obtuse.

**Flower and Fruit.** Lodicules 2, 1.2 mm long, veined, glabrous. Anthers 3, 3–3.5 mm long. Caryopsis with adherent pericarp, fusiform, sulcate on hilar side, 5 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central, China North-Central, Qinghai, Tibet.

**TDWG4.** Gansu, Sichuan, Yunnan.

**Aristida triticoides** Henrard. Meded. Herb. Leid. No. 54 C. Suppl., 744 (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Somalia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Somalia: Appleton 104 (K holotype).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (83, Fig 34).

**Derivation** (Clifford & Bostock 2007): *Gk. -oides*, resembling. Resembling *Triticum* usually with reference to the inflorescence.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 30–65 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades convolute, 15–30 cm long, 1–1.5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 6–15 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 14–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1 mm long, pilose, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.5–8 mm long, 0.4–0.5 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex acute or acuminate, mucronate. Upper glume lanceolate, 14–16 mm long, 3.5–5 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume apex dentate, 2-fid, awned, 1-awned, awn 1–5 mm long.

**Florets.** Fertile lemma elliptic, subterete, 3–4.5 mm long, coriaceous, without keel, 3-veined, 0–3-veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3-awned. Principal lemma awn 3-branched, with 40–60 mm long limb, with twisted column, deciduous, abscising from top of column. Column



of lemma awn 20–25 mm long. Lateral lemma awns present, 25–35 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** Northeast tropical Africa. Somalia. Western Asia, Arabian Peninsula. Iran. Oman, Saudi Arabia. Indian Subcontinent. India, Pakistan.

### **Aristida tsangpoensis** L. Liou. *Fl. Xizangica* 5: 82 (1987).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nang Xian: Qinghai-Xizang Complex Exped. 7896 (HP holo).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 635).

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 20–30 cm long, 0.5–1 mm diam., 1–2 -noded. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades involute, 3–6 cm long, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 9–12 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 7–9 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 10–12 mm long limb, with twisted column, persistent. Column of lemma awn 2 mm long. Lateral lemma awns present, 7 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, Tibet.

**TDWG4.** Yunnan.

### **Aristida tuberculosa** Nutt. *Gen. Am.* 1: 57. (1818).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: in the sandy pine forests of Georgia, a few miles from Augusta.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (320).

**Derivation** (Clifford & Bostock 2007): *L. tuberculus*, wart; -osa, abundance. Lemmas or glumes bearing warty projections.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Butt sheaths villous. Culms erect, 24–50 cm long. Lateral branches ample, arising from lower culm. Leaf-sheaths glabrous on surface, outer margin glabrous or hairy. Ligule a fringe of hairs. Leaf-blades involute, 10–20 cm long, 1–3 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 10–20 cm long. Primary panicle branches ascending, 2 -nate. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3–4 mm long, pubescent, pungent.

**Glumes.** Glumes similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume linear, 6–12 mm long, 1 length of upper glume, membranous. Lower glume apex acute, awned, 1 -awned,

awn 3–6 mm long. Upper glume linear, 6–12 mm long, membranous. Upper glume apex acute, awned, 1 -awned, awn 3–6 mm long.

**Florets.** Fertile lemma linear, subterete, 11–13 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, spreading or recurved at base of limb, with 20–40 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 10–15 mm long. Lateral lemma awns present, spreading as much as principal, 30–40 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** North-central USA, Northeast USA, Southeastern USA. Illinois, Wisconsin, Maine, New Hampshire, New York. Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina.

**Aristida tuitensis** J.G. Sanchez-Ken & P. Davila. *Novon* 5(2): 190 (1995).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Jalisco: Mun. El Tuito, 9 a 10 km sobre la brecha a las Minas del Cuale (E de El Tuito), elev. 1900 m, 13 Jan 1991, J. Sanchez-Ken, M. Mayfield & B. Westlund 500 (HT: MEXU; IT: ENCB, IBUG, MICH, MO).

**Illustrations (Journals):** *Novon* (5:191, Fig.1 (1995)).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Municipio El Tuito, Mexico.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 1–2 mm diam., 9–15 -noded. Culm-internodes terete, 2–12 cm long, distally glabrous. Culm-nodes glabrous. Lateral branches ample. Leaf-sheaths 3–9 cm long, longer than adjacent culm internode, indistinctly veined, glabrous on surface. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades straight or flexuous, flat, 10–50 cm long, 2–4 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Peduncle 11–30 cm long, smooth or scaberulous above. Panicle open, ovate, effuse, 14–35 cm long, 12–20 cm wide, with spikelets clustered towards branch tips. Primary panicle branches spreading, 9–15 cm long. Panicle branches with prominent pulvini. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present, 5–18 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.7–1 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–8 mm long, 0.7–0.9 length of upper glume, membranous, 3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins obscure. Lower glume surface glabrous. Lower glume apex acute, mucronate or awned, 1 -awned, awn 0.5–2 mm long. Upper glume lanceolate, 6–7.5 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex obtuse, mucronate or awned, 1 -awned, awn 0.5–1 mm long.

**Florets.** Fertile lemma linear, subterete, 4.5–6 mm long, 1–1.3 mm wide, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, with twisted column. Column of lemma awn 6–10 mm long. Palea 0.5–0.7 mm long.

**Flower and Fruit.** Lodicules 2, 1–1.2 mm long. Anthers 3, 3–4 mm long.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Southwest Mexico.

**TDWG4.** Jalisco.

**Aristida uruguayensis** Henrard. *Meded. Herb. Leid.* No. 54 E. 647 (1928).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sello s.n.*, Sep 1823, Uruguay: San Josi do Uruguay (B).

**Illustrations (Books):** A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (215, Fig. 79 & as var. *uruguayensis*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (214, Fig. 88).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Uruguay.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 27–50(–73) cm long. Lateral branches lacking. Leaf-sheath oral hairs lacking. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades curved, conduplicate, 15–35 cm long or 0 cm long, 1.8 mm wide or 0.2–3.2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–24(–28) cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.7–0.8 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, (13–)17–21 mm long, 1(–3) -veined (lateral veins free). Lower glume primary vein scabrous. Lower glume surface asperulous, rough generally. Lower glume apex setaceously acuminate. Upper glume lanceolate, 27–37(–40) mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, acuminate.

**Florets.** Fertile lemma laterally compressed, 13–18 mm long, keeled, distinctly keeled, keeled above, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness or scabrous. Lemma surface smooth, without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 75–130 mm long limb, without a column. Lateral lemma awns present, ascending, 75–130 mm long, subequal to principal.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil, Southern South America.** Argentina Northeast, Uruguay.

**TDWG4.** Santiago del Estero. Buenos Aires, Cordoba, Corrientes, Entre Rios.

**Aristida utilis** Bailey. *Qld Agric. J.* 18:340 (1907).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*.

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M. Webb s.n.*, May 1907, Australia: Queensland: Cook District: near Cooktown (BRI; IT: K (photo, US-1447336), US-1162453).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(5)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 151, Fig.1 (1992)).

**Derivation** (Clifford & Bostock 2007): L. useful. Peduncles used for manufacture of hats.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 53–130 cm long. Culm-internodes smooth or scaberulous, distally pubescent. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate, 1.5–3 mm long. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades curled or flexuous, involute, 10–21 cm long, 1.5–2 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 15–48 cm long, 1–6 cm wide. Primary panicle branches 2–3 -nate, 4–8.5 cm long, naked below or bearing spikelets almost to the base. Panicle branches scabrous, glabrous or pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, compressed slightly, 8–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4–0.7 mm long, pubescent, acute. Floret callus hairs 1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7.3–16 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate, awned, 1 -awned, awn 2.5–4 mm long. Upper glume lanceolate, 8.3–17 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate, awned, 1 -awned, awn 2.5–4 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 8–20 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above, glabrous or pubescent, hairy above. Lemma margins involute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn geniculate or 3-branched, with 9–31 mm long limb, with twisted column, persistent. Column of lemma awn 5–9 mm long, glabrous or

puberulous. Lateral lemma awns absent or present, 0–10 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, sulcate on hilar side. Hilum linear, 0.25 length of caryopsis.

**Distribution (TDWG). Continent.** Tropical Asia, Australasia.

**Country /Province /State. Papuaia.** New Guinea PNG. New Guinea. **Australia.** Northern Territory, Queensland.

**TDWG4.** Darwin & Gulf. North, South East.

### **Aristida vagans** Cav. *Ic. 5: 45. t. 471. (1799).*

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>:  *fide* TROPICOS and Kew Synonymy Database: HT: *Anon. s.n.*, Australia: New South Wales: Central Coast, Port Jackson (MA (photo, BRI)).

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (132), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (104(19)), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (155, Fig. 24).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 197, Fig.11 (1992)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. vago*, wander. Culms much branched.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 38–85 cm long, 2–3 -noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking or sparse or ample. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent or ciliate. Ligule a fringe of hairs, 0.5 mm long. Collar glabrous. Leaf-blades flat or involute, 5–10 cm long, 1 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 6–11.5 cm long, 3–4 cm wide. Primary panicle branches 2–5 cm long. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8.5–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, pubescent, acute.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.5–7 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex cuspidate. Upper glume lanceolate, 3.5–7 mm long, 0.4–0.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate or obtuse.

**Florets.** Fertile lemma lanceolate, subterete, 8.5–12 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 6–9.5 mm long limb, without a column, persistent. Lateral lemma awns present, 4–8 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 6–9 mm long. Hilum linear, 0.3–0.4 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** New South Wales, A.C.T., Queensland.

**TDWG4.** Central, South East. Coast, Tablelands, Western Slopes, Western Plains.

### **Aristida vaginata** Hitchc. *Proc. Calif. Acad. Sci., ser. 4, 21(24): 297. 1935.*

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>:  *fide* TROPICOS and Kew Synonymy Database: HT: *J.T. Howell 8448, 29 Mar 1932, Mexico: Colima: dry slopes, north anchorage, Socorro Island, Revillagigedo Islands* (CAS-211474; IT: US-1611669).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. vagina*, sheath; -ata, possessing. Leaf-sheaths conspicuous.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100 cm long, 2.4 mm diam. Leaf-sheaths tight, wider than blade at the collar, without keel, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades flat, 1–3 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially, glabrous, hairless throughout or except near base. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 30 cm long. Primary panicle branches appressed, 5–8 cm long. Panicle axis scabrous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, winged, with this appendage 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10 mm long, 0.9 length of upper glume, membranous, 3 -veined. Lower glume surface scabrous. Lower glume apex setaceously acuminate. Upper glume lanceolate, 11 mm long, membranous. Upper glume surface asperulous. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma linear, subterete, 6–7 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn geniculate, with 20–35 mm long limb, with a straight or slightly twisted column, persistent. Column of lemma awn 2–3 mm long. Lateral lemma awns present, 20–35 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Southwest Mexico. Colima, Jalisco.

**Aristida valida** Henrard. *Meded. Herb. Leid.* No. 54 E. 655 (1928).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.R. Parodi 6902*, 25 Jan 1926, Argentina: Misiones: Apstoles, in campis altis, forma grandes matas on campos altos, comzn (L-926.156–888; IT: US-1295684 (also fragm. ex L)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. robust.* Culms erect, stout.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect, robust, 70–80 cm long, 1.5 mm diam. Culm-internodes smooth. Leaf-sheaths 20 cm long, smooth or scaberulous. Leaf-sheath oral hairs pubescent or ciliate. Ligule a fringe of hairs. Leaf-blades filiform, conduplicate or involute, 10–20 cm long, 0.75 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–30 cm long, contracted about primary branches. Primary panicle branches appressed or ascending, 2 -nate, 4–8 cm long. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 18–23 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 10.5–13.5 mm long, 0.66 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 2 mm long. Upper glume linear, 18–23 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute, awned, 1 -awned, awn 2 mm long.

**Florets.** Fertile lemma linear, subterete, 11–13 mm long, coriaceous, purple, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex with a short cylindrical neck, awned, 3 -awned. Principal lemma awn 3-branched, with 40–70 mm long limb. Lateral lemma awns present, ascending or gyrate, 40–70 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast, Paraguay.

TDWG4. Misiones.

**Aristida venesuelae** Henrard. *Meded. Herb. Leid.* No. 54 E. 659 (1928).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela: in savannis ad Caracas, 1891–1892, *Dr. E. Warming s.n.* (HT: C).

**Illustrations (Books):** G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 50, Fig. 9 (1997)).

**Derivation** (Clifford & Bostock 2007): from Venezuela.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect, 11–24 cm long, 1 mm diam. Culm-internodes scaberulous. Lateral branches lacking or sparse. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades convolute, 8–10 cm long, 2 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex acuminate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15 cm long, contracted about primary branches. Primary panicle branches 1–2 -nate. Panicle axis scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–5 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–0.75 mm long, pubescent, acute.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–9 mm long, 1.2–1.3 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 6–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 20 mm long limb. Lateral lemma awns present, 10–15 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Colombia, Ecuador, Peru.

**Aristida venustula** Arech. *Anal. Mus. Montevid.* 4, 1: 77. (1902).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Archavaleta s.n.*, Uruguay: Montevideo: vive en campos gramíneos (MVM; IT: BAA, W-22185).

**Illustrations (Books):** A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (215, Fig. 80), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (217, Fig. 89).

**Derivation** (Clifford & Bostock 2007): *L. venusta*, beautiful; -ula, diminutive.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Culms 20–35(–45) cm long. Lateral branches lacking. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.2 mm long. Collar glabrous. Leaf-blades curved, conduplicate, 5–18 cm long, 0.5–0.8(–1.2) mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, hairless except near base, sparsely hairy, hairy adaxially. Leaf-blade apex acute, antrorsely scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open (pauciflore), 8–20 cm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 0.7–1 mm long, pilose, acute (subacute).

**Glumes.** Glumes persistent, dissimilar (lower shorter than upper). Lower glume lanceolate, (11–)14–19 mm long, 3–5 -veined (lateral veins convergent with the central). Lower glume primary vein scabrous. Lower glume surface asperulous, rough generally. Lower glume apex acuminate or setaceously acuminate. Upper glume lanceolate, (17–)20–33 mm long, 1 -veined. Upper glume surface smooth. Upper glume apex entire, setaceously acuminate.

**Florets.** Fertile lemma laterally compressed (slightly), 11–18 mm long, keeled (slightly ABOVE), 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma surface smooth or scabrous, rough above (2/3), without grooves. Lemma margins convolute. Lemma apex awned, 3 -awned. Principal lemma awn straight, ascending, simple at base, with 55–90(–100) mm long limb, without a column. Lateral lemma awns present, ascending, 55–90(–100) mm long, subequal to principal.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil, Southern South America, Western South America (Bolivia). Bolivia. Brazil South. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Catarina, Rio Grande do Sul. Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, Misiones.

### **Aristida venustuloides** Arech. *Anal. Mus. Montevid.* 4, 1: 77. (1902).

Regarded by K as a synonym (*A. venustula*).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.E. Burkart & S. Crespo 22900*, 21 Dec 1961, Argentina: Entre Rios: Colon Dept.: arroyo Palmar, Ruta 14, km 380 (SI; IT: US-2595187).

**Illustrations (Books):** A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (215, Fig 80).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Aristida venustula*.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial. Basal innovations extravaginal or intravaginal. Culms erect, 35–40 cm long, with 0.1–0.2 of their length below uppermost node. Leaf-sheaths longer than adjacent culm internode. Leaf-sheath oral hairs ciliate, 3 mm long. Ligule a fringe of hairs. Leaf-blades filiform, conduplicate, 4–15 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 6–10 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 20–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.75 mm long, acute.

**Glumes.** Glumes dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–12 mm long, 0.5 length of upper glume, membranous, 3–7 -veined. Lower glume apex acuminate. Upper glume lanceolate, 20–22 mm long, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 11–13 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 50–65 mm long limb. Lateral lemma awns present, 50–65 mm long, subequal to principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Southern South America. Argentina Northeast.

**TDWG4.** Entre Rios.

### **Aristida vestita** Thunb. *Prod. Pl. Cap.* 19. (1794).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Thunberg s.n.*, South Africa: Cape (UPS).

**Illustrations (Books):** No illustration found (BKS).

**Images:** F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. vestio, clothe. Leaf-blades and, or hairy.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths glabrous or woolly. Culms 40–120 cm long. Culm-internodes distally pubescent or woolly. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades flat or convolute, 20–40 cm long, 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, effuse, 15–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets lanceolate, subterete, 9–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1 mm long, pilose, truncate or 2-toothed.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5–7 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 9–13 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex emarginate.

**Florets.** Fertile lemma elliptic, subterete, 7–11 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 20–35 mm long limb, with twisted column, deciduous, abscising from top of lemma. Column of lemma awn 2–7 mm long. Lateral lemma awns present, 15–30 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** East tropical Africa, South tropical Africa, Southern Africa. Tanzania. Mozambique, Zambia, Zimbabwe. Namibia, North-West, Mpumalanga, Free State, Northern Cape, Western Cape, Eastern Cape.

**Aristida vexativa** Henrard. *Meded. Herb. Leid.* No. 54 E. 669 (1928).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.R. Parodi* 3288, 15 Jan 1920, Argentina: Santa Fi; Santo Tomi (L-927.320–292; IT: US-81234 (fragm. ex L)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. vexatio*, trouble; -iva, indicating capacity.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 15–30 cm long, 0.5 mm diam. Lateral branches lacking. Leaf-sheaths tight, striately veined, glabrous on surface. Leaf-sheath oral hairs pubescent or ciliate. Ligule a fringe of hairs. Leaf-blades flexuous, conduplicate, 1 mm wide, glaucous. Leaf-blade surface scaberulous, rough adaxially or on both sides. Leaf-blade margins unthickened. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, interrupted, 15 cm long. Primary panicle branches appressed, 2 -nate, 2–4 cm long. Panicle axis smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 19–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 9–10 mm long, 0.5 length of upper glume, membranous, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume apex awned, 1 -awned. Upper glume linear, 19–20 mm long, 2 length of adjacent fertile lemma, membranous, 1–3 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent or obscure. Upper glume apex acuminate, awned, 1 -awned.

**Florets.** Fertile lemma linear, subterete, 8–11 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn with 70 mm long limb. Lateral lemma awns present, 70 mm long, subequal to principal. Palea hyaline, 0 -veined.

**Flower and Fruit.** Lodicules 2. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast.

**TDWG4.** Santa Fe.

**Aristida vickeryae** B.K. Simon. *Austrobaileya* 2(1): 94 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: New South Wales: South Far Western Plains: between Euston and Gol Gol, 15 Oct. 1949, *J. W. Vickery* (HT: NSW-144387; IT: BRI).



**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (132), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 207, Fig.13 (1992)).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Joyce Winifred Vickery (1908–1979) Australian botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 20–45 cm long, 2–4 -noded. Culm-internodes smooth, distally glabrous. Lateral branches sparse. Ligule a fringe of hairs, 0.3–0.7 mm long. Leaf-blades flexuous, filiform, involute, 4–16 cm long, 0.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 12–15 cm long, 3–5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.2 mm long, pubescent, pungent. Floret callus hairs 1.2 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–10 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 12–13 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 10 mm long, coriaceous, pallid or light brown, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scabrous, rough above. Lemma margins involute or convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn with 33–37 mm long limb, without a column, persistent. Lateral lemma awns present, 30–35 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 2 mm long. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales.

**TDWG4.** Western Plains.

**Aristida victoriana** Sulekic. *Darwiniana* 41(1–4): 184 (-186; fig. 11). 2003 (2003).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Rodeo Pampa: Sulekic & Cano 1929 (ICN holo).

**Illustrations (Journals):** *Darwiniana* (41: 185, fig.11 (2003)).

**Derivation** (Clifford & Bostock 2007): L. *-ana*, indicating connection. From Depto. Santa Victoria, Argentina.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 6–20 cm long. Leaf-sheaths striately veined, scaberulous, glabrous on surface. Leaf-sheath oral hairs ciliate, 1.5 mm long. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight or curved, convolute, 1–7 cm long, 0.5–2 mm wide, stiff. Leaf-blade surface scaberulous or scabrous, rough adaxially. Leaf-blade margins scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, interrupted, 3–8 cm long, 0.4–0.7 cm wide, bearing few spikelets. Primary panicle branches naked below or bearing spikelets almost to the base. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–0.6 mm long, pilose, obtuse.

**Glumes.** Glumes similar, with lower wider than upper, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5.5–8.5 mm long, 0.9–1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acute, mucous or mucronate. Upper glume lanceolate, 6–9.5 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 1–1.3 mm long.

**Florets.** Fertile lemma linear, subterete, 6.5–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn 3-branched, with 3.5–7.5 mm long limb, with a straight or slightly twisted column. Column of lemma awn 1.5–2.8 mm long. Lateral lemma awns present, ascending, 2–5 mm long, shorter than principal, lemma awns 0.66 length of principal. Palea 1.5–1.7 mm long, 2 -veined. Palea apex dentate, 2 -fid.

**Flower and Fruit.** Lodicules 2, 1–1.3 mm long. Anthers 3. Caryopsis with adherent pericarp, fusiform, without sulcus, 3.5–5.5 mm long, dark brown. Embryo 0.2–0.33 length of caryopsis. Hilum linear.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Southern South America.** Argentina Northwest.

**TDWG4.** Salta.

**Aristida vilfifolia** Henrard. Meded. Herb. Leid. No. 54 E. 671 (1928).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.L. Ekman [Amer. Gr. Nat. Herb. 791]*, 21 Oct 1922, Cuba: Camaguey, savanna (L-925.70–13; IT: US-1161263).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. folium, leaf. Leaf-blades like those of *Vilfa*.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 30–60 cm long, wiry. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades curved or flexuous, flat or involute, 3–5 cm long, 0.5–1 mm wide. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 5–15 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pubescent, pungent.

**Glumes.** Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 6–8 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume linear, 6–8 mm long, membranous, 1 -veined. Upper glume primary vein smooth. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 6–7 mm long, coriaceous, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex awned, 3 -awned. Principal lemma awn spreading, with 10–15 mm long limb. Lateral lemma awns present, spreading less than principal, 6–10 mm long, shorter than principal.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Bahamas, Cuba, Dominican Republic, Haiti.

**Aristida villosa** B.L. Rob. & Greenm. *American Journal of Science* 50: 144. 1895.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Baur 337*, Aug 1891, Ecuador: Galapagos: Jervis Island (GH; IT: US-81233 (fragm. ex GH & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. villi, long weak hairs; -osa, abundance. The plant in whole or in part covered with long hairs.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 15–35 cm long, 3–6 -noded. Culm-internodes terete, distally pubescent. Culm-nodes flush with internodes, glabrous. Lateral branches lacking or sparse. Leaf-sheaths mostly shorter than adjacent culm internode, hirsute. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Collar glabrous or pubescent. Leaf-blades flat or convolute, 5–12 cm long, 2.5–3 mm wide, glaucous. Leaf-blade surface scaberulous, rough on both sides, pubescent, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 4–7 cm long. Primary panicle branches 1 -nate. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4 mm long, membranous, 1-keeled, 3 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins obscure. Lower glume surface asperulous, rough on veins, glabrous or puberulous. Lower glume apex acuminate, awned, 1 -awned, awn 2 mm long. Upper glume lanceolate, 6 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume surface puberulous. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 2–3 mm long.

**Florets.** Fertile lemma ovate, subterete, 4 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 9–15 mm long limb, with a straight or slightly twisted column, deciduous, abscising from top of column. Column of lemma awn 1 mm long. Lateral lemma awns present, 5–6 mm long, shorter than principal.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America. Galapagos.

**Aristida warburgii** Mez. Fedde, *Repert.* 17: 149 (1921).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*.

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.F. Warburg 19535*, no date, Australia: Queensland: Wide Bay Dist.: near Maryborough (B; IT: BRI (fragm. & photo ex B), US-2489454 (fragm. ex B)). Collection no. is annotated on sheet, but not cited in publication.

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (133), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (104(10)), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. Syst. Bot.* (5: 188, Fig.9 (1992)).

**Derivation** (Clifford & Bostock 2007): in honor of Otto Warburg (1859–1938) German botanist.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–90 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate or bearded. Ligule a fringe of hairs, 0.3 mm long. Collar glabrous or pubescent. Leaf-blades filiform, involute, 8–16 cm long, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 11–15 cm long, 2–7 cm wide. Primary panicle branches 10–22 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8.5–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.2–2 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7–11.5 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 3–7 -veined. Lower glume apex obtuse. Upper glume lanceolate, 8.5–17 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume apex obtuse.

**Florets.** Fertile lemma lanceolate, subterete, 7–11 mm long, coriaceous, pallid or light brown, mottled with last colour, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth or scabrous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, reflexed, with 17–33 mm long limb, with twisted column, persistent. Column of lemma awn 5–17 mm long. Lateral lemma awns present, spreading less than principal, 12–28 mm long, shorter than principal. Palea 0.2 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp, 6–7 mm long. Hilum linear.

**Distribution (TDWG).** Continent. Tropical Asia, Australasia.

**Country /Province /State.** Papuasia. New Guinea PNG. New Guinea. **Australia.** New South Wales, Queensland.

**TDWG4.** North, South East. Coast, Tablelands, Western Slopes.

**Aristida wildii** Melderis. *Bol. Soc. Brot., Ser. 2*, 44: 283 (1970).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Botswana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Aha Hills: Wild & Drummond 6948 (BM holo, K, SRGH).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Hiram Wild (d.1982), ex Chief Botanist, National Herbarium of Rhodesia and University of Rhodesia.

**Classification.** Subfamily Aristidoideae. Tribe: Aristideae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 35–55 cm long, 3–4 -noded. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades convolute, 10–22 cm long, 1–1.5 mm wide. Leaf-blade surface pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, 20–22 cm long. Primary panicle branches spreading or reflexed, 1–2 -nate, 3–6 cm long, bearing 1–3 fertile spikelets on each lower branch. Panicle branches glandular (in axils), scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10.5–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5 mm long, pilose, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 7–9 mm long, 1.2 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7.5 mm long, 0.6–0.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume apex erose, obtuse.

**Florets.** Fertile lemma elliptic, subterete, 10.5–11 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins convolute, covering most of palea. Lemma apex acute, awned, 3 -awned. Principal lemma awn 3-branched, with 11–16 mm long limb, persistent. Lateral lemma awns present, 6–13 mm long, shorter than principal. Palea 0.1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3.

**Distribution (TDWG), Continent.** Africa.

**Country /Province /State.** Southern Africa. Botswana.

**Arrhenatherum album** (Vahl) W. D. Clayton. *Kew Bull.* 16: 250 (1962).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Tunisia. **Basionym or Replaced Name:** *Avena alba* Vahl, *Symb. Bot.* 2: 24. (1791). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *s.n.*, Tunisia (LE). Herb. Schum. HT: *Vahl*, (C).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. white. Usually of spikelets, often due to the pale indumentum.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Stolons present. Culms 50–125 cm long, swollen at the base, forming an ovoid corm or moniliform corms. Culm-nodes glabrous or bearded. Leaf-sheaths glabrous on surface or hirsute. Ligule an eciliate membrane, 1–5 mm long, lacerate. Leaf-blades 20–40 cm long, 4–8 mm wide. Leaf-blade surface scabrous, glabrous or hirsute.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, dense, 10–35 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, laterally compressed, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated between glumes or elongated below proximal fertile floret. Rhachilla elongation 1.5–1.8 mm long (below floret). Floret callus pilose.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume lanceolate, 6–8.3 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 9–11 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 7–10.5 mm long, chartaceous, much thinner above, pilose, hairy below, dentate, 2 -fid, acute or acuminate, awned. Awn of lower sterile floret dorsal, arising 0.1 way up back of lemma, geniculate,

15–25 mm long. Fertile lemma elliptic, 7–10.5 mm long, chartaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma hairs 2–3 mm long. Lemma apex acuminate, mucicous or mucronate or awned, 1 -awned. Principal lemma awn subapical, 0–5 mm long overall. Palea keels ciliolate.

**Flower and Fruit.** Anthers 3, 3.3–4.7 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, 3.5–4 mm long.

*N* = 7 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Northern Europe (\*), Southwestern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Portugal, Spain. **Northern Africa.** Algeria, Libya, Morocco, Tunisia. **Western Asia.** Cyprus, Lebanon-Syria.

**Arrhenatherum calderae** A.Hansen. *Cuad. Bot. Canar.*, 14–15: 65 (1972).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 50–100 cm long, 3–4 -noded. Ligule an eciliate membrane, 3–4 mm long, erose, truncate or obtuse. Leaf-blades 10–20 cm long, 3–4 mm wide, glaucous. Leaf-blade surface scaberulous, rough abaxially. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 8–9 cm long. Primary panicle branches bearing 1–3 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume lanceolate, 6.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 7–8 mm long, 1 length of fertile lemma, chartaceous, much thinner above, 7 -veined, dentate, 2 -fid, awned. Awn of lower sterile floret dorsal, arising 0.1 way up back of lemma, geniculate, 15–18 mm long. Palea of lower sterile floret 5 mm long. Fertile lemma lanceolate, 7–8 mm long, chartaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, straight, 3–6 mm long overall. Palea keels ciliolate.

**Flower and Fruit.** Anthers 3, 4 mm long, pallid or yellow. Ovary pubescent all over. Caryopsis with adherent pericarp, lanceolate, 5 mm long, hairy all over.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Macaronesia. Canary Is.

**Arrhenatherum elatius** (L.) P. Beauv. ex J. & C. Presl. *Fl. Cechica*: 17 (1819).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**Basionym or Replaced Name:** *Avena elatior* L., *Sp. Pl.* 1: 79 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Europe: In Europae maritimis & apricis,.

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (234), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (81, Fig 52), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (55, Fig. 21), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (324, Pl. 118), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (160, Fig. 54), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (256), C-C Hsu, *Taiwan Grasses* (1975) (as var. *bulbosum* forma *variegatum*), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia*

(2006) (203, Fig. 151 as var. *bulbosum*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (40, Pl. 10 as var. *bulbosum*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (453, Fig. 88 as var. *bulbosum*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (133), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (110 as var. *bulbosum*), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (123, Fig. 19 as var. *bulbosum*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (129, Fig. 19 as var. *bulbosum*), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (741 as ssp. *elatius*, *bulbosum*), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (237, Fig. 73 & as var. *bulbosum*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (454 & 463, Fig. 97 & 100), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (154, Fig. 41), M.N.Corraea, *Flora Patagonica* Parte III, *Gramineae* (1978) (3: 221, Fig. 142), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 441 as *Arrhenatherum elatius* var. *elatius* & *Arrhenatherum elatius* var. *bulbosum*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:11(1980)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): *L. taller*. Culms taller than those of related species.

**Classification.** Subfamily Pooideae. Tribe: Poaeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–180 cm long, 3–5 -noded, not swollen at the base or swollen at the base, forming moniliform corms. Culm-nodes glabrous or pubescent. Leaf-sheaths without keel, smooth or scaberulous, glabrous on surface or pilose. Ligule an eciliate membrane, 0.5–2 mm long. Leaf-blades 10–40 cm long, 4–10 mm wide. Leaf-blade surface scaberulous, pilose, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or oblong, equilateral or nodding, 10–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform or linear, 1–10 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, laterally compressed, 7–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume lanceolate, (3–)4–6(–7) mm long, 0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 7–11 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 0.9 length of fertile lemma, chartaceous, much thinner above, 7 -veined, glabrous or pilose, hairy below, dentate, 2 -fid, awned. Awn of lower sterile floret dorsal (on lower third of lemma), geniculate, 10–20 mm long. Fertile lemma obovate, 7–10 mm long, chartaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface glabrous or pilose, hairy below. Lemma apex dentate, 2 -fid, mucicous or awned, 1 -awned. Principal lemma awn subapical, straight or geniculate, 2–10.5 mm long overall. Palea keels ciliate.

**Flower and Fruit.** Anthers 3, 3.7–5.2(–5.5) mm long. Ovary pubescent all over.

$2n = 28$  (7 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Foroyar, Great Britain, Iceland, Ireland, Northern Ireland, Norway, Sweden. : Austria, Liechtenstein, Belgium, Luxembourg, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : Balears, Corsica, Channel Islands, France, Monaco, Portugal, Sardinia, Andorra, Gibraltar, Spain, Azores. : Bulgaria, Greece, Italy, San Marino, Vatican, Romania, Malta, Sicily, Turkey Europe, Yugoslavia. Belarus, Estonia, Kaliningrad, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. **Northern Africa, Macaronesia, Southern Africa** (\*). Algeria, Morocco, Tunisia. Azores, Canary Is, Madeira. Kwazulu-Natal. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China** (\*), **Eastern Asia.** Kamchatka, Sakhalin. Tadjikistan. Iran, Iraq. Japan, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent.** Sri Lanka. **Australia, New Zealand.** New South Wales (\*), A.C.T. (\*), Queensland (\*), South Australia (\*), Tasmania (\*), Victoria (\*), Western Australia (\*). Chatham Is, New Zealand North I, New Zealand South I, Campbell Is. **North-central Pacific.** Hawaii (\*). **Subarctic**

**America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, Southeastern USA, Mexico.** Alaska. British Columbia. Newfoundland, Nova Scotia, Ontario, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, South Dakota. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Vermont, West Virginia. Arizona, California, Utah. Delaware, Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, Virginia. Southeast Mexico. **Western South America, Brazil, Southern South America.** Colombia. Brazil South. Argentina Northeast, Argentina South, Chile South.

**TDWG4.** Meghalaya. South-West. NW & Lake Eyre, Southern. South East. Coast, Tablelands, Western Slopes. Mendoza. Buenos Aires, Santa Fe. Chubut, Neuquén, Río Negro, Tierra del Fuego. Valparaiso, Biobio, La Araucania. Los Lagos, Magellanes. Chiapas.

**Arrhenatherum kotschy** Boiss. *Diagn. Ser.* 1, 7: 122. (1846).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Iran, Persepolis: *Kotschy* 272 (G syn, E); Iran, Persepolis: *Kotschy* 287 (G syn).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 253), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 51), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (326, Pl. 119).

**Derivation** (Clifford & Bostock 2007): in honor of Karl Georg Theodor Kotschy (1813–1866) Austrian botanist and traveller.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes elongated. Culms erect, 17–30(–100) cm long, 1–2 -noded, not swollen at the base or swollen at the base, forming an ovoid corm. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2.5 mm long, truncate or obtuse. Leaf-blades 6–25 cm long, 1–4 mm wide. Leaf-blade surface smooth or scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate or oblong, dense, 6–15 cm long, 2–5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, curved, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, laterally compressed, 12–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 1.5–2 mm long, pilose (hairs 5–7mm). Floret callus pilose.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume lanceolate, 6.5–9 mm long, 0.5–0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 12–13.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 13–15 mm long, chartaceous, much thinner above, 7 -veined, villous, dentate, 2 -fid, setaceously acuminate (lateral awns 1–2.5mm), awned. Awn of lower sterile floret dorsal, arising 0.1 way up back of lemma, geniculate, 25–40 mm long. Fertile lemma elliptic, 9–10 mm long, chartaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface villous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, 10–16 mm long overall. Palea keels ciliate.

**Flower and Fruit.** Anthers 3, 2.3–4.6 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, oblong.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Caucasus, Western Asia. Iran, Iraq.

**TDWG4.**

**Arrhenatherum longifolium** (Thore) Dulac. *Fl. Hautes-Pyr.* 78 (1867).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *Pseudarrhenatherum*).

**Basionym or Replaced Name:** *Avena longifolia* Thore, *Prom. Golfe Gascogne* 92 (1810)

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Unknown s.n.*, (L).

**Recent Synonyms:** *Pseudarrhenatherum longifolium* (Thore) Rouy, *Bull. Soc. Bot. France*, 68: 401, 402 (1922).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; folium, leaf. With long leaf-blades.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–120 cm long. Culm-nodes bearded. Leaf-sheaths pilose. Ligule an eciliate membrane, 1–2 mm long, pubescent on abaxial surface, truncate. Leaf-blades flat or convolute, 15–30 cm long, 2–5 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially, pilose. Leaf-blade margins scabrous. Leaf-blade apex hardened.

**Inflorescence.** Inflorescence a panicle. Peduncle scaberulous above. Panicle open, lanceolate, dense, 5–15 cm long. Primary panicle branches bearing spikelets almost to the base. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Floret callus pilose. Floret callus hairs 0.1 length of lemma.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume lanceolate, 5–6 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins obscure. Lower glume apex acuminate. Upper glume lanceolate, 6–7 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 7–9 mm long, chartaceous, much thinner above, pubescent, dentate, 2 -fid, acute or acuminate, awned. Awn of lower sterile floret dorsal, arising 0.66 way up back of lemma, geniculate, 7–9 mm long. Fertile lemma elliptic, 6–7 mm long, chartaceous, much thinner above, without keel, 5–7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acuminate, mucronate or awned, 1 -awned. Principal lemma awn subapical. Palea 4–5 mm long. Palea keels ciliolate.

**Flower and Fruit.** Anthers 3, 3–4 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, oblong, dorsally compressed, sulcate on hilar side, 2.5–3 mm long. Embryo 0.1 length of caryopsis. Hilum linear, 0.33 length of caryopsis.

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Southwestern Europe.

**Country /Province /State.** : France, Portugal, Spain. **Northern Africa.** Morocco.

***Arrhenatherum palaestinum*** Boiss. *Diagn. Ser.* 1, 8: 51 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Palestine. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Palestine: *Boissier* (G holo).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 252).

**Derivation** (Clifford & Bostock 2007): from Palestine.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 17–55(–100) cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, pubescent on abaxial surface, obtuse. Leaf-blades 5–22 cm long, 1.4–4.5 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 7–27 cm long, 2–6 cm wide. Primary panicle branches 3–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–15 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, laterally compressed, 11–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 1–2.5 mm long. Floret callus pilose.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume lanceolate, 5.5–6.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 9–12 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 8–14 mm long, chartaceous, much thinner above, dentate, 2 -fid, acute or acuminate, awned. Awn of lower sterile floret dorsal, arising 0.1 way up back of lemma, geniculate, 20–28 mm long. Fertile



lemma elliptic, 8.1 mm long, chartaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acuminate, muticous or awned, 1 -awned. Principal lemma awn subapical, 4.5–6 mm long overall. Palea keels ciliate.

**Flower and Fruit.** Anthers 3, 3.5–5.5 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp.

$2n = 14$  (1 ref TROPICOS), or 28 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region. Southeastern Europe.**

**Country /Province /State. :** Bulgaria, Greece, Crete, Yugoslavia. **Western Asia.** East Aegean Is, Lebanon-Syria, Palestine, Israel & Jordan, Turkey.

### **Arrhenatherum pallens** (Link) Link. *Hort. Berol.* 1: 124. (1827).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *Pseudarrhenatherum*).

**Basionym or Replaced Name:** *Avena pallens* Link, *J. Bot. (Schrader)* 2: 314 (1799).

**Recent Synonyms:** *Pseudarrhenatherum pallens* (Link) Holub, *Taxon* 15:167 (1966).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. pale. Inflorescences pale.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–70 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades filiform, convolute, 0.6–0.8 mm wide. Leaf-blade surface ribbed, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, dense, 5–12 cm long. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, laterally compressed, 9–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Floret callus pilose.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume lanceolate, 7–8 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins obscure. Lower glume apex acuminate. Upper glume lanceolate, 9–10 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 7–8 mm long, chartaceous, much thinner above, pubescent, dentate, 2 -fid, acute or acuminate, awned. Awn of lower sterile floret dorsal, arising 0.5–0.8 way up back of lemma, geniculate, 12–15 mm long. Fertile lemma elliptic, 7–8 mm long, chartaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acuminate, muticous or awned, 1 -awned. Principal lemma awn subapical, 0–2 mm long overall. Palea 6–7 mm long. Palea keels ciliate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe.

**Region. Southwestern Europe.**

**Country /Province /State. :** Portugal.

### **Arthragrostis aristispicula** B.K. Simon. *Austrobaileya* 2(3): 238 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia, Queensland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Almaden: Simon 5598 & Clarkson (BRI holo, CANB).

**Illustrations (Books):** No illustration found (BKS).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. arista, bristle; spica, thorn; -ula, diminutive. Lemma shortly awned.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe PANICINAE .

**Habit, Vegetative Morphology.** Annual. Culms 40–80 cm long. Ligule a ciliate membrane. Leaf-blades 2–9 cm long, 1–2.8 mm wide. Leaf-blade surface ribbed, pilose. Leaf-blade margins cartilaginous, ciliate, hairy at base.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–25 cm long, 2–5 cm wide. Primary panicle branches 5–12 cm long. Panicle axis bearing deciduous branches. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, tip cupuliform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 6–7.5 mm long, 1–1.5 mm wide, falling entire. Rhachilla internodes elongated between glumes or elongated below proximal fertile floret. Rhachilla elongation slender.

**Glumes.** Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3–4 mm long, 0.5–0.6 length of spikelet, membranous, without keels, 7 -veined. Lower glume apex obtuse or acute, mucronate. Upper glume elliptic, 5.5–7 mm long, 0.9 length of spikelet, membranous, without keels, 9–11 -veined. Upper glume lateral veins ribbed. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, acuminate, awned. Awn of lower sterile floret 1–2 mm long. Fertile lemma elliptic, 1.5 mm long, indurate, pallid, shiny, without keel. Lemma margins involute. Palea indurate.

**Flower and Fruit.** Anthers 3. Hilum punctiform.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** North.

### **Arthrargrostis brassiana** B.K.Simon. *Austrobaileya* 8: 188 (2010).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cook District: Crest of Western Scarp of Great Dividing Range, 12 miles [19 km] E of The Lynd, 11 July 1954, *S.T.Blake 19478* (holo: BRI; iso: AD, CANB, DNA, K, L, MO, PERTH, PRE).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe PANICINAE .

**Habit, Vegetative Morphology.** Annual. Culms 30–70 cm long, 3–5 -noded. Ligule a ciliolate membrane, 0.5–0.7 mm long. Leaf-blades 3–9 cm long, 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 8–35 cm long. Primary panicle branches 3–10 cm long, bearing 5–10 fertile spikelets on each lower branch. Panicle axis bearing deciduous branches. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or ovate, dorsally compressed, 2–5.2 mm long, with hairs extending 0.6–1.5 mm beyond apex, falling entire. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation slender.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 0.5 length of spikelet, membranous, without keels, 3–5 -veined. Lower glume apex acute, muticous. Upper glume lanceolate or ovate, membranous, without keels, 5–7 -veined. Upper glume apex acute, muticous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, muticous. Fertile lemma elliptic, indurate, yellow or light brown, without keel. Lemma margins involute. Lemma apex obtuse.

**Distribution (TDWG). Continent.** Australasia.

### **Arthrargrostis clarksoniana** B.K. Simon. *Austrobaileya* 3(4): 585 (1992).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia, Queensland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cook Dist.: 16 km from Meripah homestead on road to the south, 13.49S 142.22E, 11 May 1987, *J. R. Clarkson & B. K. Simon 7149* (HT: BRI-AQ452649; IT: MBA, NSW)

**Illustrations (Books):** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austrobaileya* (3:586, Fig.1 (1992)).

**Derivation** (Clifford & Bostock 2007): In honor of John Richard Lindsay Clarkson (1950-) Scots-born Australian botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe PANICINAE .

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms erect or geniculately ascending, slender, 40–80 cm long, 2–4 -noded. Lateral branches sparse. Leaf-sheaths without keel. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades lanceolate, 3–10 cm long, 20 mm wide. Leaf-blade surface pilose. Leaf-blade margins smooth, tuberculate-ciliate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 23–30 cm long. Primary panicle branches spreading, 10–21 cm long, bearing 15–25 fertile spikelets on each lower branch. Panicle axis bearing deciduous branches. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–12 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, 3.5–4 mm long, falling entire. Rhachilla internodes elongated between glumes or elongated below proximal fertile floret. Rhachilla elongation slender.

**Glumes.** Glumes reaching apex of florets, thinner than fertile lemma. Lower glume elliptic or ovate, 3.5–4 mm long, 1 length of spikelet, membranous, without keels, 5–7 -veined. Lower glume surface pilose, hairy below, with tubercle-based hairs. Lower glume apex acuminate. Upper glume elliptic, 3.5–4 mm long, 1 length of spikelet, membranous, without keels, 7–9 -veined. Upper glume surface pilose, hairy below, with tubercle-based hairs. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 3–3.5 mm long, 1 length of spikelet, membranous, acute. Fertile lemma elliptic, 1.5 mm long, chartaceous, yellow, shiny, without keel. Lemma margins involute. Palea chartaceous.

**Flower and Fruit.** Anthers 3. Caryopsis 1.5 mm long. Embryo 0.5 length of caryopsis. Hilum punctiform.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory, Queensland.

**TDWG4.** Darwin & Gulf. North.

### **Arthrargrostis deschampsoides** (Domin) M. Lazarides. *Nuytsia* 5(2): 286 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia, Queensland. **Basionym or Replaced Name:** *Panicum deschampsoides* Domin, *Biblioth. Bot.* 85: 230 (1915). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Domin 1208*, Feb 1910, Australia: Queensland: North Kennedy District (PR). Castle Hill, Townsville.

**Illustrations (Books):** No illustration found (BKS).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): Gk. -oides resembling. Resembling *Deschampsia*.

**Classification.** Subfamily Panicoideae. Tribe: Paniceae. Subtribe PANICINAE .

**Habit, Vegetative Morphology.** Annual. Culms 17–50 cm long, 4 -noded. Ligule a ciliolate membrane, 0.5–0.8 mm long. Leaf-blades 2–9 cm long, 1–2.8 mm wide. Leaf-blade surface ribbed, hirsute, with tubercle-based hairs. Leaf-blade margins cartilaginous, ciliate, hairy at base.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–25 cm long, 2–5 cm wide. Primary panicle branches 5–12 cm long. Panicle axis bearing deciduous branches. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 8–25 mm long, tip cupuliform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 4–5 mm long, falling entire. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation slender.

**Glumes.** Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 7 -veined. Lower glume surface scabrous. Lower glume apex acute, muticous or awned, 1 -awned, awn 0–1.5 mm long. Upper glume lanceolate, 3–4.5 mm long, membranous, without keels, 7 -veined. Upper glume lateral veins ribbed. Upper glume surface scabrous. Upper glume apex acuminate, muticous or awned, 1 -awned, awn 0–2 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 9 -veined, ribbed, acuminate, muticous or awned. Awn of lower sterile floret 0–2.5 mm long. Fertile lemma elliptic, 1.5–1.7 mm long, indurate, shiny, without keel, 5–7 -veined. Lemma margins involute. Lemma apex obtuse.

**Flower and Fruit.** Anthers 3, 1 mm long. Caryopsis with free brittle pericarp, dorsally compressed, 1.2–1.4 mm long. Embryo 0.5 length of caryopsis. Hilum punctiform.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

TDWG4. North.

**Arthraxon antsirabensis** A. Camus. *Bull. Soc. Bot. France* 95: 149 (1949).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Andraraty: *Catal.* 370 ; Madagascar, Antsirabe: *Perrier 11155* .

**Illustrations (Books):** J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (213, Fig 76).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Antsirabi, Madagascar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped loosely. Culms decumbent, 15–90 cm long, rooting from lower nodes. Culm-nodes pubescent. Ligule a ciliolate membrane. Leaf-blade base amplexicaul. Leaf-blades lanceolate, 1.5–6 cm long, 4–15 mm wide. Leaf-blade surface pilose. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 3–6 cm long. Rhachis fragile at the nodes, glabrous on margins or ciliate on margins. Rhachis internodes filiform, 4 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 0.2–0.5 mm long.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6–7.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 9 -veined. Lower glume surface scabrous, rough above. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 7 -veined. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 2–2.5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 10–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Western Indian ocean. Madagascar.

**Arthraxon castratus** (Griff.) Nayan. ex Bor. *Fl. Assam* 5: 376 (1940).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Basionym or Replaced Name:** *Andropogon castratus* Griff. *Not. Pl. Asiat.* 3: 89 (1851). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Suddyah in campis graminosis: January 2nd, 1836", *Griffith 292* (HT: K) IGS: "See Hack. Monog. 349."

**Illustrations (Books):** K.M.Mathew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 808 & 809), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 866).

**Derivation** (Clifford & Bostock 2007): L. castro, castrate. Sessile spikelet of pair only one present.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms rambling, 60–200 cm long. Culm-nodes glabrous. Leaf-sheaths hirsute, with tubercle-based hairs, outer margin hairy. Ligule a ciliolate membrane, 1.7–2.2 mm long. Leaf-blades lanceolate, 4–11 cm long, 7–15 mm wide. Leaf-blade surface glabrous or pubescent. Leaf-blade margins ciliate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1–5, single or paired or digitate, flexuous, 2–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 0.4–1.5 mm long. Rhachis internodes linear, 4–5.8 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2–3 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, attached transversely. Spikelet callus hairs 0.4–1.5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 7 -veined. Lower glume surface convex, scabrous, rough on veins. Lower glume apex acute. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume primary vein scabrous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 5.2–6.3 mm long, hyaline, ciliate on margins. Fertile lemma lanceolate, 4.4–5.3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 10–14 mm long overall, with twisted column. Column of lemma awn 6–8 mm long, glabrous. Palea present, 2.3–2.8 mm long. Palea surface pubescent, hairy on flanks.

**Flower and Fruit.** Anthers 3, 2.4–3.7 mm long. Caryopsis with adherent pericarp, ellipsoid, 3.3 mm long.  $N = 9$  (1 ref TROPICOS).  $2n = 18$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia, Australasia.

**Country /Province /State.** China. Hainan. **Indian Subcontinent, Indo-China, Malesia.** Assam, India, Sri Lanka. Myanmar, Thailand, Vietnam. Java. **Australia.** Queensland.

**TDWG4.** Assam, Manipur, Meghalaya. West Bengal. North.

**Arthraxon cuspidatus** (Hochst. ex A.Rich.) Hochst. ex Hack. DC., *Monog. Phan.* 6:353 (1889).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. **Basionym or Replaced Name:** *Andropogon cuspidatus* Hochst. ex A. Rich., *Tent. Fl. Abyss.* 2: 456 (1850). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Schimper 1438*, 22 Sept 1840, Ethiopia: Tigray, Sana, Dscheladscheranne (P; IT: A, BM, K, L, US-1611426, US-865397 (fragm. ex W), W).

**Recent Synonyms:** *Arthraxon satarensis* Almeida, *Journ. Bombay Nat. Hist. Soc.* 66: 515 (1970).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (311, Fig 125).

**Derivation** (Clifford & Bostock 2007): L. *cuspidatus*, head of a spear; -ata, possessing. Glumes or lemmas long tapering or terminating in a sharp tip.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 40–45 cm long. Culm-nodes bearded. Lateral branches lacking or sparse. Leaf-sheaths hirsute, with tubercle-based hairs. Ligule a ciliate membrane. Leaf-blade base cordate. Leaf-blades lanceolate, 3–7 cm long, 8–12 mm wide, flaccid. Leaf-blade surface pilose, sparsely hairy, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–5, digitate, 3–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs lengthening towards internode tip, 2–3 mm long. Rhachis internodes linear, 3 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3 mm long, villous, with 2–3 mm long hairs.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear or lanceolate, 4 mm long, shorter than fertile. Companion sterile spikelet glumes 3 -veined.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 9 -veined. Lower glume surface convex, muricate, rough on veins. Lower glume apex attenuate. Upper glume lanceolate, membranous, 1-keeled, keeled above, 3 -veined. Upper glume margins ciliolate. Upper glume apex setaceously acuminate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3–4 mm long, hyaline, 0 -veined, without midvein, without lateral veins, obtuse. Fertile lemma linear, hyaline, without keel, 2 -veined, 0–3 -veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.5 mm long.

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** Northeast tropical Africa. Ethiopia (inc. Eritrea). Arabian Peninsula. Oman. Indian Subcontinent. India.  
TDWG4. Maharashtra.

**Arthraxon depressus** Stapf ex C. E. C. Fischer. *Kew Bull.* 1933, 349. (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: *Wight KD 3372* (K holotype, CAL).

**Illustrations (Books):** K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (pl.715, pl.716).

**Derivation** (Clifford & Bostock 2007): L. broad and dwarf the growth having taken place horizontally. With spreading geniculate culms.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms rambling, slender, 30–60 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 2–2.8 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate or ovate, 5–9 cm long, 10–26 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 17 cm long, glabrous or pubescent above. Racemes 2–4, digitate, 2–5.6 cm long. Rhachis fragile at the nodes, pubescent on surface. Rhachis internodes filiform, 3.5–4.6 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 2.2–3.5 mm long, pubescent.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, subterete, 6.8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled, 7 -veined. Lower glume surface scabrous or spinose, rough above. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 5.6 mm long, hyaline, 0 -veined, without midvein, without lateral veins, ciliolate on margins. Fertile lemma lanceolate, 4.8 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 9.5 mm long overall, with twisted column. Column of lemma awn 6 mm long, glabrous. Palea 2.5 mm long.

**Flower and Fruit.** Anthers 3, 3.4 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. Tropical Asia.

**Country /Province /State.** Indian Subcontinent. India.

Tamilnadu.

**Arthraxon echinatus** (Nees) Hochst. *Flora* 39: 188 (1856).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 865).

**Derivation** (Clifford & Bostock 2007): L. spiny. Lower glume with abundant spicular hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 20–60 cm long, rooting from lower nodes. Culm-nodes glabrous. Lateral branches ample. Leaf-sheaths 1–2.25 cm long, glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliolate membrane. Leaf-blade base amplexicaul. Leaf-blades lanceolate or ovate, 1.5–3.5 cm long, 5–12 mm wide, flaccid. Leaf-blade surface glabrous or pubescent. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1–5, single or paired or digitate, 2–4 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear, 3.5–3.75 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 0.6–0.75 mm long, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas, lanceolate, 4–4.5 mm long, shorter than fertile. Companion sterile spikelet glumes keeled, scabrous. Companion sterile spikelet lemmas 2, enclosed by glumes, mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5.5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, 5 -veined. Lower glume surface convex, spinose, rough on veins. Lower glume apex acute. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 2.5–3 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 4–5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 10–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 2 mm long. Caryopsis with adherent pericarp.

$2n = 18$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central. **Indian Subcontinent.** Assam, India, Nepal.

**TDWG4.** Yunnan. Tamilnadu.

### **Arthraxon epectinatus** B.S.Sun & H.Peng. *Guizh. Sci.* 9(4):289 (1991).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 867).

**Derivation** (Clifford & Bostock 2007): *L. e-*, without; *pecten*, comb; *-atus*, possessing. Differs from a related species by the absence of teeth on the lower glume margins.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 40–60 cm long. Culm-nodes bearded. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface, outer margin hairy. Ligule a ciliate membrane. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 6–9 cm long, 7–12 mm wide. Leaf-blade surface glabrous. Leaf-blade margins tuberculate-ciliate, hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–6, digitate, 4–10 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear.

**Sterile Spikelets.** Companion sterile spikelets well-developed, lanceolate, 4.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 5–7 -veined. Lower glume surface convex, glabrous. Lower glume apex acuminate. Upper glume lanceolate, membranous, 1-keeled, keeled above. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3.5 mm long, hyaline, 2 -veined, obtuse. Fertile lemma oblong, 4.5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 10 mm long overall, with a straight or slightly twisted column or with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 3.5 mm long, yellow. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. Arabian Peninsula, China.** China South Central, China North-Central. **Indian Subcontinent.** Eastern Himalaya, Nepal.

**TDWG4.** Gansu, Shaanxi. Guizhou, Sichuan, Yunnan.

**Arthraxon guizhouensis** S.L. Chen & Y.X. Jin. Bull. Bot. Res. North-East. Forest. Univ., 13(2): 104 (1993).

Regarded by K as a synonym (*A. epectinatus*).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China, Guizhou: *Ningbo Exped. 691* (JSBI holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Guizhou Province, China.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial. Culms decumbent, 40–60 cm long. Culm-nodes bearded. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface, outer margin hairy. Ligule a ciliate membrane. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 6–9 cm long, 7–12 mm wide. Leaf-blade surface glabrous. Leaf-blade margins tuberculate-ciliate, hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–6, digitate, 4–10 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear.

**Sterile Spikelets.** Companion sterile spikelets well-developed, lanceolate, 4.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 5–7 -veined. Lower glume surface convex, glabrous. Lower glume apex acuminate. Upper glume lanceolate, membranous, 1-keeled, keeled above. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3.5 mm long, hyaline, 2 -veined, obtuse. Fertile lemma oblong, 4.5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 10 mm long overall, with a straight or slightly twisted column or with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 3.5 mm long, yellow. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Guizhou, Yunnan.

**Arthraxon hispidus** (Thunb.) Makino. *Bot. Mag. Tokyo*, 26: 214. (1912).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (& as *A. hookeri*), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Japan. **Basionym or Replaced Name:** *Phalaris hispida* Thunb. *Fl. Jap.* 44 (1784). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Thunberg 1776*, Japan (UPS (IDC 1036)).

**Recent Synonyms:** *Arthraxon hookeri* (Hack.) Henrard, *Blumea*, 4: 526 (1941). *Arthraxon micans* Nees, *Flora* 39: 188 (1856).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (292, Fig. 229 as *A. quartinianus*), R.M.Phillips, F.T.E.A., *Gramineae* (3(1982):743, Fig 173, as *A. micans*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (311, Fig 125, as *A. micans*), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (443, Fig. 174), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (636 & 640 *A. quartinianus*), C-C Hsu, *Taiwan Grasses* (1975) (619, Pl. 1454 as *A. pauciflorus* & as *A. quartinianus*), K.M.Matthew, *Flora Palni Hills* (1996) (784, Pl. 784 as var. *hispidus*), K.M.Matthew, Further Illustrations on the *Flora of Tamilnadu Carnatic* (1988) (pl.717 as *A. micans*), H.J.Noltie, *The Grasses of Bhutan* (2000) (811, Fig. 59 & as *A. quartinianus*), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (30, Pl. 4 as *A. ciliaris*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (134), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (112), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (248, Fig. 38), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (679),



A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (384, Fig. 348 as *A. quartinianus*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 868 as *A. hispidus* var. *hispidus*).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. bearing coarse stiff hairs. Plant wholly or partly rough to the touch.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual, mat forming. Culms rambling, slender, 15–50 cm long, 0.3–1 mm diam., rooting from lower nodes. Culm-internodes 1–6 cm long. Culm-nodes pubescent. Leaf-sheaths pilose, outer margin hairy. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blade base amplexicaul. Leaf-blades ovate, 1–6 cm long, 8–25 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy on both sides. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–20, digitate, 2.5–5 cm long, 1–1.5 mm wide. Rhachis fragile at the nodes, glabrous on margins. Rhachis internodes filiform, 2–6 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 0.2–1 mm long, glabrous.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, much thinner on margins, without keels, 7–9 -veined. Lower glume surface convex, spinose, rough on veins. Lower glume apex obtuse. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 0.66 length of spikelet, hyaline, 2 -veined, obtuse. Fertile lemma oblong, 2–6 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 0–20 mm long overall, with a straight or slightly twisted column or with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.5–1 mm long. Caryopsis with adherent pericarp, oblong, 3.5–5 mm long.

*N* = 18 (1 ref TROPICOS).

**Distribution (TDWG).** **Continent.** Europe (\*), Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America.

**Region.** Northern Europe (\*), Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). Belarus. **West-central tropical Africa, Northeast tropical Africa, Western Indian ocean.** DRC. Sudan. Mauritius. Russian far east, **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia, Russia.** Amur, Primorye. Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Afghanistan. Oman. China South Central, Hainan, Inner Mongolia, Manchuria, China North-Central, China Southeast, Xinjiang. Japan, Korea, Nansei-Shoto, Ogosawara-shoto, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka. Laos, Myanmar, Thailand, Vietnam. Java, Lesser Sunda Is, Malaya, Philippines, Sulawesi, Sumatra. New Guinea. **Australia.** New South Wales, Queensland. **North-central Pacific.** Hawaii (\*). **North-central USA, Northeast USA, Southeastern USA, Mexico** (as *A. quartinianus*). Iowa, Kansas, Missouri, Oklahoma. Massachusetts, New Jersey, Pennsylvania. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Caribbean.** Jamaica (as *A. quartinianus*), Leeward Is (as *A. quartinianus*).

**TDWG4.** Hebei, Shaanxi, Shandong. Anhui, Fujian, Guangdong, Henan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Manipur. Kerala. West Bengal. North, Central, South East. Veracruz. Colima, Guerrero, Michoacan, Nayarit, Oaxaca. Chiapas.

**Arthraxon inermis** Hook. f. *Fl. Brit. Ind.* 7: 145. (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Deccan: *Woodrow 189* (K holotype).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. unarmed. Apices of lemmas or glumes rounded.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual, mat forming. Culms rambling, 20–60 cm long, rooting from lower nodes. Lateral branches ample. Leaf-sheaths pilose. Ligule a ciliolate membrane. Leaf-blade base amplexicaul. Leaf-blades lanceolate or ovate, 2–5 cm long, 4–12 mm wide, flaccid. Leaf-blade surface glabrous or pilose. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–6, digitate, 1.5–5 cm long. Rhachis fragile at the nodes, glabrous on margins. Rhachis internodes filiform, 2 mm long. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 2.5–3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 2.5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 7–8 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp.

*N* = 18 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Maharashtra.

**Arthraxon jubatus** Hack. DC. *Monog. Phan.* 6: 358. (1889).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India, Concan: *Stocks* (W holo, L, CAL).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. jubum*, mane; -ata, possessing. The inflorescence or awn resembles a fox tail.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms rambling, slender, 10–22 cm long. Culm-nodes pubescent. Leaf-sheaths pilose, with simple hairs or tubercle-based hairs. Ligule a ciliolate membrane, 0.4–0.7 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 1.4–3.9 cm long, 3–6 mm wide. Leaf-blade surface pubescent, hairy on both sides. Leaf-blade margins ciliate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 2 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform, 4–5.1 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 1.7–2.6 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 3.9–5 mm long, shorter than fertile. Companion sterile spikelet glumes 4–7 -veined. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6–8.4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base truncate, attached transversely. Spikelet callus hairs 1–1.5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 2–4 -veined. Lower glume surface asperulous, rough on veins. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1.6–2.2 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 2.2–3.9 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 75–150 mm long overall, with twisted column. Column of lemma awn 18–46 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 0.7–1.3 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia.  
**Country /Province /State. Indian Subcontinent.** India.  
**TDWG4.** Maharashtra.

**Arthraxon junnarensis** Jain & Hemadri. *J. Bombay Nat Hist. Soc.*, 68 (1): 300 (1971).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Poona district: *Hemadri 106849* (CAL holo, BSI, K, L, LE, MO).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Junnar, Maharashtra State, India.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms rambling, weak, 10–20 cm long, rooting from lower nodes. Culm-nodes pubescent. Leaf-sheaths 0.5–1.75 cm long, pilose, with tubercle-based hairs. Ligule a ciliate membrane, 0.7 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate or ovate, 1–2.5 cm long, 5–7.5 mm wide. Leaf-blade surface pilose, with tubercle-based hairs.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 2–3 cm long, glabrous. Racemes 5–12, digitate, 1–1.75 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform, 1.25–1.8 mm long. Spikelets solitary. Fertile spikelets sessile. Pedicels present, filiform, 0.1–0.6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 1.5–2 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous or pubescent, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate or ovate, 1 length of spikelet, chartaceous, without keels, 5 -veined. Lower glume lateral veins obscure. Lower glume surface scabrous, rough above. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 1 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire or dentate, 2 -fid, acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 4–5 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.3–0.5 mm long. Caryopsis with adherent pericarp, linear, 1.2 mm long.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central. **Indian Subcontinent.** India.  
Yunnan. Maharashtra.

**Arthraxon lanceolatus** (Roxb.) Hochst. *Flora* 39: 188. (1856).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Andropogon lanceolatus* Roxb., *Fl. Ind., ed. 1820* 1: 262 (1820). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Roxburgh Icon. Ined. 2019*, India (K, copy in L). LT designated by van Welzen, *Blumea* 27: 283 (1981).

**Recent Synonyms:** *Arthraxon deccanensis* Jain, *J. Bombay Nat. Hist. Soc.*, 68 (1): 297 (1971).

**Illustrations (Books):** G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (56, Fig 22 var. *lanceolatus*), K.M.Matthew, *Flora Palni Hills* (1996) (785, Pl 785).

**Derivation** (Clifford & Bostock 2007): L. lanceus, lance; -ola, diminutive; -ata, possessing. Mostly a reference to lanceolate leaf-blades.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Stolons present. Culms decumbent, 20–80 cm long. Culm-nodes glabrous. Ligule an eciliate membrane. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 1–5 cm long, 2–8 mm wide. Leaf-blade margins tuberculate-ciliate, hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4, paired or digitate, 2–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear, 2.5–3 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 1–1.5 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 4–5 mm long, shorter than fertile. Companion sterile spikelet glumes keeled, 6–7 -veined. Companion sterile spikelet lemmas 2, enclosed by glumes, muticous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled, 5–7 -veined. Lower glume lateral veins distinct. Lower glume surface flat, spinose, rough on flanks. Lower glume apex acute. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume surface scabrous, rough at apex. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 2–3 mm long, hyaline, 2–3 -veined. Fertile lemma lanceolate, 4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 10–12 mm long overall, with twisted column. Column of lemma awn 5–6 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 1–2 mm long. Caryopsis with adherent pericarp.

*N* = 15 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State. Southern Africa.** Limpopo, Mpumalanga. **China.** China South Central, China North-Central. **Indian Subcontinent, Indo-China, Malesia.** Assam. Laos, Thailand. Lesser Sunda Is, Malaya.

**TDWG4.** Shaanxi. Sichuan. Maharashtra.

### **Arthraxon lancifolius** (Trin.) Hochst. *Flora* 39:188 (1856).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Nepal. **Basionym or Replaced Name:** *Andropogon lancifolius* Trin. *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 2(4): 271 (1832). T:<Type of Basionym>; *fide* TROPICOS and Kew Synonymy Database: Nepal.; *Wallich 8828B* (LT: LE; ILT: A, K, L, W).

**Illustrations (Books):** G.V.Pope et al., *Flora Zambesiaca* 10 (4(2002):90, t. 29), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (311, Fig 125), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982), H.J.Noltie, *The Grasses of Bhutan* (2000) (811, Fig. 59), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 869).

**Derivation** (Clifford & Bostock 2007): *L. lanceus*, lance; folium, leaf. Leaf-blade lanceolate.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual, mat forming. Culms rambling, slender, 5–30 cm long. Ligule a ciliate membrane. Leaf-blade base cordate. Leaf-blades lanceolate or ovate, 1–4 cm long, 3–10 mm wide, flaccid.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–9, digitate, 1–2 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs lengthening towards internode tip, 1–2(–3) mm long. Rhachis internodes linear, 1 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 1–1.5 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed or represented by barren pedicels (rarely), lanceolate, 1–2(–3) mm long, shorter than fertile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear, laterally compressed, 2–3(–5) mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels. Lower glume surface convex, asperulous. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume apex acute, awned, 1 -awned, awn 0.5–1.5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, obtuse. Fertile lemma lanceolate, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 6–10 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.3–0.6 mm long.

$N = 9$  (3 refs TROPICOS), or 18 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Western Indian ocean. Cape Verde. Ghana, Guinea, Mali, Nigeria, Senegal, Sierra Leone. Eritrea, Ethiopia (inc. Eritrea), Socotra, Sudan. Tanzania. Malawi, Mozambique, Zambia, Zimbabwe. Madagascar. **Arabian Peninsula, China.** Oman, Saudi Arabia. China South Central. **Indian Subcontinent, Indo-China, Malesia, Papuaasia.** Assam, Bangladesh, Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka, West Himalaya. Myanmar, Thailand, Vietnam. Java, Lesser Sunda Is, Philippines, Sulawesi. New Guinea PNG. New Guinea.

**TDWG4.** Guizhou, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Kerala. Himachal Pradesh, Jammu Kashmir, Uttaranchal.

**Arthraxon maopingensis** S.L. Chen & Y.X. Jin. *Bull. Bot. Res. North-East. Forest. Univ.*, 13(2): 104 (1993).

Regarded by K as a synonym (*A. breviaristatus*).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China, Ruyuan: *Huang 43794* (SCBI holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Maoping, Guangdong Province, China.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms 40–50 cm long. Culm-nodes bearded. Leaf-sheaths mostly shorter than adjacent culm internode, pilose, with tubercle-based hairs. Ligule a ciliolate membrane, 1 mm long. Leaf-blade base cordate. Leaf-blades lanceolate or ovate, 3–5 cm long, 6–18 mm wide. Leaf-blade surface puberulous, hairy on both sides, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–5, digitate. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform, 0.5–0.8 length of fertile spikelet. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 1 mm long.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 0.8 length of spikelet, chartaceous, much thinner above, much thinner on margins, purple, without keels, 5–7 -veined. Lower glume lateral veins obscure. Lower glume surface convex, asperulous, rough on veins. Lower glume apex acute. Upper glume lanceolate, 1 length of spikelet, membranous, 1-keeled, keeled above. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 2 -veined, obtuse. Fertile lemma oblong, 3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 7–8 mm long overall, with a straight or slightly twisted column or with twisted column. Column of lemma awn glabrous. Palea lanceolate, 1 mm long.

**Flower and Fruit.** Anthers 2, 2.5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China Southeast. Guangdong.

**Arthraxon meeboldii** Stapf. *Kew Bull.* 1908, 449. (1908).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (& as *A. meebodii*).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India, Concan: *Meebold 9132* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Alfred Karl Meebold (1863–1952) German botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, weak, 15–20 cm long, 6–8 -noded. Culm-nodes bearded. Leaf-sheaths glabrous on surface or pilose. Ligule a ciliolate membrane. Leaf-blade base amplexicaul. Leaf-blades lanceolate or ovate, 2–3.5 cm long, 10–13 mm wide, flaccid. Leaf-blade surface pilose, hairy abaxially, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2, paired, 3–4.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 2–2.5 mm long. Rhachis internodes filiform, 4 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, shorter than fertile. Companion sterile spikelet glumes chartaceous, 7 mm long, keeled, 9 -veined. Companion sterile spikelet lemmas 2, enclosed by glumes.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 9.5–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled. Lower glume intercarinal veins distinct, 3 in number. Lower glume surface spinose or muricate, rough on flanks. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume primary vein scaberulous. Upper glume margins ciliolate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4.5 mm long, hyaline, 0 -veined, without midvein, without lateral veins, obtuse. Fertile lemma lanceolate, 6 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 19–22 mm long overall, with twisted column. Column of lemma awn 7–8 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 2.5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG), Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent. India.

Maharashtra.

**Arthraxon microphyllum** (Trin.) Hochst. *Flora* 39: 188 (1856).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A. sikkimensis*).

**TYPE** from Nepal. **Basionym or Replaced Name:** *Andropogon microphyllum* Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 2(4): 275 (1832). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nepal.; *Wallich s.n.* (LT: LE).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (811, Fig. 59), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 869).

**Derivation** (Clifford & Bostock 2007): Gk. mikros, small; phyllon, leaf. Leaf-blades short.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms rambling, slender, 15–30 cm long. Culm-nodes pubescent. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliolate membrane, 0.4–2.5 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate or ovate, 0.3–1.7 cm long, 1–4 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 1.7–9 cm long, glabrous. Racemes 1–3, single or paired or digitate, 2.8–3.9 cm long. Rhachis fragile at the nodes, with scattered hairs or pubescent on surface. Rhachis internodes filiform, 1.2–2.4 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 1.6–1.9 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by single glumes, linear, 1.9–2.2 mm long, shorter than fertile. Companion sterile spikelet glumes 6 -veined, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 2.8–3.9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base truncate, attached transversely. Spikelet callus hairs 0.2–0.5 mm long.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 6–7 -veined. Lower glume surface scabrous, rough above or on veins. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1.6–2.1 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 1.7–2.1 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 7–11 mm long overall, with twisted column. Column of lemma awn 3.5–4.5 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.6 mm long. Caryopsis with adherent pericarp.

*N* = 8 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya, India, Nepal. Thailand.

**TDWG4.** Yunnan. Bhutan, Sikkim.

**Arthraxon multinervis** S.L. Chen & Y.X. Jin. *Bull. Bot. Res. North-East. Forest. Univ.*, 13(2): 102 (1993).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Xingyi Xian, mountain slopes, 1200 m, *Guizhou Exped. 6132* (HT: SCBI).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 868).

**Derivation** (Clifford & Bostock 2007): *L. multus*, many; *nervus*, nerve. Leaf-blades many-nerved.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms 30–50 cm long. Culm-internodes distally glabrous. Culm-nodes bearded. Leaf-sheaths mostly shorter than adjacent culm internode, pilose, with tubercle-based hairs. Ligule a ciliolate membrane. Leaf-blade base cordate. Leaf-blades lanceolate or ovate, 4–7 cm long, 12–18 mm wide. Leaf-blade surface glabrous. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4, digitate. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform, 0.75 length of fertile spikelet. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 0.4 mm long.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4–4.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 9–11 -veined. Lower glume surface convex, scabrous, rough on veins, glabrous or pilose, hairy on veins, with tubercle-based hairs. Lower glume apex acute. Upper glume lanceolate, membranous, 1-keeled, keeled above, 3–5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, obtuse. Fertile lemma oblong, 2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 1.5–4 mm long overall, with a straight or slightly twisted column or with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.8 mm long. Caryopsis with adherent pericarp, oblong.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** **China.** China South Central.

**TDWG4.** Guizhou.

**Arthraxon nudus** (Steud.) Hochst. *Flora* 39: 188 (1856).

Regarded by K as a synonym (*A. hispidus*).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: Tavoy, *Wallich 8834A* (HT: ?; ST: BM, C, CAL, K, P, W) and 8835A & B.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. bare. Lemmas glabrous.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual, mat forming. Culms rambling, 30–60 cm long, rooting from lower nodes. Culm-nodes pubescent. Lateral branches ample. Leaf-sheaths 2–3 cm long, pilose, outer margin hairy. Ligule a ciliolate membrane, 2 mm long. Leaf-blade base amplexicaul. Leaf-blades lanceolate or ovate, 1–8 cm long, 3–20 mm wide. Leaf-blade margins scaberulous, ciliate (sparsely). Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 4–9, borne along a central axis, 1–2.5 cm long. Central inflorescence axis 4–6 cm long. Rhachis fragile at the nodes, glabrous on surface, glabrous on margins. Rhachis internodes linear, 3 mm long, 1 length of fertile spikelet. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 1 mm long, glabrous.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, keel-less except near apex, 7 -veined. Lower glume primary vein scaberulous. Lower glume surface convex. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 2 mm long, 0.66 length of spikelet, hyaline, 2 -veined, obtuse. Fertile lemma lanceolate, 2.2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 7 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.5 mm long, yellow. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **Arabian Peninsula, China.** Oman. China South Central. **Indian Subcontinent, Indo-China, Malesia.** Assam. Myanmar, Thailand. Malaya.

**TDWG4.** Yunnan.

**Arthraxon okamotoi** Ohwi. *Acta Phytotax. & Geobot., Kyoto*, 11: 165 (1942).

Regarded by K as a synonym (*A. hispidus*).

**Accepted by:** T. Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Taiwan: Kizangun, Takaoshu, *S. Okamoto s.n.* (HT: KYO).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of S. Okamoto, Japanese botanist who collected in Taiwan.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual, mat forming. Culms prostrate, slender, 10–30 cm long. Culm-internodes distally glabrous. Culm-nodes pubescent. Lateral branches ample. Leaf-sheaths 2–4 cm long, mostly shorter than adjacent culm internode, glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 1 mm long. Leaf-blade base cordate. Leaf-blades lanceolate or ovate, 1–5 cm long, 5–12 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, exserted or embraced at base by subtending leaf. Racemes 5–8, digitate, 5–7 cm long. Rhachis fragile at the nodes, pilose on surface, ciliate on margins. Rhachis internodes filiform, 3.5–4 mm long. Spikelets in pairs. Fertile spikelets sessile and pedicelled, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 1.5–2 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, light green, without keels, 11 -veined. Lower glume surface convex, hispidulous, hairy on veins. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, 1 length of spikelet, chartaceous, 1-keeled, keeled above. Upper glume primary vein scabrous. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 2 -veined, obtuse. Fertile lemma lanceolate, 3 mm long, hyaline, without keel, 1 -veined, 0–3



-veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 10–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 1.5–2 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Taiwan.

### **Arthraxon prionodes** (Steud.) Dandy. F. W. Andrews, *Fl. Pl. Sudan*, 3: 399 (1956).

Regarded by K as a synonym (*A. hispidus*).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma*, Ceylon, India and Pakistan (1960).

**TYPE** from Ethiopia. **Basionym or Replaced Name:** *Andropogon prionodes* Steud., *Syn. Pl. Glumac.* 1: 383 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Schimper 1117* (K), LT designated by van Welzen, *Blumea* 27: 283 (1981). ST: *Hochst. Hrbr. un. it. 1774 [Schimper or Dillon]*, Africa: Ethiopia ST: *Hochst. Hrbr. un. it. 1824 [Schimper or Dillon]*, Africa: Ethiopia.

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (311, Fig 125), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (264, Fig 156), H.J.Noltie, *The Grasses of Bhutan* (2000) (811, Fig. 59), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 865).

**Images:** H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);

**Derivation** (Clifford & Bostock 2007): Gk. prion, saw; -odes, resembling. Lower glume has stiff hairs on the marginal and submarginal nerves.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Perennial, mat forming. Rhizomes short, knotty, scaly (silky), hairy. Culms rambling, 30–60 cm long, wiry. Ligule an eciliate membrane. Leaf-blade base amplexicaul. Leaf-blades lanceolate or ovate, 2–7 cm long, 4–20 mm wide. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–8, digitate, 4–7 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 1–2 mm long. Rhachis internodes linear, 3–6 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3–6 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets well-developed, lanceolate, 4–5 mm long, shorter than fertile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets linear to lanceolate, laterally compressed, 5–6.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, 2-keeled. Lower glume primary vein pectinately spinose. Lower glume surface convex. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, obtuse. Fertile lemma lanceolate, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 8–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 2.5–3.5 mm long.

$N = 8$  (1 ref TROPICOS), or 10, or 18.

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** Northeast tropical Africa, East tropical Africa. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania, Uganda. Western Asia, Arabian Peninsula, China. Afghanistan. Oman, Yemen. China South Central, China North-Central, China Southeast, Tibet. Indian Subcontinent, Indo-China, Malesia. Eastern Himalaya, India, Pakistan, West Himalaya. Myanmar, Thailand, Vietnam. Malaya.

**TDWG4.** Beijing, Shaanxi, Shandong. Anhui, Henan, Jiangsu, Zhejiang. Hubei, Sichuan, Yunnan. Bhutan.

### **Arthraxon pusillus** Bor. *J. Ind. Bot. Soc.*, 50A: 92 (1971).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Arabia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Arabia, Jabel Qara: *Vesey-FitzGerald 12364/7* (BM holo, K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. very small. Plants of small stature.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending, slender, 15–35 cm long. Culm-internodes distally glabrous. Ligule a ciliolate membrane. Leaf-blades lanceolate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–9, digitate, 0.5–2 cm long. Rhachis fragile at the nodes. Rhachis internodes filiform to linear. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, reduced to a stump.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 0.8–1.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels. Lower glume surface convex, scabrous, rough on veins. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma oblong, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 5–6 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.2 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Arabian Peninsula. Oman.

**Arthraxon raizadae** Jain, Hem. & Desh. *J. Ind. Bot. Soc.* 51:103 (1972).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mahabeleshwar: Hemadri 98585 (CAL holo, BLAT, BSI, K, L, LE, MH, MO).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Mukat Behari Raizada (1907-) Indian botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 10–50 cm long, rooting from lower nodes. Lateral branches sparse. Leaf-sheaths 1–2 cm long, striately veined, glabrous on surface or pilose, outer margin hairy. Ligule a ciliolate membrane, 1.5 mm long. Leaf-blade base cordate. Leaf-blades lanceolate or ovate, 2–7 cm long, 4–20 mm wide. Leaf-blade surface pilose, sparsely hairy, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 6–12 cm long. Racemes 1–2, single or paired, 2–5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear, 3.5–4.5 mm long. Rhachis internode tip not enlarged. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 2.5 mm long, ciliate, hairy all along but hairs longer above.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 5 mm long, shorter than fertile. Companion sterile spikelet glumes chartaceous, 4–5 mm long, keeled, 6–7 -veined. Companion sterile spikelet lemmas 2, enclosed by glumes, 3.5–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 6–7 mm long, 1–1.3 mm wide, falling entire, deciduous with accessory branch structures. Spikelet callus square, 0.5 mm long, pubescent, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, 2-keeled. Lower glume primary vein scabrous. Lower glume surface pubescent. Lower glume margins ciliate. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume primary vein ciliolate. Upper glume surface pilose, hairy at apex.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3–4 mm long, hyaline, obtuse. Fertile lemma lanceolate, 5 mm long, hyaline, without keel. Lemma apex acute,

awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 15–17.5 mm long overall, with twisted column. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 2–3 mm long. Caryopsis with adherent pericarp, linear, isodiametric, dark brown.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Maharashtra.

**Arthraxon santapau** Bor. *Kew Bull.* 1951, 446 (1952).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Purandhar Fort: *Santapau 11450a* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Hermenegild Santapau (1903–1970) Spanish-born Indian cleric and botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms rambling, 15–30 cm long. Culm-nodes pubescent. Leaf-sheaths antrorsely scabrous, glabrous on surface or pilose, with tubercle-based hairs. Ligule a fringe of hairs. Leaf-blade base amplexicaul. Leaf-blades lanceolate, 2–4 cm long, 5–10 mm wide, flaccid. Leaf-blade surface pilose, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Peduncle pubescent above. Racemes 2–3, paired or digitate, 3 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform, 3.5 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3 mm long, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 7.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 7 -veined. Lower glume surface scabrous or spinose, rough above. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume surface scabrous, pilose, hairy above. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma lanceolate, 3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 18 mm long overall, with twisted column. Column of lemma awn 8 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2, 0.8 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

Maharashtra.

**Arthraxon submuticus** (Nees ex Steud.) Hochst. *Flora* 39: 188 (1856).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Basionym or Replaced Name:** *Andropogon submuticus* Nees ex Steud., *Syn. Pl. Glumac.* 1: 382 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nepal.; *Arthraxon Wallich Cat.* 8836 (HT: ?; ST: BM, CAL, K, W).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. sub, almost; mutica, blunt. Apices of glumes or lemmas rounded.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual, mat forming. Culms rambling, 15–100 cm long, rooting from lower nodes. Leaf-sheaths glabrous on surface or hispid. Ligule an eciliate membrane. Leaf-blade base cordate. Leaf-blades lanceolate or ovate, 1.5–4 cm long, 4–15 mm wide. Leaf-blade margins tuberculate-ciliate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 3–5, digitate, 1–3 cm long. Rhachis fragile at the nodes, angular, glabrous on margins. Rhachis internodes filiform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 0.5–1 mm long, glabrous.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base obtuse, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, chartaceous, without keels, 7 -veined. Lower glume surface convex, scabrous, rough on veins. Lower glume apex acute. Upper glume lanceolate, chartaceous, with hyaline margins, 1-keeled, keeled above, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 2 -veined, obtuse. Fertile lemma ovate, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex acute, muticous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 1.5 mm long.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central. **Indian Subcontinent, Indo-China.** India, Nepal, Myanmar.

**TDWG4.** Yunnan.

**Arthraxon typicus** (Buse) Koord. *Exkursionsfl. Java*, 1: 110 (1912).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A.nitidulus*, *A. breviaristatus*).

**TYPE** from China. **Basionym or Replaced Name:** *Arthraxon breviaristatus* Hack., DC. Monog. Phan. 6: 350. (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Ki-mi-se: *Delavay 1811* (P syn);.

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 866).

**Derivation** (Clifford & Bostock 2007): *L. brevis*, short; arista, bristle; -ata, possessing. Glumes or lemmas shortly awned.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

**Habit, Vegetative Morphology.** Annual. Culms decumbent, 50–100 cm long, rooting from lower nodes. Culm-nodes glabrous or bearded. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane. Leaf-blade base amplexicaul. Leaf-blades lanceolate or ovate, 2–5 cm long, 10–12 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous. Racemes 6–10, digitate, 3–7 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, ciliate.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or ovate, laterally compressed, 4.5–5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 7–9 -veined. Lower glume surface convex, spinose, rough on flanks. Lower glume apex acute. Upper glume lanceolate, chartaceous, 1-keeled, keeled above, 3 -veined. Upper glume primary vein ciliate. Upper glume margins ciliolate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 3–3.5 mm long, hyaline. Fertile lemma lanceolate, 4.25–5.25 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 6–8 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 2 or 3, 3 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central, China Southeast. **Indian Subcontinent, Indo-China, Malesia.** Assam, India, Nepal. Myanmar, Thailand, Vietnam. Java.

TDWG4. Guangdong. Yunnan.

**Arthraxon villosus** C. E. C. Fischer. *Kew Bull.* 1933, 350 (1933).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: Western Ghats, Bababudans, *Bourne & Bourne s.n.* (HT: K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. villi, long weak hairs; -osa, abundance. The plant in whole or in part covered with long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Annual. Culms decumbent or rambling, 5–40 cm long. Culm-nodes bearded. Leaf-sheaths hirsute, with tubercle-based hairs. Ligule a ciliolate membrane. Leaf-blade base broadly rounded. Leaf-blades ovate, 0.5–3 cm long, 2–8 mm wide. Leaf-blade surface hirsute, densely hairy. Leaf-blade margins ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, 1–4 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis internodes linear, 3 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 2 mm long, villous.

**Sterile Spikelets.** Companion sterile spikelets well-developed, containing empty lemmas, lanceolate, 4 mm long, shorter than fertile. Companion sterile spikelet glumes keeled, 7 -veined, scabrous. Companion sterile spikelet lemmas 2, enclosed by glumes, mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, without keels, 7–9 -veined. Lower glume lateral veins obscure. Lower glume surface convex, scabrous, rough on flanks, villous. Lower glume margins ciliate. Lower glume apex acute. Upper glume lanceolate, chartaceous, 1-keeled, keeled above. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 2–2.5 mm long, hyaline. Fertile lemma lanceolate, 3–3.5 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 12–15 mm long overall, with twisted column. Column of lemma awn 5–6 mm long, glabrous. Palea absent or minute.

**Flower and Fruit.** Anthers 3, 1 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**Arthraxon xinanensis** S.L. Chen & Y.X. Jin. *Bull. Bot. Res. North-East. Forest. Univ.*, 13(2): 105 (1993).

Regarded by K as a synonym (*A.epectinatus*).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Danbar xian: *8th For. Con. Exped. 21315* (JSBI holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Xinan, Sichuan Province, China.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms 30–60 cm long. Culm-internodes distally pilose. Culm-nodes bearded. Leaf-sheaths mostly shorter than adjacent culm internode, pilose, with tubercle-based hairs, outer margin hairy. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blade base cordate. Leaf-blades lanceolate, 3–6 cm long, 5–15 mm wide. Leaf-blade surface glabrous. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4, digitate, 3–10 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes filiform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear.

**Sterile Spikelets.** Companion sterile spikelets well-developed, male, lanceolate, 4 mm long. Companion sterile spikelet glumes 5–7 -veined. Companion sterile spikelet lemmas mucous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus attached transversely.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, herbaceous, without keels, 7–9 -veined. Lower glume surface convex, spinose or muricate, rough on flanks. Lower glume apex acute. Upper glume lanceolate, membranous, 1-keeled, keeled above. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline, 2 -veined, obtuse. Fertile lemma oblong, 4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex dentate, 2 -fid, acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 10–12 mm long overall, with a straight or slightly twisted column or with twisted column. Column of lemma awn glabrous. Palea lanceolate.

**Flower and Fruit.** Anthers 2, 3.5 mm long, yellow. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central, China North-Central.

**TDWG4.** Gansu, Shaanxi. Guizhou, Sichuan, Yunnan.

### **Arthropogon filifolius** T.S. Filgueiras. *Bradea* 3(21): 151 (1981).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T.S. Filgueiras 761*, 15 Sep 1980, Brazil: Distrito Federal: Cabeça do Veado, capim de espiguetas aristadas, cescendo em brejo recém queimado (IBGE; IT: R, RB, SP, US-2946634).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. filum, thread; folium, leaf. Leaf-blades very narrow.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms slender, 30–60 cm long, 1–1.2 mm diam. Culm-nodes glabrous. Ligule an eciliate membrane, 1 mm long. Leaf-blades filiform, involute, 10–45 cm long, 1 mm wide. Leaf-blade surface ribbed, glabrous or pilose. Leaf-blade apex acute, smooth or hairy.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong or ovate, effuse, 5–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 5–15 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, laterally compressed, 6–8 mm long, 1.2–2 mm wide, falling entire. Spikelet callus pubescent. Spikelet callus hairs 0.03 length of spikelet.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume linear, 3–6 mm long, 0.5–0.75 length of spikelet, coriaceous, much thinner on margins, without keels, 3 -veined. Lower glume apex awned, 1 -awned, awn 3–4 mm long. Upper glume oblong, 1 length of spikelet, coriaceous, without keels, 5 -veined. Upper glume awned, 1 -awned, awn 1.2 mm long.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, coriaceous, 5 -veined, scabrous, rough above, obtuse. Fertile lemma linear, 6 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma apex obtuse. Palea 0.5 length of lemma, hyaline, without keels.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 3–4 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central.

**TDWG4.** Goias.

### **Arthropogon piptostachyus** (Griseb.) Pilger. *Rev. Mus. Paulista*, 13: 1250 (1922).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Cuba. **Basionym or Replaced Name:** *Achlaena piptostachya* Griseb., *Cat. Pl. Cub.* 229 (1866). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *C. Wright 3487*, Cuba (NY-71022, US-927103, US-75310 (fragm.)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk *pipto*, fall down; *stachys*, spike as of an ear of wheat. Spikelets deciduous.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms 30–75 cm long. Culm-nodes glabrous. Leaves mostly basal. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades linear or lanceolate, 10–30 cm long, 2–6 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 7–10 cm long, 4–7 cm wide, contracted about primary branches. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6–7 mm long, falling entire. Spikelet callus linear, 2 mm long, pilose. Spikelet callus hairs 0.33 length of spikelet.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume subulate, 10–35 mm long. Upper glume oblong, 1 length of spikelet, coriaceous, without keels, 5–7 -veined. Upper glume surface scabrous. Upper glume awned, 1 -awned, awn 10–35 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, coriaceous, 5–7 -veined, scabrous, rough above, obtuse. Fertile lemma linear, membranous, without keel, 3 -veined, 0–3 -veined. Lemma apex obtuse. Palea hyaline, without keels.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 2. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Cuba, Jamaica.

**Arthropogon villosus** Nees. *Fl. Bras. Enum. Pl.* 2(1): 320. 1829.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K.F.P. von Martius s.n.*, no date, Brazil: in campis altis Chapada de Parana provinciae Minarum versus Goyaz, et ad Rio Fermoza (M; IT: US-865393 (fragm. ex M)).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (241, Fig. 90), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (107, Fig. 63).

**Derivation** (Clifford & Bostock 2007): L. villi, long weak hairs; -osa, abundance. The plant in whole or in part covered with long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms geniculately ascending or decumbent, 50–100 cm long. Ligule a fringe of hairs, 1 mm long. Leaf-blades 10–28 cm long, 5–10 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 6–12 cm long. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1–2 in the cluster. Pedicels present, filiform, 2–12 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, laterally compressed, 4–6 mm long, falling entire. Spikelet callus bearded. Spikelet callus hairs 0.3–0.6 length of spikelet.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume subulate, 3–7 mm long. Upper glume ovate, 1 length of spikelet, coriaceous, without keels, 3 -veined. Upper glume apex entire or dentate, 2 -fid, awned, 1 -awned, awn 2–4 mm long.

**Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, coriaceous, 3 -veined, scabrous, rough above, obtuse. Fertile lemma linear, 3–5 mm long, membranous, without keel, 1 -veined, 0–3 -veined. Lemma apex obtuse. Palea separating from lemma above, 0.66 length of lemma, hyaline, 0 -veined, without keels.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 4 mm long. Embryo 0.5 length of caryopsis.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America, Brazil.** Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast.

**TDWG4.** Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana. Oaxaca.

**Arthropogon xerachne** Ekman. *Ark. Bot.* 10(17): 9, t. 1, f. 4, t. 6, f. 4. 1911.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IST: *P. Dusin* 10002, 23 1910, Brazil: Parana (US-3168438 (fragm.)). LT: *A. Lvfgren* 243, 1910, Brazil: São Paulo: San Jose dos Campos, in campo (S; ILT: US-3168439 (fragm. ex S)). LT designated by Filgueiras et al., *Ann. Missouri Bot. Gard.* 88(2): 368 (2001).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. xeros, dry; achne, scale. Upper glume coriaceous.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths papery, persistent and investing base of culm, with curly dead sheaths. Culms 30–60 cm long. Culm-nodes constricted, pubescent. Leaves mostly basal. Ligule an eciliate membrane, 1 mm long. Leaf-blades 5–20 cm long, 2–5 mm wide. Leaf-blade surface pilose.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 6–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 17–33 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 7–9 mm long, 2–3 mm wide, falling entire. Spikelet callus bearded. Spikelet callus hairs 0.5–0.66 length of spikelet.

**Glumes.** Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume linear, 10–13 mm long, 0.5–0.75 length of spikelet, coriaceous, without keels, 3 -veined. Lower glume apex awned, 1 -awned, awn 8 mm long. Upper glume oblong, 1 length of spikelet, coriaceous, without keels, 3 -veined. Upper glume apex dentate, 2 -fid, awned, 1 -awned, awn 7–8 mm long.

**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, coriaceous, 3 -veined, dentate, 2 -fid, obtuse, awned. Awn of lower sterile floret 3–4 mm long. Fertile lemma linear, membranous, without keel, 1 -veined, 0–3 -veined. Lemma apex obtuse. Palea absent or minute.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

**TDWG4.** São Paulo Parana.

### **Arthrostylidium angustifolium** Nash. *Torreya* 3: 172. (1903).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Cuba, El Yunque Mt.: *Underwood & Earle* 941 (NY holo,US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. angustus, narrow; folium, leaf. Leaf-blades narrow.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, 200–300 cm long, woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches fastigiate. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 4–5 mm long, lacerate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, conduplicate, 15–25 cm long, 2–4 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes borne along a central axis, straight, bilateral, 4–6 cm long, bearing 3 fertile spikelets on each. Central inflorescence axis 20–30 cm long. Spikelet packing lax. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 4–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 22–30 mm long, 2–2.5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rachilla internodes 2.5–3 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume apex acuminate. Upper glume lanceolate. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 5–7 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.



**Distribution (TDWG). Continent.** South America.  
**Country /Province /State. Caribbean.** Cuba.

**Arthrostylidium auriculatum** X. London, Ho & L.G. Clark. *Novon* 8(4): 410 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Amalfi to Porce: *Londono & Clarke* 895 (HUA holo, AAU, COL, ISC, JAUM, K, MEDEL, MO, NY, TULV, US).

**Illustrations (Journals):** *Novon* (8: 411 Fig.1 (1998)).

**Derivation** (Clifford & Bostock 2007): *L. auris*, ear; -ula, diminutive; -ata, possessing. Leaf-blades rounded at the base or with auricles.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 200–400 cm long, 2–3 mm diam., woody. Culm-internodes terete, thick-walled, 30–49 cm long, yellow or light green, distally glabrous. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 4–8 cm long, pubescent, hairy on margins. Leaves 4–6 per branch. Leaf-sheaths pubescent. Leaf-sheath oral hairs setose, 5–8 mm long, dark. Leaf-sheath auricles erect, 1–2.5 mm long. Ligule a ciliolate membrane, 0.5 mm long, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.5 cm long, petiole glabrous. Leaf-blades lanceolate, 5–16 cm long, 12–25 mm wide. Leaf-blade venation with 14–15 secondary veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight, bilateral, 15–30 cm long, bearing 17–19 fertile spikelets on each. Rhachis glabrous on surface or puberulous on surface. Spikelet packing broadside to rhachis, distant. Rhachis internodes 3–20 mm long. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 13–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, 3–5 mm long.

**Glumes.** Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Lower glume elliptic, 4.5–6 mm long, chartaceous, without keels. Lower glume surface puberulous. Lower glume margins ciliate. Lower glume apex acute. Upper glume elliptic, 4.5–6 mm long, without keels. Upper glume surface puberulous. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 6–7.5 mm long, 2–2.5 mm wide, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface rugulose, without grooves, puberulous. Lemma margins ciliate. Lemma apex acute, mucronate. Palea 6–6.5 mm long. Apical sterile florets 1 in number, rudimentary.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 5.5 mm long. Embryo 0.15 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America.** Colombia.

**Arthrostylidium banoense** L.J. Catus Guerra. *Acta Bot. Cubana* 37: 6 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Siera de Banao: *Lune ex Leon* 20441 (HAC holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Sierra de Banao, Cuba.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete. Culm-nodes pubescent. Lateral branches dendroid. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate, 3 mm long. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole glabrous or pubescent. Leaf-blades lanceolate,

5–10 cm long, 10–13 mm wide. Leaf-blade surface glabrous. Leaf-blade margins smooth. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight, bilateral, 5–10 cm long, bearing few fertile spikelets, bearing 4–7 fertile spikelets on each. Spikelet packing broadside to rachis, distant. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4–6 mm long, chartaceous, without keels. Lower glume apex acuminate. Upper glume lanceolate, 4–6 mm long, without keels. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate, 6–7 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute. Apical sterile florets 1 in number, rudimentary.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Caribbean. Cuba.

### **Arthrostylidium berryi** Judz. & Davidse. *Novon* 18(3): 361–365, f. 1–2 (2008).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Amazonas: Laja Suiza, first granite outcrop upstream from mouth of black-water Río Guasacavi on north (right) side, 3.5 km SSW of Santa Cruz (direct air distance), depression next to seasonally flooded shrub savannam 3°14'18N, 67°24'30"W (GPS), 100 m, 3 Mar 1996, *P.E. Berry, G.A. Romero & L. Brako 5866* (HT: VEN; IT: MO (sheets), TFAV, UWSP).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose, clumped moderately or densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–300 cm long, 30–50 mm diam., woody. Culm-internodes terete, thick-walled, smooth or scaberulous, distally glabrous or pubescent. Lateral branches dendroid. Bud complement 1. Branch complement one to two, subtended by a bare patch above the node, thinner than stem. Culm-sheaths present, 3–5 cm long. Culm-sheath blade lanceolate, deciduous, reflexed, 3–4 cm long, 10–13 mm wide. Leaves 11–17 per branch. Leaf-sheaths glabrous on surface or puberulous. Leaf-sheath oral hairs setose, spreading, 4–9 mm long, dark. Ligule an eciliate membrane, 0.5–1 mm long, brown. Collar with external ligule. Leaf-blade base truncate or broadly rounded, symmetrical or asymmetrical, with a brief petiole-like connection to sheath, petiole 0.15–0.5 cm long. Leaf-blades reflexed, lanceolate, 11–16 cm long, 10–16 mm wide. Leaf-blade surface scaberulous, rough adaxially, puberulous, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 4–10 cm long. Racemes 1, single, bilateral, 15–30 cm long, bearing 12–20 fertile spikelets on each. Rachis puberulous on surface, scabrous on margins. Spikelet packing broadside to rachis, distant. Spikelets solitary. Fertile spikelets sessile or sessile and pedicelled. Pedicels absent or present, 1–2 mm long.

**Fertile Spikelets.** Spikelets comprising 9–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–80(–100) mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma or similar to fertile lemma in texture. Lower glume lanceolate, 4–6 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, keeled above, 3–5 -veined. Lower glume apex acute. Upper glume lanceolate, 6–8 mm long, 0.66 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 7–9 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 9–11.5 mm long, 1.3–2 mm wide, membranous or coriaceous, keeled, (9–)11–13(–15) -veined, more than 3-veined. Lemma apex acute. Palea 8–11 mm long, 1–1.1 length of lemma, 4 -veined. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Northern South America and Western South America. Venezuela. Colombia.

**Arthrostylidium canaliculatum** Renvoize. *Gr. Boliv.* :33 (1988).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Bolivia, Franz Tamayo: *Beck & Foster 18476* (LPB holo).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (34, Fig. 3).

**Derivation** (Clifford & Bostock 2007): *L. canalis*, channel; -ula, diminutive; -ata, possessing. Leaf-blades deeply channelled.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms slender, 600 cm long, 4–5 mm diam., woody. Culm-internodes terete, thin-walled, 100 cm long. Lateral branches dendroid. Branch complement many, in a clump, subtended by a bare patch above the node. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 5.5–9 cm long, 12–20 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate or attenuate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight, bilateral, 8–12 cm long. Spikelet packing broadside to rhachis, lax, 2 -rowed. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 15–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 5 mm long, 0.7–0.8 length of upper glume, chartaceous, without keels, 3 -veined. Lower glume surface pubescent. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, 0.5 length of adjacent fertile lemma, chartaceous, without keels, 7 -veined. Upper glume surface pubescent. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 11–12 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acute. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

**Arthrostylidium chiribiquetense** X. London, Ho & L.G. Clark. *Novon* 8(4): 412 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Colombia, Sierra de Chiribiquete: *Palacios et al. 2681* (COL holo, COAH, FFMB, MA, US).

**Illustrations (Journals):** *Novon* (8: 413 Fig.2 (1998)).

**Derivation** (Clifford & Bostock 2007): *L. ense*, denoting origin. From Sierra de Chiribiqueta, Colombia.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 300–500 cm long, 3–6 mm diam., woody. Culm-internodes terete, thin-walled (pith filled), 28–52 cm long, distally hispid, with reflexed hairs. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 3.5–5 cm long, 3 times as long as wide, glabrous or puberulous, ciliate on shoulders, shoulders with curved hairs, shoulders with 2 mm long hairs. Culm-sheath ligule 0.2 mm high. Culm-sheath blade ovate, demarcated but persistent, erect, 1–4 cm long, 9–20 mm wide, glabrous on surface and with ciliate margins. Leaves 9–14 per branch. Leaf-sheaths 2.5–4 cm long, mostly shorter than adjacent culm internode or subequal to internodes, striately veined, glabrous on surface. Leaf-sheath oral hairs setose, curly, 5–10 mm long, dark. Ligule a ciliolate membrane, 0.8–1 mm long, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base truncate, with a brief petiole-like connection to sheath, petiole 0.2–0.5 cm long. Leaf-blades ovate, 6–18.5 cm long, 20–50 mm wide. Leaf-blade midrib indistinct. Leaf-blade venation with distinct cross veins. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight, bilateral, 8–17 cm long, bearing 10–18 fertile spikelets on each. Rhachis glabrous on surface or pilose on surface. Spikelet packing broadside to rhachis, lax. Rhachis internodes 5–10 mm long. Spikelets spreading, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile.

Spikelets linear, laterally compressed, 5–17 mm long, 0.6–0.8 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 6.5–7 mm long.

**Glumes.** Glumes two or several, comprising 0–2 gemmiferous bracts, 1–2 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 3–4 mm long, chartaceous, without keels, 5–7 -veined. Lower glume lateral veins prominent. Lower glume surface pubescent. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 4.3–5.5 mm long, without keels, 5–7 -veined. Upper glume primary vein conspicuous. Upper glume surface pubescent. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 5.5–8.5 mm long, 2–2.5 mm wide, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface rugulose, without grooves, pubescent. Lemma margins ciliate, hairy above. Lemma apex acute, mucronate. Palea 6.5–8.1 mm long. Palea apex ciliate. Apical sterile florets 1 in number, rudimentary.

**Flower and Fruit.** Lodicules 3, 1.5 mm long, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

### **Arthrostylidium cubense** Rupr. *Mem. Acad. Petersb. Ser. VI. v. 118. t. 4. f. 13.* (1839).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cuba, Havana: Ramon de la Sagra (LE holo, US).

**Illustrations (Books):** E.J.Judziewicz et al, *American Bamboos* (1999) (156, Fig. 68).

**Illustrations (Journals):** *Smithsonian Contributions to Botany* (9: 18, Fig. 6 (1973)).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Cuba.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches fastigiate. Bud complement 1. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 10–15 cm long, 8–10 mm wide, stiff. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 7–20 cm long. Spikelet packing distant. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 1.5–3 mm long, chartaceous, without keels. Lower glume apex acuminate. Upper glume lanceolate, 3–4 mm long, chartaceous, without keels. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, lanceolate, 6 mm long, chartaceous, acuminate. Fertile lemma lanceolate, 7 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 1 mm long overall. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Western South America. Cuba.

### **Arthrostylidium distichum** Pilger. *Urb. Symb. Antill.* 2: 342 (1901).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cuba, Rangel: Wright 3808 (NY iso, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. distichos, two-rowed. Plants with conspicuously two-rowed spikelets or leaves.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, woody. Culm-internodes terete, thick-walled, smooth, distally pubescent. Culm-nodes pubescent. Lateral branches dendroid. Branch complement one to three, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaves distichous. Leaf-sheaths 1 cm long, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 5–15 mm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 1.5–3 cm long, 4–6 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 10–20 cm long, bearing 8–15 fertile spikelets on each. Rhachis glabrous on surface. Spikelet packing distant. Spikelets deflexed, clustered at each node. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 10 mm long, chartaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma margins ciliolate, hairy above. Lemma apex obtuse, mucronate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba, Haiti.

**Arthrostyloidium ecuadorensis** E.J. Judziewicz & L.G. Clark. *Syst. Bot.* 18(1): 82 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Ecuador, Guagra: *Holm-Nielsen et al.* 27444 (AAU holo).

**Illustrations (Journals):** *Systematic Botany* (18: 83, Fig.1 (1993)).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Ecuador.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 300–600 cm long, 1–2.5 mm diam., woody. Culm-internodes terete, solid, purple, retrorsely scabrous, distally glabrous. Lateral branches dendroid. Bud complement 1. Branch complement three or several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaves 3–7 per branch. Leaf-sheaths striately veined, puberulous. Leaf-sheath oral hairs setose, curly, 3–6 mm long, dark. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.25 cm long, petiole glabrous or pubescent. Leaf-blades lanceolate, 3.8–10 cm long, 8–13 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous (below). Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, flexuous or sinuous, bilateral, 5–9 cm long, bearing 3–6 fertile spikelets on each. Rhachis semiterete. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 3–4.5 mm long, 0.75–9 length of upper glume, chartaceous, without keels, 1–3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or obscure. Lower glume surface glabrous or puberulous. Lower glume apex acute. Upper glume ovate, 3.5–6 mm long, 0.5 length of adjacent fertile lemma, without keels, 3–5 -veined. Upper glume primary vein scabrous. Upper glume surface glabrous or puberulous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 6–13 mm long, chartaceous, red or purple, without keel, 7–9 -veined, more than 3-veined. Lemma surface glabrous or puberulous. Lemma apex acute, mucronate. Palea 1 length of lemma. Palea keels ciliolate. Palea surface pubescent, hairy on back. Palea apex emarginate to obtuse. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, lanceolate, 2.7–3 mm long, veined. Anthers 3, linear, 4.5–6 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Colombia, Ecuador.

**Arthrostylidium ekmanii** Hitchcock. *U. S. Dept. Agric. Misc. Publ.* No. 243 : 16 (1936).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Haiti. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.L. Ekman H7982*, 10 Apr 1927, Haiti: Hispaniola I. (US-1410884).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Erik Leonard Eckman (1888–1931) Swedish botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, drooping at the tip, 2 mm diam., woody. Culm-internodes terete, thick-walled, 25 cm long, retrorsely scabrous, distally glabrous. Lateral branches fastigiate. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs setose, 5–7 mm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1 cm long. Leaf-blades deciduous at the ligule, lanceolate, 3–6 cm long, 4–8 mm wide. Leaf-blade surface glabrous. Leaf-blade apex hairy.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 0–5 cm long, bearing 1–3 fertile spikelets on each. Spikelet packing lax. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 30–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes zig-zag, eventually visible between lemmas, glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 3–7 mm long, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate, 4–8 mm long. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, 5–9 mm long. Fertile lemma lanceolate or ovate, widest at 0.33 of its length from base, 9–12 mm long, 1.5 mm wide, chartaceous, light brown, without keel, more than 3-veined. Lemma apex obtuse, mucronate. Palea bowed outwards, 1 length of lemma. Palea surface puberulous, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Dominican Republic, Haiti.

**Arthrostylidium excelsum** Griseb. *Fl. Brit. W. Ind.* 529. (1864).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Dominica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Dominica: *Imray* (US syn); Trinidad: *Crueger* (K syn); Trinidad, Las Cuevas hills: *Tocuche*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. tall. Culms high climbing.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning, 100–500 cm long, 2–3 mm diam., woody. Culm-internodes terete, distally glabrous. Lateral branches dendroid. Branch complement two to several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, 9–17 mm long. Ligule a ciliolate membrane, 0.1–0.2 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–16 cm long, 14–38 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, sinuous (distally), bilateral, 9–16 cm long. Spikelet packing broadside to rachis, distant. Spikelets appressed or ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–11 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25–34 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–4 mm long, eventually visible between lemmas, glabrous.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 4.5–6 mm long, 0.8–0.9 length of upper glume, chartaceous, without keels, 3 -veined. Lower glume apex acute. Upper glume elliptic, 5.3–6.9 mm long, 0.66–0.75 length of adjacent fertile lemma, without keels, 7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 8–9.5 mm long, chartaceous, without keel, 9–11 -veined, more than 3-veined. Lemma surface glabrous or puberulous. Lemma apex obtuse. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 4.5–5 mm long. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Southeast Mexico. Mesoamerica, Caribbean. Guatemala, Honduras, Nicaragua, Panama. Leeward Is, Trinidad-Tobago. Chiapas.

**Arthrostylidium farctum** (Aublet) T. Soderstrom & A. Lourteig. *Phytologia* 64(2): 163 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from French Guiana. **Basionym or Replaced Name:** *Arundo farcta* Aubl., *Hist. Pl. Guiane* 1: 52 (1775)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: [French Guiana]: Plum. Mss. 5. t. 92. cited.

**Illustrations (Books):** No illustration found (BKS).

**Images:** E.J.Judziewicz, E.J., *American Bamboos* (1999);

**Derivation** (Clifford & Bostock 2007): L. solid with centre softer than outside. Culms solid except in the very centre.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, pendulous at the tip, 400–1500 cm long, 1–3 mm diam., woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches fastigiate. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, filiform, involute, 2–30 cm long, 0.5–3 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 0–7 cm long, bearing 1–4 fertile spikelets on each. Spikelet packing distant. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 2–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3 mm long, chartaceous, without keels. Lower glume apex acuminate. Upper glume lanceolate, 4 mm long. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 5 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Northern South America. Bahamas, Cuba, Dominican Republic, Haiti, Leeward Is, Puerto Rico. French Guiana.

**Arthrostylidium fimbriatum** Griseb. *Mem. Am. Acad. N. S.* 8: 531. (1863).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *C. Wright 1554*, 1859, Cuba: in Cuba orientali (MO-2067289, MO-2067290, US-78826).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. fimbriae*, fringe; -ata, possessing. With bristles at orifice of leaf-sheath.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, 30–100 cm long, woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches dendroid. Branch complement one, solitary, subtended by a bare patch above the node. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, 10–20 mm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades spreading or reflexed, deciduous at the ligule, lanceolate, 5–10 cm long, 4–5 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 15–30 cm long. Spikelet packing lax. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 4–5 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute, awned. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

**Arthrostylidium fimbrinodum** E.J. Judziewicz & L.G. Clark. *Syst. Bot.* 18(1): 84 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Rio Urubu: *Calderon, Monteiro & Guedes 2894* (INPA holo, F, MO, US, WIS).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. fimbriae*, fringe; *nodum*, knot. Nodes bearing a skirt of reflexed hairs.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 700 cm long, 4–12 mm diam., woody. Culm-internodes terete, thick-walled, smooth or scaberulous. Culm-nodes bearded. Lateral branches dendroid, extravaginal. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present, 9–13 cm long, setose on shoulders, shoulders with 10 mm long hairs. Culm-sheath blade linear, deciduous, erect, 6–7 cm long. Leaves 9–21 per branch. Leaf-sheaths keeled, glabrous on surface or puberulous, outer margin hairy. Leaf-sheath oral hairs setose, 3–6 mm long, dark. Ligule a ciliolate membrane, 0.2–0.3 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.07–0.1 cm long. Leaf-blades lanceolate, 2.5–11 cm long, 3–18 mm wide. Leaf-blade midrib indistinct. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight, bilateral, 2.5–3.5 cm long, bearing few fertile spikelets, bearing 2–5 fertile spikelets on each. Rhachis glabrous on surface. Spikelet packing broadside to rhachis, lax. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long.



**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3–3.3 mm long, chartaceous, without keels, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acuminate. Upper glume lanceolate, 4.2–4.8 mm long, 1-keeled, keeled above, 5–7 -veined. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma lanceolate, 5.3–6.5 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 1 length of lemma. Palea surface puberulous, hairy on back. Apical sterile florets 1 in number, rudimentary.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, **Brazil.** Colombia. Brazil North.

### **Arthrostylidium grandifolium** E.J.Judziewicz & L.G.Clark. *Syst. Bot.*, 18(1): 88 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *N.A. Rosa & M.R. Santos 1897*, 11 May 1977, Brazil: Pará: Missão Cururú, floresta de igapó parcialmente alagado, planta semi-escadente do sub-bosque, inflorescencia em botões (INPA; IT: MO-2816380, NY (2 sheets), US-2901733).

**Illustrations (Journals):** *Systematic Botany* (18: 86, Fig.3 (1993)).

**Derivation** (Clifford & Bostock 2007): *L. grandis*, large; folium, leaf. Leaf-blades large.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 12 mm diam., woody. Culm-internodes terete, thick-walled, 50 cm long, smooth, distally glabrous. Lateral branches dendroid. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaves 7 per branch. Leaf-sheaths 7–8 cm long, mostly shorter than adjacent culm internode, striately veined, papillose, glabrous on surface. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect, 5 mm long. Ligule a ciliolate membrane, 6–10 mm long, brown. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 1 cm long, petiole glabrous. Leaf-blades ovate, 20–26 cm long, 50–70 mm wide. Leaf-blade surface papillose, rough adaxially, glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight or arcuate, bilateral, 25–40 cm long, bearing 15–25 fertile spikelets on each. Rhachis glabrous on surface. Spikelet packing broadside to rhachis. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 17–23 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1–1.5 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 5.5–7 mm long, chartaceous, 1-keeled, keeled above, 3 -veined. Lower glume lateral veins without connecting veins or with cross-veins. Lower glume apex acuminate. Upper glume lanceolate, 7–8.5 mm long, 1-keeled, keeled above, 5 -veined. Upper glume lateral veins without cross-veins or with cross-veins. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 10–11.5 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins without cross-veins or with cross-veins. Lemma apex acute.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, **Brazil.** Colombia. Brazil North.

### **Arthrostylidium haitiense** (Pilg.) Hitchcock & Chase. *Contrib. US. Nat. Herb.* 18: 399 (1917).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Haiti. **Basionym or Replaced Name:** *Arundinaria haitiensis* Pilg., *Symb. Antill.* 5: 288 (1907). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *W. Buch 929*, Oct 1903, Haiti: Hispaniola I. (US-2808854).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Haiti.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, 200–300 cm long, woody. Culm-internodes terete, thick-walled,

antrorsely scabrous, distally glabrous. Lateral branches fastigiata. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty, deciduous. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole pubescent. Leaf-blades deciduous at the ligule, lanceolate, 4–7 cm long, 3–6 mm wide. Leaf-blade surface glabrous. Leaf-blade margins smooth or scaberulous. Leaf-blade apex obtuse, hairy.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 5 cm long, bearing 4–8 fertile spikelets on each. Spikelet packing distant. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes clavate, 3 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 6–6.5 mm long, chartaceous, without keels, 7 -veined. Lower glume apex obtuse. Upper glume lanceolate, 6–6.5 mm long, 7 -veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 7–8 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Dominican Republic, Haiti.

### **Arthrostyloidium judziewiczii** G. Davidse. *Novon* 2(2): 81 (1992).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Costa Rica, Volcan Barva: *Grayum* 7024 (MO holo, BM, CANB, CR, F, ISC, K, PMA, SI, SP, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Emmet J. Judziewicz (1953-) United States botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 200–400 cm long, 1–2 mm diam., woody. Culm-internodes terete, thick-walled. Culm-nodes glabrous. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, deciduous, pubescent, hairy at the base, without auricles, setose on shoulders, shoulders with 4–9.5 mm long hairs. Culm-sheath blade lanceolate, constricted at base, deciduous, reflexed, 2–2.5 cm long, 3–4 mm wide. Leaves 1–6 per branch. Leaf-sheaths keeled, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 4–9.5 mm long. Ligule an eciliate membrane, 0.3–1.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.16–0.3 cm long, petiole glabrous. Leaf-blades lanceolate, 6–13 cm long, 10–20 mm wide. Leaf-blade midrib indistinct. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, bracteate at pedicel base (in distal part of raceme). Peduncle glabrous. Racemes 1, single, bilateral, 8–14 cm long, bearing few fertile spikelets, bearing 4–6 fertile spikelets on each. Rhachis 1 mm wide, glabrous on surface. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 5–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 35–65 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, 4–7 mm long, pubescent, hairy above. Floret callus pilose. Floret callus hairs 1–1.5 mm long.

**Glumes.** Glumes one the lower absent or obscure, persistent, shorter than spikelet. Upper glume ovate, asymmetrical, 5.5–6.5 mm long, 0.5–0.66 length of adjacent fertile lemma, 1-keeled or 2-keeled, 6 -veined. Upper glume margins eciliate or ciliolate. Upper glume apex acute, mucronate or awned, 1 -awned, awn 0.2–1.8 mm long.

**Florets.** Basal sterile florets 1, barren, with palea or without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, ovate, 9 -veined, with conspicuous midvein, with cross-veins, acute, mucronate or awned. Awn of lower sterile floret 0.5–1.3 mm long. Palea of lower sterile floret 0–0.5 length of lemma. Fertile lemma lanceolate, 8–11.5 mm long, chartaceous, keeled, 9 -veined, more than 3-

veined. Lemma margins scaberulous. Lemma apex acute, mucronate or awned, 1 -awned. Principal lemma awn 0.5–2 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, lanceolate, 3–3.5 mm long, membranous, veined, ciliate. Anthers 3, 3.8–5.1 mm long. Stigmas 2. Ovary pubescent on apex. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica. Costa Rica, Panama.

### **Arthrostylidium longiflorum** Munro. *Trans. Linn. Soc.* 26: 41 (1868).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Colonia Tovar: *Moritz 1685* (BM lecto).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; flos, flower. Having long spikelets.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 300–400 cm long, 20 mm diam., woody. Culm-internodes terete, thin-walled, smooth, distally glabrous. Lateral branches dendroid. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present, 15 cm long. Culm-sheath blade lanceolate, erect, 30 cm long, acuminate. Leaves 5–7 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, flat, spreading, 8–12 mm long, dark. Ligule a ciliolate membrane, 0.3 mm long, pubescent on abaxial surface. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.5 cm long, petiole glabrous. Leaf-blades ovate, 18–23 cm long, 35–50 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, flexuous, bilateral, 10–15 cm long, bearing 6–12 fertile spikelets on each. Rhachis semiterete, glabrous on surface. Spikelet packing broadside to rhachis. Spikelets ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 10–14 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 40–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 4–6 mm long, 0.7–0.8 length of upper glume, chartaceous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 5–8 mm long, 0.5 length of adjacent fertile lemma, without keels, 5–7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 13–16 mm long, chartaceous, without keel, 1–3 -veined or more than 3-veined, one-veined or several-veined. Lemma lateral veins obscure. Lemma apex acuminate. Palea 11–13 mm long. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 3–4 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

### **Arthrostylidium merostachyoides** R.W. Pohl. *Novon*, 2(2): 83 (1992).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. W. Pohl & L. G. Clark 14613*, 4 Jan 1985, Costa Rica: Puntarenas: Monteverde forest Reserve. Cloud forest, edge of cliff, Pantanoso trail. 1600 m, Colony all in bloom, Canes 5–10 m x 1–1.5 cm, arching (ISC; IT: CR-147551, F, K, MO, US-3178730).

**Illustrations (Journals):** *Novon* (2: 85, Fig. 1 (1992)).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling *Merostachys*.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching, 500–1000 cm long, 10–15 mm diam., woody. Culm-internodes terete, thick-walled, yellow, distally glabrous. Lateral branches dendroid. Branch complement many, in a clump, subtended by a bare patch above the node. Culm-sheaths present, persistent, glabrous, without auricles. Culm-sheath ligule 0.5 mm high, ciliolate. Culm-sheath blade lanceolate, demarcated but persistent or deciduous, acuminate. Leaves 4–7 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 7–16

mm long. Ligule a ciliolate membrane, 0.5–0.6 mm long. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.15–0.25 cm long, petiole pubescent. Leaf-blades drooping, deciduous at the ligule, lanceolate or oblong, 4–17 cm long, 10–26 mm wide. Leaf-blade surface glabrous. Leaf-blade margins pubescent, hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, secund, 2.5–8 cm long. Primary panicle branches indistinct the panicle almost racemose. Spikelets pectinate, in pairs. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets obovate, laterally compressed, 9.5–14 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet. Lower glume oblong, 0.1–2.5 mm long, chartaceous, without keels, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume ovate, 2–3.5 mm long, 0.33–0.66 length of adjacent fertile lemma, 3–5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, with palea or without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, ovate, 3.5–5 mm long, 3–7 -veined, acute. Fertile lemma lanceolate or ovate, 6.2–8.2 mm long, chartaceous, keeled, 5–7 -veined, more than 3-veined. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, membranous, veined, glabrous. Anthers 3, 3.2–4.2 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica. Costa Rica.

### **Arthrostylidium multispicatum** Pilger. *Urb. Symb. Antill.* 2: 341 (1901).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Puerto Rico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Puerto Rico, Maricao: *Sintenis 209* (US iso).

**Illustrations (Books):** A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (17, Fig. 1).

**Derivation** (Clifford & Bostock 2007): *L. multus*, many; *spica*, thorn; *-ata*, possessing. Inflorescence with many racemes.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, pendulous at the tip, woody. Culm-internodes terete, thick-walled, retrorsely scabrous, distally glabrous. Lateral branches fastigiate. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths glabrous on surface or puberulous. Leaf-sheath oral hairs ciliate, deciduous. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 6–8 cm long, 10–12(–30) mm wide. Leaf-blade venation with 7 secondary veins. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins smooth.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 6–8 cm long, bearing 3–5 fertile spikelets on each. Spikelet packing lax. Rhachis internodes 10–15 mm long. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3.5 mm long, pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume apex obtuse. Upper glume lanceolate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate, 7 mm long, chartaceous, without keel, more than 3-veined. Lemma apex obtuse, pubescent, mucronate. Palea 1 length of lemma. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 3 mm long. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Southern South America. Cuba, Dominican Republic, Haiti, Puerto Rico. Uruguay.

**Arthrostylidium obtusatum** Pilger. *Urb. Symb. Antill.* 2: 340 (1901).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Martinique. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Martinique, Morne d'Amour: *Duss 1310* (NY syn); Martinique, Morne d'Amour: *Duss 563* (NY syn, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. obtusus*, blunt; -ata, possessing. Lemmas truncate.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches fastigiate. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, 8–10 mm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 4–8 cm long, 6–12 mm wide, stiff. Leaf-blade venation indistinct, without cross veins. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 4–6 cm long, bearing 5–7 fertile spikelets on each. Spikelet packing lax. Rhachis internodes 10–12 mm long. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 12–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes straight or zig-zag.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 8–9 mm long, chartaceous, without keel, more than 3-veined. Lemma lateral veins prominent. Lemma margins ciliate, hairy above. Lemma apex obtuse, mucronate. Palea 1 length of lemma. Palea keels ciliate. Palea apex ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 2 mm long. Anthers 3, 4 mm long. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Windward Islands.

**Arthrostylidium pinifolium** L.J.Catasus Guerra. *Acta Bot. Cubana*, 4: 4 (1980).

Regarded by K as a synonym (*A. farctum*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cuba: Prov. de Holguin: Sierra de Moa, La Melba, 30 Apr. 1973, *Catasús 134* (HT: HAC).

**Recent Synonyms:** *Arthrostylidium farctum* (Aublet) T. Soderstrom & A. Lourteig, *Phytologia*, 64(2): 163 (1987).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. folium*, leaf. The leaf-blades resemble those of *Pinus*.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Bahamas, Cuba, Dominican Republic, Haiti, Leeward Is, Puerto Rico.

**Arthrostylidium pubescens** Rupr. *Mem. Acad. Petersb. Ser.* 6, 5: 119. t. 4. f. 14. (1839).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Trinidad. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Trinidad: Coll? (LE holo, K).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (61, Fig. 15), E.J.Judziewicz et al, *American Bamboos* (1999).

**Derivation** (Clifford & Bostock 2007): *L. pubesco*, become hairy. Plant whole or in part hairy.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or geniculately ascending, 1000–1500 cm long, 10–20 mm diam., woody. Culm-internodes terete, thick-walled, distally hispid. Lateral branches dendroid. Bud complement 1. Branch complement many, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present, hispid, without auricles. Culm-sheath ligule 2 mm high. Culm-sheath blade lanceolate, 10–23 cm long, hispid, acute. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs woolly, dark. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 6–20 cm long, 4–15 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 3–14 cm long. Rhachis semiterete. Spikelet packing broadside to rhachis, distant. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 4–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 30–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 3–4 mm long, 0.7–0.8 length of upper glume, chartaceous, without keels, 3–5 -veined. Lower glume apex acute. Upper glume elliptic, 4–5 mm long, 0.5 length of adjacent fertile lemma, without keels, 3–5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma ovate, 8–9 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma apex acute. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Caribbean, Northern South America, Western South America. Costa Rica. Trinidad-Tobago. Venezuela. Colombia.

**Arthrostylidium punctulatum** X. London, Ho & L.G. Clark. *Novon*, 8(4): 415 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia, Corregimiento de Virolin: *Diaz-Piedrahita 3399* (COL holo).

**Illustrations (Books):** E.J.Judziewicz et al, *American Bamboos* (1999) (157, Fig. 69).

**Illustrations (Journals):** *Novon* (8: 416 Fig.3 (1998)).

**Derivation** (Clifford & Bostock 2007): *L. punctum*, small hole; -ulus, diminutive; -ata, possessing.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 400–700 cm long, 5–10 mm diam., woody. Culm-internodes terete, thin-walled, 18–51 cm long. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with subequal branches, thinner than stem. Culm-sheaths present, persistent, 7.5–15 cm long, 2.5–3 times as long as wide, green and purple, distinctly mottled with last colour, glabrous. Culm-sheath ligule 0.5 mm high. Culm-sheath blade triangular, demarcated but persistent, erect, 5–11 cm long, 18–32 mm wide, pubescent and with ciliate margins. Leaves 4–6(–9) per branch. Leaf-sheaths striately veined, papillose, glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs setose, curly, 6–10 mm long, pale. Ligule a ciliolate membrane, 0.8–1 mm long, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–0.7 cm long, petiole pubescent. Leaf-blades ovate, 10–22 cm long, 20–40 mm wide. Leaf-blade midrib indistinct. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous or pilose, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight, bilateral, 10–15 cm long, bearing few fertile spikelets, bearing 4–8 fertile spikelets on each. Rhachis pilose on surface. Spikelet packing broadside to rhachis. Rhachis internodes 6–26 mm long. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25–50 mm long, 3–6 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–5 mm long, pilose.

**Glumes.** Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 3.5–5.5 mm long, chartaceous, without keels. Lower glume primary vein scabrous. Lower glume surface glabrous. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 6.5–8 mm long, without

keels, 7–9 -veined. Upper glume surface glabrous. Upper glume margins ciliate. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma ovate, 9–10.5 mm long, 4–5 mm wide, chartaceous, without keel, 7–10 -veined, more than 3-veined. Lemma surface rugulose, without grooves, glabrous. Lemma margins ciliolate. Lemma apex acute, mucronate. Palea 8–9.5 mm long, 3 -veined. Palea keels ciliolate. Apical sterile florets 1 in number, rudimentary.

**Flower and Fruit.** Lodicules 3, 2–4 mm long, veined, ciliate. Anthers 3, 2–2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

### **Arthrostylidium reflexum** Hitchcock & Ekman. U. S. Dept. Agric, Misc. Publ. No. 243 : 19 (1936).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.L. Ekman 18020*, 10 Nov 1923, Cuba: Pinar del Río (US-1502075; IT: US-1538630).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. bent sharply backwards. Spikelets bent in the middle.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches dendroid. Branch complement one to three, solitary or in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths reticulately veined, glabrous on surface. Leaf-sheath oral hairs setose, 40–50 mm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades ascending, deciduous at the ligule, lanceolate, conduplicate or involute, 5–15 cm long, 7–10 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes borne along a central axis, straight, bilateral, 0.5 cm long. Central inflorescence axis 10–20 cm long, glabrous. Spikelet packing lax. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, curved, subterete, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.5 mm long, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate, 1 mm long. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 4–5 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute, mucronate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean. Cuba.

### **Arthrostylidium sarmentosum** Pilger. *Urb. Symb. Antill.* 4: 108 (1903).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Puerto Rico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Puerto Rico, Luquillo Mts.: *Heller & Heller 1089* (US lecto, B, NY).

**Illustrations (Books):** A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (18, Fig. 2).

**Images:** E.J.Judziewicz, E.J., *American Bamboos* (1999);.

**Derivation** (Clifford & Bostock 2007): L. sarmentum, small branch; -osa, abundance. Culms much branched.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, pendulous at the tip, 2–3 mm diam., woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches fastigiate. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths glabrous

on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 3.5–5 cm long, 3–5 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, sinuous, bilateral, 2–4 cm long, bearing 2–5 fertile spikelets on each. Spikelet packing lax. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 2–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 5 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma apex acute, mucronate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Northern South America, Western South America. Cuba, Dominican Republic, Haiti, Puerto Rico, Trinidad-Tobago. Venezuela. Colombia.

**Arthrostylidium scandens** McClure. *Mem. N. Y. Bot. Gard.* 10, No. 5, 4 (1964).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Cerro Huachamacari: Maguire, Cowan & Wurdack 29957 (US holo, NY).

**Illustrations (Books):** E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (73, Fig. 9).

**Illustrations (Journals):** *Systematic Botany* (18: 91, Fig.5 (1993)).

**Derivation** (Clifford & Bostock 2007): *L. scando*, climb up. Of scrambling habit.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching or leaning or scandent, slender, 500–800 cm long, 5–9 mm diam., woody, rooting from lower nodes. Culm-internodes terete, thick-walled, smooth, distally glabrous. Culm-nodes brown or purple. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement two or three, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present, deciduous, distinctly mottled with last colour, glabrous on margins or hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 0.2–0.3 mm high, ciliolate. Culm-sheath blade lanceolate, deciduous, 7–11 cm long. Leaves 5–9 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking or setose, 6–10 mm long, pale or dark. Leaf-sheath auricles erect. Ligule an eciliate membrane, 3–5 mm long, membranous, brown. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–0.6 cm long, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 10–23 cm long, 15–45 mm wide. Leaf-blade midrib indistinct. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 10–25 cm long, bearing 7–12 fertile spikelets on each. Rhachis glabrous on surface. Spikelet packing broadside to rhachis, lax. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1–3 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 28–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, clavate, 4–7 mm long, eventually visible between lemmas.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 4–5 mm long, chartaceous, without keels, 1–5 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, 1-keeled, keeled above, 5–7 -veined. Upper glume apex acute, mucronate.

**Florets.** Basal sterile florets 1, barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate or ovate, 9–11 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 1 length of lemma. Palea surface puberulous, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.



**Country /Province /State. Northern South America.** Guyana, Surinam, Venezuela.

**Arthrostylidium schomburgkii** (Benn.) Munro. *Trans. Linn. Soc.* 26: 41 (1868).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Arundinaria schomburgkii* Benn. *Trans. Linn. Soc. London* 18(4): 562 (1841). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Schomburgk s.n.*, Venezuela ST: *Humboldt & Bonpland s.n.*

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (37, Fig. 19).

**Illustrations (Journals):** *Systematic Botany* (18: 94, Fig.6 (1993)).

**Derivation** (Clifford & Bostock 2007): in honor of Robert Hermann Schomburgk (1808–1865) German botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning, 1000–1500 cm long, 15–35 mm diam., woody. Culm-internodes unequal, the lower longer, terete, thin-walled, 300–500 cm long (lowest) or 35–45 cm long, light green, smooth, distally glabrous. Lateral branches dendroid. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaves 4–7 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty, 5–15 mm long. Ligule a ciliolate membrane, 0.2 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades lanceolate, 17–23 cm long, 9–12 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 10–15 cm long. Racemes 1, single, bilateral, 15–25 cm long, bearing 5–8 fertile spikelets on each. Rhachis semiterete, glabrous on surface. Spikelet packing broadside to rhachis, distant. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 4–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–70 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated between glumes. Rhachilla elongation 2.5–3 mm long. Rhachilla internodes 3–5 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 6–16 mm long, 0.6–1 length of upper glume, chartaceous, without keels, 1–5 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 10–16 mm long, 0.75 length of adjacent fertile lemma, without keels, 3–5 -veined. Upper glume apex acute, awned, 1 -awned, awn 2–4 mm long.

**Florets.** Basal sterile florets 1, barren, with palea, persisting on inflorescence. Lemma of lower sterile floret present, similar to fertile lemma. Fertile lemma elliptic or ovate, 13–18 mm long, 3–4 mm wide, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma apex acute, awned, 1 -awned. Principal lemma awn 4–7 mm long overall. Palea elliptic, 8–9 mm long. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, lanceolate, 3–4 mm long, glabrous. Anthers 3, 6.5 mm long, yellow. Filaments 0.5 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America.** Guyana, Venezuela.

**Arthrostylidium simpliciusculum** (Pilger) McClure. *Smithsonian Contrib. Bot.* 9: 20 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria simpliciuscula* Pilg., *Bot. Jahrb. Syst.* 56 (Beibl. 123): 29 (1920). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Ule* 3313, Aug 1910, Brazil: Amazonas: Pensador bei Manaus, flowering (B; IT: K, US-2809004 (fragm. ex K), HBG?, US-2154030, US-2809003 (fragm. ex B)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. simplicior*, simpler; -ula, diminutive.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning, slender, 1000–1200 cm long, woody. Culm-internodes terete, thick-walled. Lateral branches dendroid. Branch complement many, in a clump, subtended by a bare patch above the node.

Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades deciduous at the ligule, lanceolate, 5–10 cm long, 5–11 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 7–12 cm long, bearing few fertile spikelets, bearing 4–7 fertile spikelets on each. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 45–60 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 5–6 mm long, 0.66 length of upper glume, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate, 8–9 mm long, 0.9 length of adjacent fertile lemma, chartaceous, without keels. Upper glume apex acute.

**Florets.** Fertile lemma elliptic, 9–11 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1.5–3 mm long overall. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America, Brazil. Colombia, Ecuador, Peru. Brazil West Central, Brazil North.

### **Arthrostylidium urbanii** Pilger. *Urb. Symb. Antill.* 2: 339 (1901).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Cuba: *Wright 3810* (US iso).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Ignatz Urban (1848–1931) German botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, slender, 500–700 cm long, woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches fastigiate. Branch complement many, in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths mostly shorter than adjacent culm internode, puberulous. Leaf-sheath oral hairs scanty, curly or deciduous, 3–5 mm long, pale. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole pubescent. Leaf-blades spreading or reflexed, deciduous at the ligule, linear or lanceolate, 5–13 cm long, 3–5 mm wide, stiff. Leaf-blade surface puberulous, hairy abaxially or on both sides. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, straight, bilateral, 5–15 cm long, bearing 10–15 fertile spikelets on each. Rhachis puberulous on surface. Spikelet packing contiguous. Rhachis internodes 2–3 mm long. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume surface puberulous. Lower glume apex obtuse. Upper glume lanceolate, 1.5–2 mm long, 1.5–2 length of adjacent fertile lemma. Upper glume surface puberulous. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, elliptic, 2.5 mm long, puberulous, obtuse. Fertile lemma lanceolate or ovate, 4.5–5 mm long, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface puberulous. Lemma apex acute, mucronate. Palea 1 length of lemma. Palea keels ciliolate, adorned above. Palea surface puberulous, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Caribbean. Cuba.

**Arthrostylidium venezuelae** (Steud.) McClure. *Journ. Wash. Acad. Sci.* 2: 172 (1942).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Chusquea venezuelae* Steud., *Syn. Pl. Glumac.* 1: 337 (1854). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *N. Funck & L.J. Schlim (J. Linden) 494*, Apr 1846, Venezuela: Federal District: Caracas, at Galipan, alt. 5000 ft. (G; IT: BM, BR, P, US-2874669 (fragm.), US-1647875 (fragm.), W).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): from Venezuela.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms rambling or scandent, slender, 300–800 cm long, 10–30 mm diam., woody. Culm-internodes terete, thick-walled or solid, scaberulous, distally glabrous or pubescent, with reflexed hairs. Culm-nodes pubescent. Lateral branches dendroid. Bud complement 1. Branch complement in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present, glabrous, without auricles. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 5–9 mm long, dark. Ligule a ciliolate membrane, 0.2 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.35 cm long, petiole pubescent. Leaf-blades deciduous at the ligule, ovate, 5–14 cm long, 10–15 mm wide, dark green. Leaf-blade surface pilose, sparsely hairy, hairy abaxially.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, flexuous, bilateral, 5–8 cm long. Rhachis semiterete. Spikelet packing broadside to rhachis, distant. Spikelets ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 4–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 10–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, clavate, 4.5–7 mm long, eventually visible between lemmas, sparsely hairy, hairy at tip.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 3–4 mm long, 0.7–0.8 length of upper glume, chartaceous, without keels, 4 -veined. Lower glume apex acute. Upper glume elliptic, 4–5 mm long, 0.66 length of adjacent fertile lemma, without keels, 7 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma ovate, 6–7.5 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex obtuse. Palea 1 length of lemma. Palea keels ciliolate, adorned above. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 3.2–3.5 mm long, yellow. Stigmas 2. Ovary umbonate. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America.** Costa Rica, Nicaragua, Panama. Guyana, Venezuela. Bolivia, Colombia. Chiapas.

**Arthrostylidium virolinense** X. London, Ho & L.G. Clark. *Novon* 8(4): 417 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Colombia, Corrigimiento Virolin: *Diaz-Piedrahita 4048* (COL holo).

**Illustrations (Journals):** *Novon* (8: 418 Fig.4 (1998)).

**Derivation** (Clifford & Bostock 2007): *L. ense*, denoting origin. From Corregiminetto Virolin, Colombia.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 200–300 cm long, 1–3 mm diam., woody. Culm-internodes terete, solid, 7–21 cm long, papillose, distally glabrous. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant or 2 branches dominant, thinner than stem. Culm-sheaths present, persistent, 2–4 cm long, 4 times as long as wide, hispid, ciliate on shoulders, shoulders with curved hairs, shoulders with 1 mm long hairs. Culm-sheath ligule 0.2 mm high, ciliolate. Culm-sheath blade lanceolate, demarcated but persistent, erect, 0.9–2.1 cm long, 1–2 mm wide, hispid. Leaves 8–12 per branch. Leaf-sheaths striately veined, hispid, outer margin hairy. Leaf-sheath oral hairs setose, curly, 3–5 mm long. Ligule a ciliolate membrane, 0.1–0.2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.08–0.1 cm long, petiole pubescent. Leaf-

blades lanceolate, 1–4.5 cm long, 2–4.5 mm wide, mid-green and light green, discolorous with last colour beneath. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bilateral, 3–4 cm long, bearing few fertile spikelets, bearing 1–4 fertile spikelets on each. Rhachis pilose on surface. Spikelet packing broadside to rhachis. Rhachis internodes 5–7 mm long. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 10–16 mm long, 1.5–4 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–2 mm long, pilose.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.5–2.5 mm long, chartaceous, without keels, 3 -veined. Lower glume surface hispid. Lower glume apex obtuse. Upper glume ovate, 2.5–3 mm long, without keels, 5 -veined. Upper glume surface hispid. Upper glume apex obtuse.

**Florets.** Fertile lemma ovate, 4–4.5 mm long, 2–2.5 mm wide, chartaceous, purple, without keel, 5–6 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface rugulose, without grooves, glabrous or hispidulous. Lemma margins ciliolate, hairy above. Lemma hairs 4–4.5 mm long. Lemma apex acute. Palea keels ciliate. Palea apex pubescent. Apical sterile florets 1 in number, lanceolate.

**Flower and Fruit.** Lodicules 3, 1–1.5 mm long, veinless. Anthers 3, 2.5–3 mm long, pallid or yellow. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Arthrostylidium youngianum** L.G. Clark & E.J. Judziewicz. *Syst. Bot.* 18(1): 98 (1993).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ecuador, Maldonado: *Young 137* (US holo, AAU, MO, QCA, US).

**Illustrations (Journals):** *Systematic Botany* (18: 97, Fig.7 (1993)).

**Derivation** (Clifford & Bostock 2007): in honor of Stephen M. Young (fl. 1980), collector of bamboos in Ecuador.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 1200 cm long, 5–15 mm diam., woody. Culm-internodes terete, smooth, distally glabrous. Culm-nodes swollen (corky). Lateral branches dendroid. Bud complement 1. Branch complement several, in a clump, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present, tardily deciduous, 11–26 cm long, asymmetrical at apex, ciliate on shoulders. Culm-sheath blade lanceolate, 6–12 cm long, 10–20 mm wide. Leaves 3–5 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 3–5 mm long, dark. Ligule a ciliolate membrane, 0.1–0.2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long. Leaf-blades lanceolate, 9–15 cm long, 13–28 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight, bilateral, 4–10 cm long, bearing few fertile spikelets, bearing 4–8 fertile spikelets on each. Rhachis 1 mm wide, glabrous on surface. Spikelet packing broadside to rhachis, lax. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 3–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 13–28 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3.3–6.5 mm long, chartaceous, without keels, 3–5 -veined. Lower glume apex acute. Upper glume lanceolate, 4–8.5 mm long, without keels, 3–7 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate, 7.5–10.5 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute. Palea surface puberulous, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia, Ecuador.

**Arundinaria appalachiana** Triplett, Weakley & L.G. Clark. *Sida* 22(1): 88, f. 1–5 (200).

Not on *GrassBase*.

**TYPE** from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA: Alabama, Dekalb Co.: Desoto State Park by Rt. 89, alt. 515 m, 34° 30' N, 85° 38' W, 25 Aug 2005, *J.K. Triplett & Ozaki 99* (HT: ISC; IT: MO, NCU, UNA, US).

**Illustrations (Books)**: M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (20).

**Classification**. Subfamily Bambusoideae. Tribe: Bambuseae.

**Arundinaria baviensis** Balansa. Morot, *Journ. de Bot.* 4: 27. (1890).

**Accepted by**: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Vietnam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Viet Nam: Croit dans la region superieure du Mont-Bavi, *Balansa 1585* (IT: K)

**Illustrations (Books)**: No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Mount Bavi, Indo-China.

**Classification**. Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology**. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 400–500 cm long, woody. Culm-internodes terete, thin-walled, distally glabrous. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 6–10 cm long, 7–10 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence**. Inflorescence a panicle. Panicle open. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets**. Spikelets comprising 5–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 5 mm long, pubescent. Floret callus disarticulating obliquely.

**Glumes**. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate or ovate, 6 mm long, chartaceous, without keels. Lower glume margins ciliate. Lower glume apex acute. Upper glume lanceolate or ovate, 8.5–9 mm long, chartaceous, without keels, 9 -veined. Upper glume apex acute.

**Florets**. Fertile lemma ovate, 9–9.5 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Palea 10 mm long. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit**. Lodicules 3, ciliate. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent**. Tropical Asia.

**Country /Province /State**. Indo-China. Vietnam.

**Arundinaria caudiceps** Koidz. *Acta Phytotax. & Geobot., Kyoto*, 6: 216. (1937).

**Accepted by**: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Japan,. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hikamigun: Ohda.

**Illustrations (Books)**: No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *caudex*, stem; *-ceps*, relating to the head. Leaves retained in clumps on the upper nodes of the culms.

**Classification**. Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology**. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 100–200 cm long, woody. Culm-internodes terete, thin-walled, distally pubescent. Culm-nodes pubescent. Lateral branches suffrutescent. Branch complement two, as thick as stem. Culm-sheaths present, persistent, pilose. Leaf-sheaths puberulous. Leaf-sheath oral hairs ciliate, spreading. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 12–17 cm long, 25–31 mm wide, fleshy. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

**Distribution (TDWG). Continent**. Temperate Asia.

**Country /Province /State**. Eastern Asia. Japan.

**Arundinaria debilis** Thw. *Enum. Pl. Zeyl.* 375 (1864).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Sri Lanka. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Sri Lanka, Central Province: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Images:** *Smith. Contr. Bot.* No. 72 : 7 (1988).

**Derivation** (Clifford & Bostock 2007): L. weak. Culms decumbent often much branched at the base.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 300–450 cm long, 5–10 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Lateral branches dendroid. Bud complement 1. Branch complement three, in a horizontal line, subtended by a bare patch above the node, with 1 branch dominant, thinner than stem. Culm-sheaths present, deciduous, yellow or green or purple, pubescent, without auricles. Culm-sheath ligule ciliolate. Culm-sheath blade lanceolate, deciduous, reflexed, 3–4 cm long, pubescent (at base). Leaves 7–10 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, 4–8 cm long, 3–6 mm wide, light green or glaucous, discolorous with last colour beneath. Leaf-blade midrib prominent beneath. Leaf-blade venation without cross veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 4–6 cm long, 2–3 cm wide. Primary panicle branches ascending or spreading. Panicle branches glabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–5 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, 4–6 mm long, glabrous or sparsely hairy, hairy at tip.

**Glumes.** Glumes deciduous, similar, shorter than spikelet. Lower glume ovate, 4–5.5 mm long, chartaceous, without keels, 7 -veined. Lower glume apex acute. Upper glume ovate, 5.4–6.8 mm long, chartaceous, without keels, 7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 7–10.2 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 2 mm long, ciliate. Anthers 3, 5 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Sri Lanka.

**Arundinaria densifolia** Munro. *Trans. Linn. Soc.* 26: 32 (1868).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Sri Lanka. **Basionym or Replaced Name:** *Sinarundiaria densifolia* (Munro) C.S.Chao & S.A.Renvoize, *Kew Bull.*, 44(2): 354 (1989). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Watson* 25, Sri Lanka (K). LT designated by Soderstrom & Ellis, *Smithsonian Contr. Bot.* 72: 12 (1988).

**Illustrations (Books):** No illustration found (BKS).

**Images:** *Smith. Contr. Bot.* No. 72 : 11 (1988).

**Derivation** (Clifford & Bostock 2007): L. *densus*, dense; folium, leaf. Leaves densely imbricate.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–250 cm long, 5–10 mm diam., woody. Culm-internodes terete, thin-walled, purple. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, yellow, glabrous, without auricles. Culm-sheath ligule 0.5 mm high, ciliolate. Culm-sheath blade triangular, erect. Leaves 5–10 per branch. Leaf-sheaths puberulous. Ligule a ciliolate membrane, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.1 cm long, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 3–4 cm long, 3.5–5 mm wide, stiff, dark green, concolorous. Leaf-blade midrib prominent beneath. Leaf-blade venation with obscure cross veins or with distinct cross veins. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, comprising 3–15 fertile spikelets. Panicle open, lanceolate, 2–3.5 cm long, 1 cm wide, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose or simple or sparsely divided. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 4.5–6 mm long, chartaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate, awned, 1 -awned, awn 2–3 mm long. Upper glume ovate, 6–7 mm long, chartaceous, without keels, 7 -veined. Upper glume primary vein scabrous. Upper glume apex attenuate, awned, 1 -awned, awn 2–3 mm long.

**Florets.** Fertile lemma lanceolate, 8–10 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex acute, awned, 1 -awned. Principal lemma awn 2–3 mm long overall. Palea 7.5–8.5 mm long. Palea keels contiguous above a sulcus, scabrous. Palea apex scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 2 mm long, veined, ciliate. Anthers 3, 4–5 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent. India, Sri Lanka.

**TDWG4.** Kerala.

**Arundinaria faberi** Rendle. *Journal of the Linnean Society*, Botany 36(254) : 435 (1904).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Bashania*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007).

**Derivation** (Clifford & Bostock 2007): In honor of Ernst Faber (1839–1899) English cleric who collected in China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, culms solitary. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 30–60 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5 mm long, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 3–5 cm long, 4–7 mm wide. Leaf-blade venation with 6 secondary veins, with distinct cross veins. Leaf-blade surface scaberulous, rough abaxially, glabrous. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, 15 cm long, bearing few fertile spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 6–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 20–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes clavate, 4–6 mm long, eventually visible between lemmas, pilose.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 0.5–2 mm long, chartaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–7 mm long, chartaceous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 12–14 mm long, chartaceous, keeled, 7 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex acuminate. Palea 7–8 mm long. Palea keels ciliolate. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Guizhou, Sichuan, Yunnan.

**Arundinaria fargesii** E.G.Camus. *Lecomte, Not. Syst.* ii. 244 (1912).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. **Basionym or Replaced Name:** *Bashania fargesii* (E. G. Camus) P.C. Keng & Yi, *J. Bamboo Res.*, 1(2): 37 (1982). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.P. Farges s.n.*, 4 May 1892, China: Sichuan (P; IT: E, K, US-2808859, US-1506705, US-1506703).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 147).

**Derivation** (Clifford & Bostock 2007): In honor of Paul Guillaume Farges (1844–1912) French cleric and amateur botanist who collected in China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms woody. Culm-internodes terete, solid. Culm-nodes pubescent. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths puberulous. Leaf-sheath oral hairs lacking. Leaf-sheath auricles absent. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 7–12 cm long, 10–15 mm wide. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, comprising 15 fertile spikelets. Panicle open, 6–10 cm long, bearing few spikelets. Panicle axis puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 15 mm long, puberulous.

**Fertile Spikelets.** Spikelets comprising 4–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes clavate, pubescent, hairy all along but hairs longer above.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, 5–7 mm long, chartaceous, without keels. Lower glume apex acuminate. Upper glume ovate, 7–8 mm long, chartaceous, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 7–9 mm long, chartaceous, dark brown, without keel, more than 3-veined. Lemma surface glabrous, inner surface pilose. Lemma margins ciliolate. Lemma apex acuminate, awned, 1 - awned. Principal lemma awn 1–3 mm long overall. Palea 1 length of lemma. Palea apex emarginate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, glabrous or ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, China North-Central.

**TDWG4.** Gansu, Shaanxi. Hubei, Sichuan.

### **Arundinaria floribunda** Thw. *Enum. Pl. Zeyl.* 375 (1864).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Sri Lanka. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sri Lanka, Maturatte: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Images:** *Smith. Contr. Bot.* No. 72 : 17 (1988).

**Derivation** (Clifford & Bostock 2007): *L. floreo*, bloom; -bunda, indicating action. Inflorescence of many flowers.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 10–25 mm diam., woody. Culm-internodes terete, thin-walled, light green or purple, mottled, scaberulous. Lateral branches dendroid. Bud complement 1. Branch complement several, in a clump, thinner than stem. Culm-sheaths present, deciduous, green or purple, pilose, with purple hairs, without auricles. Culm-sheath ligule 0.5 mm high, ciliolate. Culm-sheath blade lanceolate, narrower than sheath, deciduous, spreading or reflexed, 3 cm long, 2–3 mm wide, acuminate. Leaves 6–10 per branch. Leaf-sheath oral hairs setose. Ligule absent. Leaf-blades lanceolate, 9–18 cm long, 10–17 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade venation without cross veins. Leaf-blade margins unthickened, smooth or scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 15–20 cm long, 8–10 cm wide. Panicle branches glabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 7–8 mm long.

**Fertile Spikelets.** Spikelets comprising 5–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25–35 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent.



**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 3.8–5.6 mm long, chartaceous, without keels, 5 -veined. Lower glume margins ciliolate. Lower glume apex acute. Upper glume ovate, 5.5–6.1 mm long, chartaceous, without keels, 7 -veined. Upper glume margins ciliolate. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 8.5–10 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex apiculate. Palea keels contiguous above a sulcus, winged. Palea surface scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1.5–2 mm long, veined, ciliate. Anthers 3, 4.3–6 mm long, orange. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG).** **Continent.** Tropical Asia.

**Country /Province /State.** **Indian Subcontinent.** Sri Lanka.

### **Arundinaria gigantea** (Walt.) Muhl. *Cat. Pl. Amer. Sept.* 14 (1813).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Arundo gigantea* Walter, *Fl. Carol.* 81 (1788). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA: [South Carolina],.

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (19 & 20 as *Arundinaria tecta*), F.W.Gould, *The Grasses of Texas* (1975) (41, Fig. 6), E.J.Judziewicz et al, *American Bamboos* (1999) (197, Fig. 98), D.Farrelly, *The Book of Bamboo* (1984) (as *Arundinaria tecta* & *A. tecta* var. *decidua*).

**Illustrations (Journals):** *Smithsonian Contributions to Botany* (9: 27, Fig. 7, 29; Fig. 8, 31; Fig. 9; 33; Fig. 10; 35; Fig.11, 37; Fig. 12; 39, Fig.13; 41, Fig. 14; 43, Fig.15; 45, Fig. 16 (1973)).

**Images:** E.J.Judziewicz, E.J., *American Bamboos* (1999);.

**Derivation** (Clifford & Bostock 2007): L. very large. Culms tall compared with those of related species.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph, with peripheral air canals. Butt sheaths absent. Culms erect, 200–500(–800) cm long, woody. Culm-internodes similar in length, terete, thin-walled. Culm-nodes glabrous or pubescent. Lateral branches dendroid. Branch complement three or several, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, without auricles. Leaf-sheath oral hairs setose. Leaf-sheath auricles falcate. Ligule an eciliate membrane, 0.5–1 mm long. Collar pubescent. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 15–25 cm long, 20–40 mm wide. Leaf-blade venation with distinct cross veins.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 6–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 40–70 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent.

**Glumes.** Glumes one the lower absent or obscure or two or several, 1–2 empty glumes, persistent, similar, shorter than spikelet. Lower glume lanceolate, 0.3–0.7 length of upper glume, chartaceous, without keels, 5–7 -veined. Lower glume apex acute. Upper glume elliptic, 0.5 length of adjacent fertile lemma, chartaceous, without keels, 7–9 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 15–25 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface puberulous, hairy below. Lemma apex attenuate, mucicous or mucronate or awned, 1 -awned. Principal lemma awn 0–5 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG).** **Continent.** Europe (\*), North America.

**Region.** **Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **North-central USA, Northeast USA, South-central USA, Southeastern USA.** Oklahoma. Ohio, West Virginia. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia.

**Arundinaria graminea** (Bean) Makino. *Bot. Mag., Tokyo*, 26: 18 (1912).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pleioblastus*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from India. **Basionym or Replaced Name:** *Pleioblastus gramineus* (Bean) Nakai, *Journ. Arnold Arb.* 6: 146 (1925), *Arundinaria hindsii* var. *graminea* Bean, *Gard. Chron.* 3(15): 238 (1894). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India,.

**Illustrations (Books):** C-C Hsu, *Taiwan Grasses* (1975) (714, Pl. 1484).

**Derivation** (Clifford & Bostock 2007): *L. gramen*, grain. In some respect resembling a cereal.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–500 cm long, 5–20 mm diam., woody. Culm-internodes terete, thin-walled, 10–25 cm long, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Branch complement two or three. Culm-sheaths present, deciduous, coriaceous, glabrous, without auricles. Culm-sheath blade linear. Leaves 5–11 per branch. Leaf-sheaths 2.5–4 cm long, glabrous on surface. Leaf-sheath oral hairs scanty or setose, 4–6 mm long, pale. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long. Leaf-blades deciduous at the ligule, linear or lanceolate, 10–30 cm long, 5–17 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence comprising only a few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25–45 mm long, 5–8 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 4–5 mm long, pubescent.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, 16–20 mm long, chartaceous, without keels, 7 -veined. Lower glume apex acute. Upper glume lanceolate, chartaceous, without keels, 11 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 13–15 mm long, chartaceous, without keel, 11–13 -veined, more than 3-veined. Lemma apex acuminate. Palea 10–12 mm long, 8 -veined. Palea keels ciliate. Palea apex with excurrent keel veins. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ovate, veined, ciliate. Anthers 3, 7 mm long. Stigmas 3. Caryopsis with adherent pericarp, fusiform, 7–8 mm long, dark brown, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia, Australasia.

**Country /Province /State.** China and Eastern Asia. Japan. New Zealand. New Zealand North I.

**Arundinaria humilis** Mitford. *Bamboo Garden*, 103 (1896).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pleioblastus*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Pleioblastus*).

**TYPE** from UK, cultivated. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: cult. England,.

**Recent Synonyms:** *Pleioblastus pumilus* (Mitford) Nakai, *Journ. Jap. Bot.* 11: 2 (1935).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. low* growing. Short-statured in comparison with related species often prostrate.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 100–200 cm long, 4–7 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Culm-nodes glabrous or pubescent. Lateral branches lacking or sparse. Culm-sheaths present, glabrous. Leaf-sheaths pilose. Leaf-sheath oral hairs setose, pale. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 15–25 cm long, 15–25 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy adaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bearing few fertile spikelets, bearing 2–4 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile.

Spikelets oblong, laterally compressed, 40–60 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 5–6 mm long, eventually visible between lemmas.

**Glumes.** Glumes two, persistent, shorter than spikelet. Lower glume linear, 6–7 mm long. Lower glume apex attenuate. Upper glume lanceolate, 9–12 mm long, chartaceous, without keels. Upper glume apex attenuate.

**Florets.** Fertile lemma elliptic, 12–15 mm long, chartaceous, without keel, 11–13 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acuminate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG).** Continent. Europe (\*), Temperate Asia.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Caucasus, Eastern Asia.** Transcaucasus. Japan.

**Arundinaria kodzumae** (Makino) J.P. Demoly. *Bambou*, 21: 14 (1995).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Masayuki Kodzuma.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 200–300 cm long, 10–15 mm diam., woody. Culm-internodes terete, thin-walled, yellow or light green, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Branch complement three, thinner than stem. Culm-sheaths present, glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 18–24 cm long, 20–28 mm wide, indurate. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** Eastern Asia. Japan.

**Arundinaria kongosanensis** Makino. *Journ. Jap. Bot.* 5: 10 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Japan. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Japan,.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. ensis*, denoting origin. From Kongo-san, a mountain in Osaka Prefecture, Japan.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 100–200 cm long, 5–8 mm diam., woody. Culm-internodes terete, thin-walled, distally pubescent. Culm-nodes pubescent or bearded. Lateral branches lacking or sparse. Culm-sheaths present, puberulous, with reflexed hairs. Leaf-sheaths puberulous, with simple hairs or reflexed hairs. Leaf-sheath oral hairs setose, erect. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 15–20 cm long, 18–30 mm wide. Leaf-blade surface puberulous, densely hairy, hairy abaxially or on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–50 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes one the lower absent or obscure, persistent, shorter than spikelet. Upper glume lanceolate, chartaceous, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 13–15 mm long, chartaceous, without keel, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acuminate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG).** Continent. Temperate Asia.

**Country /Province /State.** Eastern Asia. Japan.

**Arundinaria linearis** Hack. *Bull. Herb. Boiss.* 7: 721 (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *J. Matsumura* 377, no date, Japan: (IT: US-02808847). OS.

**Illustrations (Books):** C-C Hsu, *Taiwan Grasses* (1975) (716, Pl. 1485).

**Derivation** (Clifford & Bostock 2007): *L. linea*, linen thread; *-are*, pertaining to. Leaf blades narrow.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 50–400 cm long, 5–20 mm diam., woody. Culm-internodes terete, thin-walled, 10–30 cm long, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Branch complement one to several. Culm-sheaths present, antrorsely scabrous, pilose, without auricles. Culm-sheath blade linear. Leaves 5–9 per branch. Leaf-sheaths 3–5 cm long, glabrous on surface. Leaf-sheath oral hairs scanty, 6–8 mm long, pale. Ligule an eciliate membrane or a ciliolate membrane, 1.5–4 mm long, truncate. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2 cm long. Leaf-blades deciduous at the ligule, linear or lanceolate, 6–28 cm long, 5–10 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate, filiform.

**Inflorescence.** Inflorescence comprising only a few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 7–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 50–100 mm long, 3–4 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, 11 mm long, chartaceous, without keels, 3 -veined. Lower glume apex acute. Upper glume lanceolate, chartaceous, without keels, 7 -veined. Upper glume lateral veins with cross-veins. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 9–22 mm long, 4–8 mm wide, chartaceous, without keel, 13 -veined, more than 3-veined. Lemma apex acuminate. Palea 7–15 mm long, 11 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ovate, 3–4 mm long, veined, ciliate. Anthers 3, 8 mm long. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China and Eastern Asia. Japan, Nansei-Shoto, Taiwan.

**Arundinaria matsunoi** Makino. *Journ. Jap. Bot.* 2: 8 (1918).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. Prov. Musashi: Yokohama, *T. Makino*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Jutara Matsumo (1868–1946) Japanese botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 200–300 cm long, woody. Culm-internodes terete, thin-walled, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Branch complement three, thinner than stem. Culm-sheaths present, glabrous, without auricles. Leaf-sheaths pilose. Leaf-sheath oral hairs setose, pale. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 20–27 cm long, 15–25 mm wide, indurate. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Japan.

**Arundinaria munsuensis** Y.N. Lee. *Korean J. Pl. Taxon.*, 28(1): 33 (1998).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: nom. inval., the words type or holotype not cited (Art. 37.4).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Munsu, South Korea.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 50–60 cm long, 1.5–3 mm diam., woody. Culm-internodes terete, thin-walled, 15 cm long. Lateral branches suffrutescent. Culm-sheaths present. Leaf-sheaths 5–6 cm long, outer margin hairy. Leaf-sheath oral hairs ciliate, erect. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 8 cm long, 12 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 30 mm long, 5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, chartaceous. Upper glume elliptic, chartaceous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 22 mm long, chartaceous, without keel, 11 -veined, more than 3-veined. Lemma apex setaceously acuminate. Palea 19 mm long. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, lanceolate, 4.5–5 mm long, ciliate. Anthers 3, 5 mm long. Stigmas 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Korea.

**Arundinaria nagashima** (Mitf.) Asch. & Graebn. *Syn. Mitteleur. Fl.* 2,1:772 (1902).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Basionym or Replaced Name:** *Bambusa nagashima* Marliac ex Mitford, *Bamb. Gard.* 46: 547 (1894).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): From Nagashima Island, Japan.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 100–200 cm long, 3–5 mm diam., woody. Culm-internodes terete, thin-walled, distally pubescent, with reflexed hairs. Culm-nodes bearded. Lateral branches dendroid. Culm-sheaths present, puberulous, with reflexed hairs, without auricles. Leaf-sheaths puberulous. Leaf-sheath oral hairs setose, erect. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 14–18 cm long, 20–25 mm wide. Leaf-blade surface glabrous or puberulous, densely hairy, hairy adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 6–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 45–50 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 12 mm long, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate, chartaceous, without keels. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 12–15 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma apex acuminate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Eastern Asia. Japan.

**Arundinaria pygmaea** (Miq.) Makino. *Bot. Mag. Tokyo* 13:319 (1899).

Not on *GrassBase*.

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Basionym or Replaced Name:** *Pleioblastus fortunei* (v. Houtte) Nakai, *Journ. Jap. Bot.* 9: 232 (1933).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. dwarf. Culms shorter than those of many other species in the genus.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 20–40 cm long, 1–2 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Culm-nodes glabrous or pubescent. Lateral branches suffrutescent. Culm-sheaths present, glabrous. Leaves distichous. Leaf-sheaths glabrous on surface or puberulous. Leaf-sheath oral hairs setose, pale. Ligule an eciliate membrane or a ciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 3–7 cm long, 3–10 mm wide. Leaf-blade surface glabrous or puberulous, sparsely hairy, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence comprising only a few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–60 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 5–7 mm long, eventually visible between lemmas.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, 8–10 mm long, chartaceous, without keels. Lower glume apex acute. Upper glume lanceolate, 8–10 mm long, chartaceous, without keels. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 13–16 mm long, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acuminate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Europe (\*), Temperate Asia, Tropical Asia.

**Region. Northern Europe (\*).**

**Country /Province /State.** : GB Aliens (Ryves et al). **China, Eastern Asia.** China Southeast. Japan. **Indian Subcontinent.** Assam, India.

**TDWG4.** Sikkim. Assam. Orissa, Uttah Pradesh.

## **Arundinaria qingchengshanensis** (P.C.Keng & Yi) D.Z.Li. *Novon* 15: 600 (2005).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Basionym or Replaced Name:** *Bashania aristata* Y. Ren, Yun Li & G.D. Dang, *Novon* 13(4): 473–475, pl. 1 (2003) .

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 146).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Quin Cheng Shan, Sichuan Province, China.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Butt sheaths absent. Culms 200–400 cm long, 3–10 mm diam., woody. Culm-internodes terete, solid, 40–45 cm long, dark green, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Culm-sheaths present, green or purple, hispid, hairy on margins, without auricles, setose on shoulders, shoulders with 3–4 mm long hairs. Culm-sheath ligule 0.5–1 mm high, purple. Culm-sheath blade lanceolate or triangular. Leaves 1–3 per branch. Leaf-sheaths puberulous. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles erect. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.3–0.4 cm long, petiole glabrous. Leaf-blades lanceolate, 22–32 cm long, 24–34 mm wide. Leaf-blade venation with 12–16 secondary veins. Leaf-blade surface scabrous, glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, 6–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–12 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 5–14 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 5–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes clavate, 3–5 mm long, pubescent.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, chartaceous, without keels. Lower glume surface pilose. Lower glume apex acuminate, mucronate. Upper glume ovate, chartaceous, without keels. Upper glume surface pilose. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma ovate, 7–8 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pilose, inner surface pilose. Lemma margins ciliate. Lemma apex acuminate, mucronate. Palea 8–9 -veined. Palea surface pilose, hairy on margins. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ovate, ciliate. Anthers 3, purple. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, 7–8 mm long, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Sichuan.

**Arundinaria racemosa** Munro. *Trans. Linn. Soc.* 26: 17 (1868).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India, Yalooing: *Hooker* ; India, Sikkim, Islumbo Pass: *Thomson* .

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (498, Fig. 4).

**Derivation** (Clifford & Bostock 2007): L. racemus, stalk of a cluster of grapes; -osa, abundance. The spikelets are borne in racemes or contracted panicles.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, culms solitary. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 60–120 cm long, 5–10 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, thin-walled, 5–10 cm long, yellow. Lateral branches dendroid. Branch complement several, with subequal branches, thinner than stem. Culm-sheaths present, 6–10 cm long, 4–5 times as long as wide, yellow, glabrous or puberulous, hairy above, without auricles, ciliate on shoulders. Culm-sheath blade linear, 0.5–1.5 cm long, scabrid. Leaf-sheaths striately veined, pubescent. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, pubescent on abaxial surface. Leaf-blade base without a false petiole or with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 3–10 cm long, 5–10 mm wide. Leaf-blade venation with 6 secondary veins, with distinct cross veins. Leaf-blade surface hirsute, hairy abaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, bearing few fertile spikelets, bearing 3–6 fertile spikelets on each. Rhachis glabrous on surface. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 10–30 mm long.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 30–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated between glumes or elongated below proximal fertile floret, clavate, 5–6 mm long, eventually visible between lemmas.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2–3.5 mm long, chartaceous, without keels. Lower glume apex acuminate. Upper glume elliptic, 2–3.5 mm long, chartaceous, without keels. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 6–8 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex setaceously acuminate. Palea 1 length of lemma. Palea keels ciliate, adorned above. Palea apex with excurrent keel veins. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1.5–2 mm long, veined, ciliate. Anthers 3, 5 mm long, purple. Stigmas 3. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, apex unappendaged.

$2n = 4842$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** Tibet. **Indian Subcontinent.** Eastern Himalaya, India, Nepal.

**TDWG4.** Bhutan, Sikkim. West Bengal.

**Arundinaria rectirama** W.T. Lin. *J. South China Agr. Univ.* 13(2): 85–86, f. 7 1992.

More checking of status required ((uncertain application)).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China Southeast.

**TDWG4.** Guangdong.

**Arundinaria scandens** T.R. Soderstrom & R.P. Ellis. *Smithsonian Contrib. Bot.*, 72: 20 (1988).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Sri Lanka. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sri Lanka, Pidurutalagala: *Beddome* (PDA holo).

**Illustrations (Books):** No illustration found (BKS).

**Images:** *Smith. Contr. Bot.* No. 72 : 22 (1988).

**Derivation** (Clifford & Bostock 2007): *L. scando*, climb up. Of scrambling habit.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 700–800 cm long, 10–15 mm diam., woody. Culm-internodes terete, thick-walled, distally hirsute. Lateral branches dendroid. Bud complement 1. Branch complement several, in a clump, thinner than stem. Culm-sheaths present, persistent, brown or purple, pilose, with appressed hairs, without auricles. Culm-sheath ligule 1.7 mm high, dentate. Culm-sheath blade lanceolate, deciduous, spreading, 10–12 cm long, 2.5 mm wide, scabrid, acute. Leaves 0 per branch (not in complements). Ligule an eciliate membrane, 0.5 mm long, erose. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.05 cm long. Leaf-blades oblong, 6–9 cm long, 16–23 mm wide, mid-green or mid-green or glaucous, concolorous or discolorous with last colour beneath. Leaf-blade midrib prominent beneath. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins smooth. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 6–7 cm long, 6 cm wide. Primary panicle branches ascending or spreading. Panicle branches stiff, glabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–20 mm long.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–5 mm long, pubescent, hairy above.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2.7–3.6 mm long, chartaceous, without keels, 5 -veined. Lower glume lateral veins with cross-veins. Lower glume apex acute. Upper glume ovate, 3.9–4.5 mm long, chartaceous, without keels, 5 -veined. Upper glume lateral veins with cross-veins. Upper glume inner surface pubescent. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 6.3–7.5 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma inner surface pubescent. Lemma apex acute. Palea 7 -veined. Palea keels winged. Palea surface puberulous, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1.6–1.7 mm long, ciliate. Anthers 3, 5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Sri Lanka.

**Arundinaria shiobarensis** Nakai. *Journ. Jap. Bot.* 10: 579 (1934).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**TYPE** from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan: Hondo: Shimotsuke prov., secus vias Shinyu, Shiobara, *F. Maekawa* (HT: TI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Shiobara, Tochigi Prefecture, Japan.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 100–200 cm long, 4–8 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Culm-nodes glabrous. Lateral branches suffrutescent. Bud complement 1. Branch complement one, solitary, as thick as stem. Culm-sheaths present, persistent, glabrous. Leaf-sheaths pilose. Leaf-sheath oral hairs ciliate, spreading. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 17–19 cm long, 25–31 mm wide. Leaf-blade surface pubescent, hairy abaxially or on both sides. Leaf-blade apex acuminate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. Eastern Asia.** Japan.



**Arundinaria simonii** (Carr.) A. & C. Riviere. *Bull. Soc. Acclim. Ser. 3*, 5: 774 (1878).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pleiolblastus*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Pleiolblastus*).

**TYPE** from China. **Basionym or Replaced Name:** *Bambusa simonii* Carrière, *Rev. Hort.* 37: 380 (1866)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: ??: 1862, *E. Simon s.n.* (HT: P).

**Illustrations (Books):** C-C Hsu, *Taiwan Grasses* (1975) (718, Pl. 1486), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (109, Fig. 24), D.Farrelly, *The Book of Bamboo* (1984) (163).

**Derivation** (Clifford & Bostock 2007): in honor of Eughne L. Simon (1838–1924) French diplomat who sent plants to the Simon-Louis brothers' nursery at Metz in Alsace, France.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect or arching, 600–800 cm long, 20 mm diam., woody. Culm-internodes terete, thin-walled, 40–45 cm long, distally glabrous. Lateral branches dendroid. Branch complement three or several, with subequal branches, thinner than stem. Culm-sheaths present, persistent, glabrous, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 3–4 mm high. Culm-sheath blade linear or lanceolate, reflexed, glabrous on surface. Leaf-sheaths 25 cm long, striately veined, glabrous on surface. Leaf-sheath oral hairs scanty, pale. Ligule an eciliate membrane or a ciliolate membrane, 3–4 mm long, truncate or obtuse. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 5–30 cm long, 15–35 mm wide, mid-green or glaucous, with undersurface a different shade on either side of midrib. Leaf-blade venation with 8–12 secondary veins, with distinct cross veins.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets, subtended by a spatheole, embraced at base by subtending leaf. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–70 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas, pilose, hairy at tip.

**Glumes.** Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume apex acute. Upper glume ovate, chartaceous, without keels. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 9 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acuminate. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Europe (\*), Temperate Asia, South America (+).

**Region.** Northern Europe (\*), Southwestern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). **China, Eastern Asia.** China Southeast. Japan. Lord Howe-Norfolk Is. **Brazil, Southern South America.** Brazil Southeast. Argentina Northeast.

**TDWG4.** Shanghai, Zhejiang. Entre Rios.

**Arundinaria spanostachya** (T.P. Yi) D.Z. Li. *Novon* 15(4): 600 (2005).

Regarded by K as a synonym.

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Bashania*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Basionym or Replaced Name:** *Bashania spanostachya* T.P. Yi, *Acta Bot. Yunnanica*, 11(1): 35 (1989).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007).

**Derivation** (Clifford & Bostock 2007): Gk *spanios*, rare; *stahcys*, spike, as of an ear of wheat. Inflorescence with few branches.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, culms solitary. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 100–350 cm long, 6–12 mm diam., woody. Culm-internodes terete, thin-walled, 13–18 cm long, yellow, smooth, distally mealy. Culm-nodes swollen. Lateral branches dendroid. Branch complement two or three. Culm-sheaths present, persistent, 10–14.5 cm long, 4 times as long as wide, yellow, glabrous or pubescent, glabrous on margins, without auricles, glabrous on shoulders or ciliate on shoulders, shoulders with 4–6 mm long hairs. Culm-sheath ligule 1 mm high. Culm-sheath blade lanceolate,

erect or spreading, 1.2–4.5 cm long, 5–7.5 mm wide. Leaves 2–4 per branch. Leaf-sheaths 1.7–4.2 cm long, glabrous on surface, outer margin glabrous. Leaf-sheath oral hairs scanty, 2–5 mm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.5 mm long, truncate. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.1 cm long. Leaf-blades lanceolate, 3.5–6.7 cm long, 4–7.5 mm wide. Leaf-blade venation with 4–6 secondary veins, with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, subtended by a spatheole. Racemes 1, single, bearing few fertile spikelets, bearing 2–3 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–6 mm long.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 18–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3.5–5 mm long, pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1–1.6 mm long, chartaceous. Lower glume surface glabrous. Lower glume apex acute. Upper glume ovate, 3–9 mm long, chartaceous, 3–5 -veined. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma ovate, 7–10 mm long, chartaceous, purple, 5–7 -veined, more than 3-veined. Lemma surface glabrous or puberulous. Lemma apex setaceously acuminate. Palea 5–6.5 mm long. Palea keels eciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 0.8 mm long, ciliate. Anthers 3, 3.5–4.5 mm long, purple. Stigmas 3. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**Arundinaria sulcata** (Z.P. Wang & G.H. Ye) C.S. Chao & G.Y. Yang. *J. Bamboo Res.*, 13(1): 10 (1994).

**Basionym or Replaced Name:** *Oligostachyum sulcatum* Z.P. Wang & G.H. Ye, *J. Nanjing Univ., Nat. Sci.*, 1: 96 (1982).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. sulcus*, furrow; -ata, possessing. Internodes grooved.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 1000–1200 cm long, 40–62 mm diam., woody. Culm-internodes terete, thin-walled, 37.5 cm long, distally mealy. Lateral branches dendroid, ascending. Branch complement three. Culm-sheaths present, coriaceous, green, hispid, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 3.5 mm high, ciliolate. Culm-sheath blade lanceolate or narrowly ovate, erect or spreading. Leaves 3–5 per branch. Leaf-sheaths deciduous, 9–16 cm long, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule a ciliolate membrane, 1–1.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate. Leaf-blade venation with distinct cross veins.

**Inflorescence.** Inflorescence composed of racemes, bracteate at pedicel base. Racemes bearing 2–3 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–15 mm long.

**Fertile Spikelets.** Spikelets comprising 3–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15–37 mm long, 1.5–3 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3–5 mm long, chartaceous, without keels. Lower glume lateral veins obscure. Lower glume surface scabrous. Lower glume apex acute. Upper glume elliptic, 7–10 mm long, chartaceous, without keels, 9 -veined. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma 11–13 mm long, chartaceous, without keel, 9–15 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface scabrous. Lemma apex acuminate, mucronate. Palea 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China Southeast.

**TDWG4.** Fujian, Zhejiang.

**Arundinaria viridistriata** (Regel) Nakai. *J. Jap. Bot.* 10:568 (1934).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pleiblastus*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Pleiblastus*).

**Basionym or Replaced Name:** *Pleiblastus auricomus* (Mitford) Bergmans, *Vaste Pl. Rotsheest.*, ed. 2, 677 (1939).

**Recent Synonyms:** *Pleiblastus viridistriatus* (Regel) Makino, *Journ. Jap. Bot.* 3:11 (1926).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.2613 (1899) as *A. auricoma*).

**Derivation** (Clifford & Bostock 2007): *L. viridis*, green; *striatus*, striated. Leaf-blades variegated.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 20–60 cm long, 1–2 mm diam., woody. Culm-internodes terete, thin-walled, distally pubescent. Culm-nodes pubescent. Lateral branches lacking or sparse. Culm-sheaths present, puberulous, with reflexed hairs. Culm-sheath blade lanceolate, erect, 0.5 cm long. Leaf-sheaths puberulous. Leaf-sheath oral hairs setose. Ligule an eciliate membrane or a ciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 15–20 cm long, 15–25 mm wide, mid-green and yellowish green, variegated (striped). Leaf-blade surface pubescent, densely hairy, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–50 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes one the lower absent or obscure, persistent, shorter than spikelet. Upper glume lanceolate, 10–23 mm long, chartaceous, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 13–15 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acuminate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 3. Caryopsis with adherent pericarp, apex unappendaged.

**Distribution (TDWG). Continent.** Temperate Asia, Australasia.

**Country /Province /State.** Caucasus, Eastern Asia. Transcaucasus. Japan. New Zealand. New Zealand North I, New Zealand South I.

**Arundinaria walkeriana** Munro. *Trans. Linn. Soc.* 26: 21 (1868).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Sri Lanka. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sri Lanka: *Walker 1304* ; Sri Lanka: *Walker 96*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of George Warren (-1844) British soldier and his wife A.W. Walker (-) who collected in Sri Lanka.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 100–200 cm long, woody. Culm-internodes terete, thin-walled, smooth. Lateral branches dendroid. Bud complement 1. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, deciduous, yellow or green, pilose, hairy at the base, hairy on margins, without auricles, ciliate on shoulders, shoulders with 3–5 mm long hairs. Culm-sheath ligule 0.5–1 mm high, ciliate. Culm-sheath blade narrowly ovate, spreading, 2–3 cm long, 5 mm wide, acute. Leaves 10–20 per branch. Leaf-sheath oral hairs ciliate, 3–4 mm long. Ligule a ciliate membrane, 0.2 mm long. Leaf-blade base cordate, with a brief petiole-like connection to sheath, petiole 0.2–0.25 cm long. Leaf-blades deciduous at the ligule, elliptic, 5–15 cm long, 10–50 mm wide, indurate. Leaf-blade midrib prominent beneath. Leaf-blade venation with distinct cross veins. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, obovate, 20–30 cm long. Panicle branches glabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–17 mm long.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile.

Spikelets linear, laterally compressed, 14–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent, hairy above.

**Glumes.** Glumes deciduous, similar, shorter than spikelet. Lower glume ovate, 5.8 mm long, chartaceous, without keels, 7 -veined. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 6.5 mm long, 0.2–0.33 length of adjacent fertile lemma, chartaceous, without keels, 7 -veined. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 5–7.3 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma margins ciliate, hairy above. Lemma apex acute. Palea keels winged. Palea surface puberulous, hairy on back, hairy above. Palea apex ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1.4 mm long, veined, ciliate. Anthers 3, 5 mm long, orange. Stigmas 3. Caryopsis with adherent pericarp, ellipsoid, sulcate on hilar side, 5 mm long, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India, Sri Lanka.

### **Arundinaria wightiana** Nees. *Linnaea* 9: 482 (1834).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills* (1996) (as *Sinarundinaria wightiana*).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Robert Wight (1796–1872) Scots-born physician and sometime Superintendent, Botanic Gardens, Madras.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 200–300 cm long, woody, without nodal roots. Culm-internodes semiterete, 25–35 cm long, dark green, striate, scaberulous. Culm-nodes swollen. Lateral branches dendroid. Branch complement several, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, 10–20 cm long, 3–4 times as long as wide, yellow, hispid, with tawny hairs, without auricles. Culm-sheath ligule ciliolate. Culm-sheath blade linear, 2.5–4 cm long, scabrid. Leaf-sheaths keeled, striately veined, glabrous on surface or pilose, with tubercle-based hairs. Leaf-sheath oral hairs setose. Ligule an eciliate membrane, erose. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 12–18 cm long, 20–25 mm wide. Leaf-blade venation with 10–14 secondary veins, with distinct cross veins. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate. Panicle branches capillary, flexuous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, clavate, pubescent.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume oblong, chartaceous, without keels. Lower glume apex acute. Upper glume oblong, chartaceous, without keels, 7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 6–7 mm long, chartaceous, without keel, 9–11 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface smooth or scabrous. Lemma apex obtuse, mucronate. Palea 7 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, veined, ciliate. Anthers 3. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, sulcate on hilar side, 2.5–5 mm long, apex unappendaged.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

### **Arundinella barbinodis** Keng ex B.S. Sun & Z.H.Hu. *Acta Bot. Yunnanica* 2(3): 329 (1980).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Guangdong: Lechang Xian, Chong Uen Shan near Kan Fung, dry steep slope, sandy soil, 2–30 Nov. 1932, *W.T Tsang* 20782 (HT: Acad. Sin., Beijing; IT: LE (fragm.))

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 788).

**Derivation** (Clifford & Bostock 2007): L. barba, beard; nodus, knot. Nodes bearded.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Culms erect, 100 cm long, 3 mm diam., 1–2 -noded. Culm-internodes smooth. Culm-nodes swollen, bearded. Leaf-sheaths longer than adjacent culm internode, pilose, outer margin hairy. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades 5–35 cm long, 3–7 mm wide, glaucous. Leaf-blade surface pubescent, hairy on both sides. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 30–60 cm long. Primary panicle branches ascending or spreading, 1–2 -nate, 9–20 cm long. Panicle branches scaberulous, bearded in axils. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, 1–6 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse. Floret callus hairs 0.25 length of lemma.

**Glumes.** Glumes persistent, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 3.5–4 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface smooth or asperulous, rough on veins. Lower glume apex acuminate. Upper glume ovate, 4.5–5.5 mm long, membranous, glaucous, 1-keeled, 7 -veined. Upper glume surface smooth or asperulous, rough on veins. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 4 mm long, membranous, glaucous, 1-keeled, 5 -veined, acute. Fertile lemma lanceolate, 2.5–3 mm long, coriaceous, light brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 3 -awned. Principal lemma awn straight, 6 mm long overall. Lateral lemma awns present, 2 mm long. Palea coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China Southeast.

**TDWG4.** Fujian, Guangdong, Hunan, Jiangxi, Zhejiang.

**Arundinella bengalensis** (Spreng.) Druce. *Rep. Bot. Exch. Cl. Brit. Isles* 1916, 605 (1917).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. **Basionym or Replaced Name:** *Panicum bengalense* Spreng., *Syst. Veg.* 1: 311 (1825). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: Bengal:..

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (751, Fig. 48), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 791).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Bengal, now Bangladesh.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated, scaly, hairy. Culms erect or geniculately ascending, 100–200 cm long. Culm-nodes glabrous or bearded. Lateral branches lacking or sparse. Leaf-sheaths pilose, with tubercle-based hairs, outer margin hairy. Ligule an eciliate membrane. Leaf-blades 20–60 cm long, 10–20 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scabrous, glabrous or ciliate. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous. Panicle contracted, linear, 15–30 cm long, 1–3 cm wide, contracted about primary branches. Primary panicle branches ascending, 1–2.5 cm long, bearing spikelets almost to the base. Panicle axis smooth or scabrous, with scattered hairs or hispid. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume elliptic, 2–2.75 mm long, 0.8 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface scabrous, rough on veins, glabrous or pilose, with tubercle-based hairs. Lower glume apex acute. Upper glume elliptic, 2.3–3.5 mm long, 1.1–1.7 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface smooth or asperulous, rough on veins, glabrous or pilose, with tubercle-based hairs. Upper glume apex acute or acuminate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 2.5–3 mm long, membranous, 1-keeled, 5 -veined, acute. Fertile lemma oblong, 2 mm long, chartaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex entire or dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 2 mm long overall, with twisted column. Palea with auriculate flaps, chartaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1–1.25 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 17$  (2 refs TROPICOS).  $2n = 34$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central, Hainan, China Southeast, Tibet. **Indian Subcontinent, Indo-China.** Assam, Bangladesh, Eastern Himalaya, India, Nepal. Myanmar, Thailand, Vietnam.

**TDWG4.** Guangdong, Guangxi. Guizhou, Sichuan, Yunnan. Darjeeling, Bhutan. Assam, Meghalaya, Tripura. Andhra Pradesh, Bihar. Madhya Pradesh, Orissa, Uttah Pradesh, West Bengal.

**Arundinella berteroniana** (Schult.) Hitchcock & Chase. *Contrib. US. Nat. Herb.* 18: 290 (1917).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Santo Domingo. **Basionym or Replaced Name:** *Trichochloa berteroniana* Schult., *Mantissa* 2: 209 (1824)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Bertero s.n.*, Dominican Republic: Santo Domingo (BM, M?, TO?).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (561, Fig. 130), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (419, Fig. 148), G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 171, Fig. 20 (2006)).

**Illustrations (Journals):** *Ruizia* (13:422 Fig 56a-b (1993)).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Carlo Guiseppe Bertero (1789–1831) Italian botanist, physician, pharmacist and traveller.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 75–115 cm long, 1.5–2 mm diam. Culm-internodes thin-walled. Culm-nodes pubescent. Lateral branches lacking. Leaf-sheaths hispid, with tubercle-based hairs. Leaf-sheath oral hairs bearded. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades 25–35 cm long, 3–6 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface pilose, hairy on both sides. Leaf-blade margins cartilaginous.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, lanceolate, dense, 20–40 cm long, 4–6 cm wide, contracted about primary branches. Primary panicle branches appressed, 10–15 cm long. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets cuneate, laterally compressed, 4.2–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, recurved at apex or gaping. Lower glume lanceolate, 3.2–4.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate. Upper glume lanceolate, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, membranous, 1-keeled, 3–5 -veined, acute. Fertile lemma lanceolate, 1.5–1.8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 8–13 mm long overall, without a column or with a straight or slightly twisted column. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.6–0.7 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Western South America, Brazil, Southern South America.** Cuba, Dominican Republic, Haiti. Bolivia, Colombia, Ecuador, Peru. Brazil South.

**TDWG4.** Amazonas, Acre, Rondonia. Salta. Formosa. Distrito Federal, Mexico State, Morelos, Puebla. Hidalgo, Neuvo Leon, San Luis Potosi, Tamaulipas. Veracruz. Sinaloa. Colima, Guerrero, Jalisco, Michoacan, Oaxaca. Chiapas, Tabasco.

**Arundinella birmanica** Hook. f. *Fl. Brit. Ind.* 7: 73 (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Burma, now Myanmar.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, robust, 20–35 cm long. Culm-nodes bearded. Lateral branches lacking. Leaf-sheaths pilose, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blade base broadly rounded. Leaf-blades linear or lanceolate, 15–27 cm long, 7–14 mm wide, flaccid. Leaf-blade surface hirsute, hairy on both sides, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle pilose above. Panicle open, elliptic, 5–15 cm long, contracted about primary branches. Primary panicle branches 2–4 cm long. Panicle axis scaberulous, with scattered hairs. Panicle branches scabrous. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1–2 in the cluster. Pedicels present, scabrous, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, recurved at apex or gaping. Lower glume elliptic, 3–3.25 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface pilose, with tubercle-based hairs. Lower glume apex acuminate, awned, 1 -awned. Upper glume elliptic, 4.5–4.75 mm long, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume primary vein scabrous. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, oblong, 3 mm long, 1 length of spikelet, membranous, 1-keeled, 3 -veined, obtuse. Fertile lemma elliptic or oblong, 2 mm long, coriaceous, dark brown, without keel. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 6 mm long overall, with twisted column. Column of lemma awn 2.5 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.75–1 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Myanmar.

**Arundinella blephariphylla** (Trimen) Trimen ex Hook. f. *Fl. Brit. Ind.* 7: 77 (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Sri Lanka. **Basionym or Replaced Name:** *Panicum blephariphyllum* Trimen, *Journ. Bot. Brit. & For.* 23: 272 (885)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Hab. Ruanwelle, Western Prov., Nov. 1883, ...", *Mr. Ferguson s.n.*

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. blepharis, eye-lash; phyllon, leaf. The leaf margins bear long stiff widely separated hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Annual. Butt sheaths glabrous. Culms erect, 30–60 cm long. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface or pubescent, with tubercle-based hairs. Ligule an eciliate membrane, 0.2 mm long. Leaf-blade base broadly rounded. Leaf-blades 15–35 cm long, 10–

25 mm wide, membranous. Leaf-blade surface smooth, glabrous. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle pilose above. Panicle open, ovate, 12 cm long, contracted about primary branches. Primary panicle branches simple. Panicle axis scabrous. Panicle branches bearing approximate spikelets. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2.5 mm long, 0.75 length of upper glume, membranous, purple, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acute. Upper glume elliptic, 3.5 mm long, 2 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 2.75 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma oblong, 1.75 mm long, coriaceous, light brown, without keel, 3 -veined, 0-3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex entire, obtuse, muticous. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface pubescent, hairy above, with turgid hairs.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1-1.2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Sri Lanka.

**Arundinella kannanorica** V.J. Nair, Sreek. & N.C. Nair. *J. Bombay Nat. Hist. Soc.* 80(2): 396 (1984).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cannanore District, Kumbala to Beduka: Sreekumar 71822 (CAL holo, K, MH).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, slender, 20-60 cm long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 1-8 cm long, striately veined, outer margin glabrous or hairy. Ligule a fringe of hairs. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 2-5 cm long, 2-5 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, with tubercle-based hairs. Leaf-blade margins glabrous or tuberculate-ciliate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, ovate, 10-40 cm long. Primary panicle branches ascending, 1-12 cm long. Panicle branches angular, bearded in axils. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, angular, 2-15 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, acuminate, 4-6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse. Floret callus hairs 0.25-0.5 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 3.5-4.5 mm long, 0.75 length of upper glume, membranous, purple, 1-keeled, 3 -veined. Lower glume lateral veins prominent. Lower glume apex acute. Upper glume ovate, 5-5.5 mm long, 2 length of adjacent fertile lemma, 1 length of spikelet, membranous, mid-green and purple, 5 -veined. Upper glume lateral veins prominent. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, oblong, 2.75-3 mm long, membranous, light green, 1-keeled, 5 -veined, obscurely veined, with unevenly spaced veins, obtuse. Palea of lower sterile floret 2-2.5 mm long. Fertile lemma ovate, 1.75-2 mm long, coriaceous, dark brown, without keel. Lemma surface papillose. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8-10 mm long overall, with twisted column. Column of lemma awn 4 mm long. Palea with auriculate flaps, 1.25-1.5 mm long, coriaceous, 2 -veined. Palea surface papillose.



**Flower and Fruit.** Lodicules 2, cuneate, 0.3 mm long, fleshy. Anthers 3, 1–2 mm long, purple.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.  
Kerala.

**Arundinella ciliata** (Roxb.) Nees ex Miq. *Verh. Nederl. Inst.* 3, 4: 30 (1851).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

**Basionym or Replaced Name:** *Holcus ciliatus* Roxb., *Fl. Ind.* 1: 321 (1820).

**Illustrations (Books):** K.M.Matthew, Illustrations on the *Flora of Tamilnadu Carnatic* (1982) (Pl. 810 & 811).

**Derivation** (Clifford & Bostock 2007): *L. cilium*, eyelid; -ata, possessing. Plant hairy overall or in part.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, 30–60 cm long. Culm-internodes distally glabrous or pilose. Culm-nodes bearded. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, pilose, with tubercle-based hairs, outer margin hairy. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blade base broadly rounded. Leaf-blades lanceolate or oblong, 7–15 cm long, 7–14 mm wide, flaccid. Leaf-blade surface pilose, hairy adaxially or on both sides, with tubercle-based hairs. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle contracted, linear, 5–12 cm long, contracted about primary branches. Primary panicle branches 1–3(–5) cm long. Panicle axis scabrous, glabrous or pilose, with tubercle-based hairs. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume elliptic, 2.5–3.5 mm long, 0.75–1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface pilose, hairy below, with tubercle-based hairs. Lower glume apex acute, awned, 1 -awned. Upper glume elliptic, 3.5 mm long, 2.5–3 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface pilose, hairy below, with tubercle-based hairs. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic or oblong, 1.25–2.5 mm long, 0.5–0.75 length of spikelet, membranous, 1-keeled, 3 -veined, acute, awned. Fertile lemma elliptic or oblong, 1–1.5 mm long, coriaceous, pallid, without keel. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–7 mm long overall, with twisted column. Column of lemma awn 2.5–3 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.25–0.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 9$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent, Malesia.** Lesser Sunda Is, Philippines.  
Tamilnadu.

**Arundinella cochinchinensis** Keng. *Nat. Centr. Univ. Sci. Rep., Nanking, Ser. B*, 2 No. 3, 24 (1936).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 795).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Cochinchina, now included in Laos and Cambodia.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, robust, 250 cm long, 4–6 mm diam. Culm-nodes pubescent. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, glabrous on surface, outer margin glabrous or hairy. Ligule an eciliate membrane. Leaf-blades 60 cm long, 20 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle contracted, oblong, interrupted, 60 cm long. Primary panicle branches appressed, bearing spikelets almost to the base. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, 1–4 mm long, scaberrulous, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, recurved at apex. Lower glume lanceolate or ovate, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acuminate. Upper glume lanceolate, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 3–5 -veined. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 1 length of spikelet, membranous, 1-keeled, 3 -veined, obtuse. Fertile lemma lanceolate, 2 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4 mm long overall, with twisted column. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China. China South Central, China Southeast. **Indo-China.** Thailand, Vietnam.

**TDWG4.** Guangxi, Guizhou, Yunnan.

**Arundinella dagana** H.J. Noltie. *Edinburgh J. Bot.*, 56(3): 396 (1999).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**Illustrations (Books):** H.J. Noltie, *The Grasses of Bhutan* (2000) (751, Fig. 48).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating connection. From Daga Dzang, Kingdom of Bhutan.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated, scaly, hairy. Culms erect or geniculately ascending, 100–200 cm long. Culm-nodes glabrous or bearded. Lateral branches lacking or sparse. Leaf-sheaths pilose, with tubercle-based hairs, outer margin hairy. Ligule an eciliate membrane. Leaf-blades 20–60 cm long, 10–20 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scabrous, glabrous or ciliate. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous. Panicle contracted, linear, 15–30 cm long, 1–3 cm wide, contracted about primary branches. Primary panicle branches ascending, 1–2.5 cm long, bearing spikelets almost to the base. Panicle axis smooth or scabrous, with scattered hairs or hispid. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume elliptic, 3–3.2 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface hispid. Lower glume apex acute. Upper glume elliptic, 3.2–3.8 mm long, 1.2–1.3 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface hispid. Upper glume apex acute or acuminate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 2.5–3 mm long, membranous, 1-keeled, 5 -veined, acute. Palea of lower sterile floret 1.7–1.9 mm long. Fertile lemma oblong, 2.4–2.8 mm long, chartaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex entire or dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 1.1–2.5 mm long overall, clearly exerted from spikelet, with twisted column, persistent. Column of lemma awn 0.8–1 mm long. Palea with auriculate flaps, chartaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.7–0.9 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Eastern Himalaya.  
Bhutan.

**Arundinella decempedalis** (Kuntze) Janowsky. Fedde, *Repert.* 17: 84 (1921).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma*, Ceylon, India and Pakistan (1960).

**Basionym or Replaced Name:** *Panicum decempedale* Kuntze, *Rev. Gen.* 783. (1891).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (751, Fig. 48), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 791).

**Derivation** (Clifford & Bostock 2007): L. decem, ten; pes, foot. Culms to about 3 m tall.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Rootstock evident. Rhizomes elongated, scaly. Culms robust, 200–300 cm long. Culm-nodes pubescent. Lateral branches lacking. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades 80–120 cm long, 10–30 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface smooth or scabrous, glabrous or pubescent, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle scaberulous above. Panicle open, lanceolate, dense, 25–50 cm long, 7–15 cm wide, contracted about primary branches. Primary panicle branches ascending, simple, 8–20 cm long. Panicle axis scaberulous. Panicle branches scabrous, bearded in axils. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, scabrous, bearing a few hairs or glabrous, hairy at tip.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2.5–3 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acute. Upper glume lanceolate, 1.6 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate or elliptic, 2.5 mm long, chartaceous, 1-keeled, 3 -veined, obtuse. Fertile lemma lanceolate, 2 mm long, coriaceous, light brown, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 2–4 mm long overall, with twisted column. Column of lemma awn 1–2 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1–1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Embryo 0.6 length of caryopsis. Hilum punctiform.

*N* = 30 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya, India. Myanmar.

**TDWG4.** Yunnan. Sikkim. Assam. West Bengal.

**Arundinella deppeana** Nees. *Bonplandia*, 3: 84 (1855).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (64, Fig. 16).

**Derivation** (Clifford & Bostock 2007): in honor of Ferdinand Deppe (1794–1861) German botanist and traveller.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Rootstock evident. Culms erect or geniculately ascending, robust, 100–400 cm long, 3–7 mm diam. Culm-internodes thin-walled. Culm-nodes pubescent. Leaf-sheaths hispid, with tubercle-based hairs, outer margin hairy. Ligule a ciliolate membrane, 0.2–0.3 mm long. Leaf-blades 25–50 cm long, 8–25 mm wide. Leaf-blade surface hispid, hairy on both sides.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle 4–30 cm long, glabrous. Panicle open, lanceolate, dense, 20–60 cm long, contracted about primary branches. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.8–4.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.8–3.2 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex attenuate. Upper glume lanceolate, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume apex attenuate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 2.3–2.5 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma lanceolate, 1.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–13 mm long overall, with a straight or slightly twisted column. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.7–1 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Brazil.** Cuba. Brazil Southeast.

**TDWG4.** Distrito Federal, Mexico State, Morelos, Puebla. Hidalgo, Neuvo Leon, Queretaro. Veracruz. Sinaloa. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

**Arundinella flavida** Keng. *Nat. Centr. Univ. Sci. Rep.*, Nanking, Ser. B, 2 No. 3, 44 (1936).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 790).

**Derivation** (Clifford & Bostock 2007): *L. flavidus*, pale yellow. Spikelets yellow.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated, scaly. Culms erect, 50–120 cm long, 2–3 mm diam. Culm-nodes glabrous or pubescent. Lateral branches fastigiate, arising from lower culm. Leaf-sheaths glabrous on surface or hispid, with tubercle-based hairs, outer margin hairy. Ligule an eciliate membrane, 0.2 mm long. Leaf-blades erect or ascending, (6–)15–30 cm long, 6–10 mm wide, indurate, stiff. Leaf-blade midrib indistinct. Leaf-blade surface smooth, glabrous, hairless except near base. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic or oblong, dense, 9–15(–27) cm long. Primary panicle branches ascending, simple or sparsely divided, 1.5–7 cm long. Panicle axis scabrous. Fertile spikelets pedicelled. Pedicels present, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.25 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.1–3.7 mm long, 0.8–0.9 length of upper glume, membranous, light brown, 1-keeled, 3(–5) -veined. Lower glume lateral veins ribbed. Lower glume surface setose, hairy on veins, with tubercle-based hairs. Lower glume apex acuminate. Upper glume lanceolate, 3.8–4.1 mm long, 2 length of adjacent fertile lemma, 1 length of spikelet, membranous, light brown, 1-keeled, 3(–5) -veined. Upper glume lateral veins ribbed. Upper glume surface setose, hairy on veins, with tubercle-based hairs. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 3.1–3.7 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma lanceolate, 2–2.5 mm long, coriaceous, without keel. Lemma margins involute, interlocking with palea keels. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 2.2–3 mm long overall, with twisted column. Palea coriaceous, 2 -veined.

**Flower and Fruit.** Lodicules 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China. China South Central, China Southeast. **Indo-China.** Vietnam.  
**TDWG4.** Guangxi. Guizhou.

**Arundinella fluviatilis** Hand.-Mazz. *Anz. Akad. Wiss. Wien, Math.-Nat.* 63: 111 (1926).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. fluvius*, river; -atalis, place of growth. Growing along riverbanks.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 35–90 cm long. Leaf-sheaths 8–10 cm long, mostly shorter than adjacent culm internode, outer margin hairy. Ligule a ciliate membrane, 1 mm long. Leaf-blades 10–20 cm long, 3–5 mm wide. Leaf-blade surface pilose. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 10–20 cm long. Primary panicle branches 1–2 -nate, 2–5 cm long. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets cuneate, dorsally compressed, 4.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.66–1 length of upper glume, membranous, 1-keeled, 5 -veined. Lower glume apex acuminate. Upper glume ovate, 4.5–5 mm long, membranous, 1-keeled, 5 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 4.5–5 mm long, membranous, 1-keeled, 3 -veined, obtuse. Fertile lemma ovate, 3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn straight, 1–1.25 mm long overall. Palea coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 2 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp, 1.75 mm long. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central, China Southeast.

**TDWG4.** Hunan, Jiangxi. Guizhou, Hubei, Sichuan.

**Arundinella furva** Chase. *Journ. Arn. Arb.* 24: 85 (1943).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Guinea, Sarawaket: *Clemens* 5826a .

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. dusky*, almost black. Lemmas darkish purple-brown.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal. Culms erect or geniculately ascending, 75–95 cm long, without nodal roots or rooting from lower nodes. Culm-internodes smooth, distally glabrous. Culm-nodes pubescent. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 3–5 mm long. Leaf-blades ascending, 5.5–10.5 cm long, 5–10 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous, ciliate, hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, lanceolate, 10–16 cm long, 1–1.5 cm wide. Panicle axis scabrous. Panicle branches angular, scabrous. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, angular, 1–3 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse. Floret callus hairs 0.5–1 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 4–5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate. Upper glume ovate, 5–6 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume surface smooth. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 5–6 mm long, membranous, 1-keeled, 3 -veined, acuminate. Fertile lemma ovate, dorsally compressed, 3 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 3–4 mm long overall, with twisted column. Palea with auriculate flaps, 1 length of lemma, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Papuaia. New Guinea.

### **Arundinella fuscata** Steud. *Syn. Pl. Gram.* 116 (1854).

Regarded by K as a synonym (*A. goeringii*).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Java: *Goering 138* .

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. fuscus*, dark; -ata, possessing. Spikelets invested with dark hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 25–125 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a ciliate membrane. Leaf-blades 3.5–26 cm long, 4–15 mm wide, mid-green. Leaf-blade surface smooth, pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open or contracted, lanceolate, equilateral or nodding, 5–35 cm long. Panicle axis scabrous. Panicle branches angular. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, angular, 0.5–6.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 2.75–3.75 mm long, 0.66 length of upper glume, membranous, purple, 1-keeled, 5 -veined. Lower glume surface glabrous or pilose. Lower glume apex acute, mucicous or mucronate. Upper glume ovate, 4.5–5.5 length of adjacent fertile lemma, membranous, purple, 1-keeled, 5 -veined. Upper glume surface glabrous or pilose. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 2.75–3.75 mm long, membranous, 1-keeled, 5 -veined, acute. Fertile lemma ovate, dorsally compressed, 2–2.25 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 4.5–7 mm long overall, with twisted column. Palea with auriculate flaps, 1 length of lemma, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia. Java, Sumatra, Sulawesi.

### **Arundinella goeringii** Steud. *Syn. Pl. Gram.* 116 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*.

**TYPE** from Java: *Goering 138*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Philip Friedrich Wilhelm Goering (1809–79) German botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 25–125 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a ciliate membrane. Leaf-blades 3.5–26 cm long, 4–15 mm wide, mid-green. Leaf-blade surface smooth, pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open or contracted, lanceolate, equilateral or nodding, 5–35 cm long. Panicle axis scabrous. Panicle branches angular. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, angular, 0.5–6.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 2.75–3.75 mm long, 0.66 length of upper glume, membranous, purple, 1-keeled, 5 -veined. Lower glume surface glabrous or pilose. Lower glume apex acute, muticous or mucronate. Upper glume ovate, 4.5–5.5 length of adjacent fertile lemma, membranous, purple, 1-keeled, 5 -veined. Upper glume surface glabrous or pilose. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 2.75–3.75 mm long, membranous, 1-keeled, 5 -veined, acute. Fertile lemma ovate, dorsally compressed, 2–2.25 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 4.5–7 mm long overall, with twisted column. Palea with auriculate flaps, 1 length of lemma, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia. Java, Philippines, Sulawesi, Sumatra.

### **Arundinella gracilis ms** Veldk.

**Accepted by:** J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia. Philippines.

### **Arundinella grandiflora** Hackel. Fedde, *Repert. Nov. Sp.* 8: 514 (1910).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 796).

**Derivation** (Clifford & Bostock 2007): *L. grandis*, large; flos, flower. Spikelets with more florets than those of related species.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 40–70 cm long, 3 -noded. Culm-internodes distally glabrous. Culm-nodes glabrous or pubescent. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Ligule a ciliolate membrane. Leaf-blades linear or lanceolate, 15 cm long, 7 mm wide, stiff. Leaf-blade surface smooth, glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 16 cm long, 2 cm wide. Primary panicle branches appressed, 1–2 -nate, 4–8 cm long. Panicle axis smooth. Panicle branches glabrous. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 5 -veined. Lower glume lateral veins prominent. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate, mucronate. Upper glume ovate, 7

mm long, membranous, 1-keeled, 5 -veined. Upper glume lateral veins prominent. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 6 mm long, membranous, 1-keeled, 5 -veined, acute. Palea of lower sterile floret 0.75 length of lemma. Fertile lemma oblong, 3.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn geniculate, 6 mm long overall, with twisted column. Palea 1 length of lemma, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Yunnan.

### **Arundinella grevillensis** B.K. Simon. *Austrobaileya* 1(5): 463 (1983).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Australia, Queensland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Mt. Greville, *Simon & Sharpe 2528* (HT: BRI-227421; IT: CANB).

**Illustrations (Books):** T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (190, Fig. 29), D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Mt. Greville, south-east Queensland, Australia.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Butt sheaths woolly. Culms 12–25 cm long. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, striately veined, pilose, with tubercle-based hairs. Ligule a ciliolate membrane, 1 mm long. Leaf-blades filiform, involute, 2–4 cm long, 1 mm wide. Leaf-blade surface pilose, sparsely hairy, with tubercle-based hairs.

**Inflorescence.** Inflorescence a panicle, comprising 3–17 fertile spikelets, bearing juvenile spikelets at emergence. Panicle open, oblong, 4–8 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 5 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume ovate, 4 mm long, 0.75 length of upper glume, membranous, 1-keeled, 7 -veined. Lower glume primary vein scaberulous. Lower glume apex acuminate. Upper glume ovate, 5 mm long, 1 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 5 mm long, membranous, 1-keeled, 5 -veined, acute. Palea of lower sterile floret 3.5 mm long. Fertile lemma ovate, 2.5 mm long, coriaceous, without keel. Lemma surface scabrous. Lemma margins involute, interlocking with palea keels. Lemma apex truncate, awned, 1 -awned. Principal lemma awn geniculate, 4.5 mm long overall, with twisted column. Palea with auriculate flaps, 3 mm long, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 1 mm long. Hilum punctiform.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Queensland.

**TDWG4.** South East.

### **Arundinella helferi** ms. Veldk.

More checking of status required (nom. prov.).

**Accepted by:** J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.



**Arundinella hirta** (Thunb.) Tanaka. *Bull. Sc. Hort. Inst. Kyushu Imp. Univ.* 1: 196, 208 [Sept.] (1925).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**Basionym or Replaced Name:** *Agrostis ciliata* Thunb., *Fl. Jap.* 49 (1784).

**Illustrations (Books):** N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (987 (653), Pl.15), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (295, Fig. 114), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (458), C-C Hsu, *Taiwan Grasses* (1975), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 792).

**Derivation** (Clifford & Bostock 2007): L. hairy. Hairy in part or extensively.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes elongated. Culms 50–120 cm long, 1.5–5 mm diam., 4–6 -noded. Culm-internodes distally glabrous or hirsute. Culm-nodes glabrous or pubescent or bearded. Leaves basal and cauline. Leaf-sheaths glabrous on surface to hirsute, outer margin hairy. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades 7–40 cm long, 5–13 mm wide. Leaf-blade surface glabrous to pilose, hairy on both sides. Leaf-blade apex abruptly acute to acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, lanceolate or elliptic, dense or loose, 15–50 cm long, 1.5–9 cm wide, contracted about primary branches. Primary panicle branches 2–17 cm long, bearing spikelets almost to the base. Panicle axis scabrous. Panicle branches scabrous, glabrous or pubescent. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, scabrous, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse. Floret callus hairs 0.33–0.5 length of lemma.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 3–3.7 mm long, 0.7–0.9 length of upper glume, chartaceous, 1-keeled, 3–5 -veined. Lower glume apex acute. Upper glume ovate, 1.5 length of adjacent fertile lemma, 1 length of spikelet, chartaceous, 1-keeled, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 3–3.25 mm long, membranous, 1-keeled, 3(–5) -veined, acute. Fertile lemma lanceolate or ovate, 2.5–3.2 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex entire, acuminate, muticous. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 2.2–2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 24$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** Siberia, Russian far east, **China, Mongolia, Eastern Asia, Russia.** Buryatiya, Chita. Amur, Primorye. China South Central, Inner Mongolia, Manchuria, China North-Central, China Southeast, Tibet, Xinjiang. Japan, Korea, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu.

**TDWG4.** Hebei, Shaanxi, Shandong. Anhui, Fujian, Guangdong, Guangxi, Henan, Hunan, Jiangsu, Jiangxi, Zhejiang, Guizhou, Hubei, Sichuan, Yunnan. Assam.

**Arundinella hispida** (Willd.) Kuntze. *Rev. Gen.* 761 (1891).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Basionym or Replaced Name:** *Andropogon hispidus* Willd., *Sp. Pl.* 4 : 908 (1806).

**Illustrations (Books):** A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (155, Fig. 99 as *A. confinis*), S.A.Renvoize, *Gramineas de Bolivia* (1998) (561, Fig. 130), S.A.Renvoize, *The Grasses of Bahia*, 1984 (98, Fig. 34), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (39, Fig. 20), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (593, 129), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (446, Fig. 189), B.Rosengurt, *Gramineas Uruguayas I* (1970) (220, Fig. 90), G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 171, Fig. 20 (2006)), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (76, Fig. 10).

**Derivation** (Clifford & Bostock 2007): L. bearing coarse stiff hairs. Plant wholly or partly rough to the touch.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 95–185 cm long, 4–5 mm diam. Culm-internodes thin-walled. Culm-nodes pubescent. Lateral branches lacking. Leaf-sheaths hispid. Ligule an eciliate membrane, 0.2–0.3 mm long. Leaf-blades 20–25 cm long, 9–16 mm wide. Leaf-blade surface hispid, hairy adaxially or on both sides, with tubercle-based hairs.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous. Panicle open, lanceolate, dense, 25–30 cm long, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.7–4.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.2–2.9 mm long, 0.66 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume lateral veins ribbed. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 3–5 -veined. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 1.5–2.1 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma lanceolate, 1.5–2 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4–6 mm long overall, with twisted column. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.8–0.9 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia, South America.

**Country /Province /State. Indo-China.** Laos, Vietnam. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Cuba, Dominican Republic, Haiti, Jamaica (& as *A. confinis*), Leeward Is, Windward Islands, Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Argentina Northwest, Argentina Northeast.

**TDWG4.** Roraima, Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Tucuman. Chaco, Corrientes, Entre Rios, Misiones.

**Arundinella holcoides** (Kunth) Trin. *Bull. Sc. Acad. Petersb.* 1: 71 (1836).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)* (& as *A. agrostoides*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Basionym or Replaced Name:** *Brandtia holcoides* Kunth, *Rev. Gram.* 2 : 511. t. 170 (1831).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Holcus* with respect to the inflorescence.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Annual. Butt sheaths pilose. Culms decumbent, 20–45 cm long. Culm-nodes bearded. Leaf-sheaths hirsute, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, 7–15 cm long, 3–10 mm wide, flaccid. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous or pilose above. Panicle open, lanceolate or oblong, 7–15 cm long, 1–2 cm wide, contracted about primary branches. Primary panicle branches 1–6 -nate, 1–3 cm long. Panicle axis scaberulous, pilose, with tubercle-based hairs. Panicle branches scabrous, pilose, bearded in axils. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1–2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume elliptic, 2–2.5 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume

surface pilose, with tubercle-based hairs. Lower glume apex acuminate, awned, 1 -awned. Upper glume elliptic, 3–3.5 mm long, 2 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface pilose, with tubercle-based hairs. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, oblong, 1.5–2 mm long, 1 length of spikelet, membranous, 1-keeled, 3 -veined, acute. Fertile lemma elliptic or oblong, 1 mm long, coriaceous, without keel. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5 mm long overall, with twisted column. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.25–0.4 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** **Indian Subcontinent, Indo-China, Malesia.** India. Myanmar, Thailand. Lesser Sunda Is, Philippines.

Kerala, Karnataka. Madhya Pradesh, Maharashtra, Tamilnadu.

**Arundinella hookeri** Munro ex Keng. *Nat. Centr. Univ. Sci. Rep., Ser. B. Biol.*, 2 No. 3, 50 (1936).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Recent Synonyms:** *Arundinella chenii* Keng, *Nat. Centr. Univ. Sci. Rep., Nanking, Ser. B*, 2 No. 3, 51, reimpr. (1936).

**Illustrations (Books):** H.J.Noltie, *The Grasses of Bhutan* (2000) (751, Fig. 48), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 790).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph Dalton Hooker (1817–1911), English botanist, traveller and Garden's Director.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths glabrous. Culms erect, 20–45 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths hirsute, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blades lanceolate, 3–12 cm long, 3–6 mm wide. Leaf-blade surface scaberulous, rough on both sides, pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous. Panicle contracted, linear, 10–15 cm long, contracted about primary branches. Primary panicle branches 1.5–2 cm long, bearing spikelets almost to the base. Panicle axis glabrous or pilose. Panicle branches scabrous, pilose. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume elliptic, 4–4.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface pilose, hairy on veins, with tubercle-based hairs. Lower glume apex acuminate. Upper glume elliptic, 5–6 mm long, 2–2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface pilose, hairy on veins, with tubercle-based hairs. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, oblong, 4 mm long, 1 length of spikelet, membranous, 1-keeled, 5 -veined, scabrous, rough on midvein, acute. Fertile lemma elliptic or oblong, 2.25–2.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 3–4 mm long overall, with twisted column. Column of lemma awn 1.5 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.25–1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central, Tibet. **Indian Subcontinent, Indo-China.** Eastern Himalaya, India, Nepal. Myanmar.

**TDWG4.** Guizhou, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. West Bengal.

**Arundinella intricata** Hughes. *Kew Bull.* 1920, 112 (1920).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Ritung: *Burkill 373*; India, Mahadeo: *Clarke 155622*; India, Khasia Hills: *Clarke 16588*; India, Boga Pance: Hooker 2001.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. intricata*, entangle. Inflorescence branches entangled.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated. Culms erect or geniculately ascending, 30–60 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule a ciliate membrane. Leaf-blades involute, 10–20 cm long, 2–3 mm wide, coriaceous, stiff. Leaf-blade margins ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, lanceolate or ovate, dense, 5–13 cm long, contracted about primary branches. Panicle axis pilose. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume elliptic, 3 mm long, 0.75 length of upper glume, membranous, purple, 1-keeled, 3–5 -veined. Lower glume surface smooth, glabrous. Lower glume apex acute. Upper glume elliptic, 4–4.5 mm long, 2 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic, 4–4.5 mm long, 1 length of spikelet, membranous, 1-keeled, 5 -veined, acute. Fertile lemma elliptic or oblong, 2–3 mm long, coriaceous, pallid, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–6 mm long overall, with twisted column. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** Tibet. **Indian Subcontinent.** Assam, Eastern Himalaya, India.

**TDWG4.** Arunachal Pradesh. Meghalaya.

**Arundinella kengiana** N.X. Zhao. *Guihaia* 12(3): 219–221, f. 1.. 1992.

Regarded by K as a synonym (*A. hirta*).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Keng Yi-li (1894–1975) Chinese agrostologist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China Southeast.

Anhui.

**Arundinella khasiana** Nees ex Steud. *Syn. Pl. Gram.* 115 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 789).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating location. From the Khasia Hills, India.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Culms robust, 50–105 cm long. Culm-nodes pubescent. Leaf-sheaths scaberulous, pilose, with tubercle-based hairs. Ligule a ciliate membrane, 0.5–1 mm long. Leaf-blades conduplicate or involute, 15–45 cm long, 4–6 mm wide, stiff. Leaf-blade surface scaberulous, rough on both sides, glabrous or pubescent, hairy on both sides. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle smooth or scaberulous above. Panicle open, lanceolate, dense or loose, 15–50 cm long, 5–10 cm wide. Primary panicle branches ascending, 5–11 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, scabrous, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume elliptic, 4–4.5 mm long, 0.75 length of upper glume, membranous, purple, 1-keeled, 5 -veined. Lower glume surface scabrous, rough on veins, pilose, with tubercle-based hairs. Lower glume apex acuminate. Upper glume ovate, 5.5 mm long, 1.5 length of adjacent fertile lemma, membranous, purple, 1-keeled, 5 -veined. Upper glume surface scabrous, rough on veins, pilose, with tubercle-based hairs. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 5.5 mm long, membranous, 1-keeled, 2 -veined, acuminate. Fertile lemma oblong, 3–4 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 5–6 mm long overall, with twisted column. Column of lemma awn 2 mm long. Lateral lemma awns present, arising on apex of lobes, 1 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.5–2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** **China.** China South Central. **Indian Subcontinent, Indo-China.** Assam, India, Myanmar.

**TDWG4.** Yunnan, Assam, Meghalaya, Nagaland.

**Arundinella kokutensis** Teerawat. & Sungkaew. *Kew Bull.* 64: 747 (2009).

**TYPE** from Thailand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Trat:Kot*, 21 Nov 1970, *Charoenphol et al.* 5014 (holo K; iso BK, C, E, NY).

**Illustrations (Journals):** *Kew Bulletin* (64:: 748, Fig.1 (2009)).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** **Indo-China.** Thailand.

**Arundinella laxiflora** Hook. f. *Fl. Brit. Ind.* 7: 75 (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Sri Lanka. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sri Lanka, Central Province: *Thwaites CP 919* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. laxus*, loose; flos, flower. Inflorescence an open panicle.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived. Rootstock not evident, or evident. Culms slender, 30–70 cm long. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliate membrane. Leaf-blades flat or conduplicate or convolute, 7–15 cm long, 3–7 mm wide. Leaf-blade surface smooth, glabrous or pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acuminate, filiform.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous. Panicle open, ovate, 3–6 cm long. Panicle axis smooth. Panicle branches smooth. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, 12–16 mm long, smooth or scaberulous, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume ovate, 3 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough above. Lower glume apex acute. Upper glume ovate, 4.25 mm long, 2.5 length of adjacent

fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface asperulous, rough on veins. Upper glume apex rostrate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 3 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma oblong, 2 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4 mm long overall, with twisted column. Column of lemma awn 1 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.25–1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India, Sri Lanka. Maharashtra.

### **Arundinella leptochloa** (Steud.) Hook. f. *Fl. Brit. Ind.* 7: 76 (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Basionym or Replaced Name:** *Panicum leptochloa* Nees ex Steud., *Syn. Pl. Gram.* 62 (1854).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. leptos, slender; chloa, grass. Inflorescence a slender spike.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths glabrous. Culms 100–200 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blade base broadly rounded. Leaf-blades linear or lanceolate, 10–60 cm long, 5–35 mm wide, coriaceous. Leaf-blade surface smooth, glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous. Panicle open, elliptic or oblong, 20–45 cm long, 10–20 cm wide, contracted about primary branches. Primary panicle branches 5–15 cm long. Panicle axis scabrous. Panicle branches bearing congested spikelets, scabrous, bearded in axils. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 2 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acute. Upper glume ovate, 2.5–3 mm long, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic, 2.5–3.5 mm long, membranous, 1-keeled, 5 -veined, acute. Fertile lemma elliptic or oblong, 1 mm long, chartaceous, light brown, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex entire, obtuse, muticous. Palea with auriculate flaps, chartaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1 mm long. Stigmas 2. Caryopsis with adherent pericarp, 1 mm long. Embryo 0.5 length of caryopsis. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India, Sri Lanka.

**TDWG4.** Goa, Karnataka, Maharashtra, Tamilnadu.

### **Arundinella longispicata** B.S.Sun. *J. Yunnan Univ.* 21:94 (1999).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; *spica*, a point; hence, in particular, an ear or spike of grain.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped loosely. Rhizomes elongated. Culms geniculately ascending, 35–90 cm long, 3 mm diam., 5 -noded. Culm-internodes distally glabrous. Culm-nodes bearded. Leaf-sheaths longer than adjacent culm internode, hispid, with tubercle-based hairs. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades 24–33 cm long, 7–8 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface hispid, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, lanceolate, 30–50 cm long. Primary panicle branches ascending, whorled at most nodes, 10–20 cm long. Panicle axis scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, unequal, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4.7–4.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus pilose. Spikelet callus hairs 0.5 length of spikelet.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 4.2 mm long, 0.9 length of upper glume, membranous, light brown, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume surface glabrous. Upper glume ovate, 4.2–4.8 mm long, membranous, light brown, 1-keeled, 5 -veined. Upper glume primary vein scabrous. Upper glume surface glabrous.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 4.2 mm long, membranous, 1-keeled, 5 -veined. Fertile lemma ovate, 2.4 mm long, coriaceous, without keel. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 3.5 mm long overall, with twisted column.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Yunnan.

## **Arundinella mesophylla** Nees ex Steud. *Syn. Pl. Gram.* 115 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Madras: *Wallich 8663B ex Herb. Wight* (K holotype).

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills Supplement* (1998).

**Derivation** (Clifford & Bostock 2007): Gk *mesos*, middle; L. *phyllon*, leaf.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, slender, 20–45 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliate membrane, 1 mm long. Leaf-blades 5–10 cm long, 4–6 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scaberulous, tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, elliptic or ovate, 4–12 cm long, 2 cm wide, contracted about primary branches. Primary panicle branches 0.5–1.8 cm long. Panicle axis glabrous or villous. Panicle branches glabrous or villous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 4 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface pilose, with tubercle-based hairs. Lower glume apex setaceously acuminate. Upper glume lanceolate, 5.5 mm long, 2.75 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume surface pilose, with tubercle-based hairs. Upper glume apex entire or dentate, 2 -fid, acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic, 2.5 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma oblong, 2 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 6 mm long overall, with twisted column. Column of

lemma awn 3 mm long. Lateral lemma awns present, arising on apex of lobes, 2.5 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.5–1.75 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

*N* = 8 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Kerala. Tamilnadu.

**Arundinella metzii** Hochst. ex Miq. *Verh. Nederl. Inst.* 3, 4: 31 (1851).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Mangalore: *Hohenacker 297* (K iso).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Fr. Metz (1819–1885) who collected in India.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, slender, 10–100 cm long. Culm-internodes smooth or scaberulous. Culm-nodes glabrous or pubescent. Lateral branches lacking. Leaf-sheaths hispid, with tubercle-based hairs, outer margin hairy. Ligule an eciliate membrane. Leaf-blades 10–40 cm long, 3–9 mm wide. Leaf-blade surface pilose, hairy on both sides. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous or pilose above. Panicle open, oblong, 20–50 cm long, 10–25 cm wide, contracted about primary branches. Primary panicle branches 5–15 cm long. Panicle axis scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2–2.5 mm long, 0.5–0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume lateral veins prominent. Lower glume surface asperulous, rough on veins, glabrous or pilose, hairy between veins, with tubercle-based hairs. Lower glume margins eciliate or ciliate. Lower glume apex acute. Upper glume elliptic, 2.75–4.25 mm long, 2.5–4 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface glabrous or pilose, hairy between veins, with tubercle-based hairs. Upper glume margins eciliate or ciliate. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, oblong, 1.75–2.5 mm long, 1 length of spikelet, membranous, 1-keeled, 3 -veined, acute. Fertile lemma elliptic or oblong, 1 mm long, coriaceous, without keel. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 3 mm long overall, with twisted column. Column of lemma awn 1–2 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.6–1 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent, Indo-China.** India, Sri Lanka.

**TDWG4.** Kerala. Maharashtra, Tamilnadu.

**Arundinella montana** S. T. Blake. *Univ. Queensl. Papers, Dept. Biol.*, 1 No. 18, 16 (1941).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia, Queensland:

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Moreton Dist., Mt. Ngungun, in rock crevices, 300–700 ft one of the abundant plants on the upper part of the mountain, *Blake 14143*.

**Illustrations (Books):** No illustration found (BKS).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);



**Derivation** (Clifford & Bostock 2007): *L. mons*, mountain; -ana, indicating location. Growing on mountains.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations extravaginal. Culms 30–90 cm long, 5–13-noded. Leaf-sheaths glabrous on surface or pilose, outer margin glabrous or hairy. Ligule a ciliolate membrane, 0.5–0.7 mm long, truncate. Leaf-blades involute, 5–19 cm long, 2–8 mm wide, stiff. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, linear or lanceolate, 8–23 cm long, 1–3 cm wide, contracted about primary branches. Primary panicle branches appressed, 1–7 cm long, bearing spikelets almost to the base. Panicle axis scabrous. Panicle branches secund. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, 0.3–3 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4–5.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse. Floret callus hairs 1 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, shiny, gaping. Lower glume ovate, 3.3–4.7 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3–7-veined. Lower glume primary vein scaberulous. Lower glume apex acuminate, awned, 1-awned, awn 1.1 mm long. Upper glume lanceolate, 1.4–1.7 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5–7-veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic, 3.4–4.5 mm long, membranous, 1-keeled, 5-veined, obtuse. Fertile lemma elliptic, 2.75–3 mm long, coriaceous, without keel, 5-veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels, ciliolate. Lemma apex dentate, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 3.8–6 mm long overall, with twisted column. Column of lemma awn 1–2 mm long. Palea with auriculate flaps, coriaceous, 2-veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.7–2 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid or oblong, 1.4 mm long. Hilum punctiform.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** South East.

## **Arundinella nepalensis** Trin. *Sp. Gram.* t. 268. (1826).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China 22* (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Nepal. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Nepal; *Wallich s.n. in Herb. Lindley* (HT: LE; IT: K).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (156, Fig. 81as *A. ecklonii*), R.M.Polhill, F.T.E.A., *Gramineae* (2(1974):408, Fig.111), G.V.Pope et al., *Flora Zambesiaca* 10 (3(1989):200, t. 54), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (276, Fig. 247), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (57, Fig. 23), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (67, Fig. 14), H.J.Noltie, *The Grasses of Bhutan* (2000) (751, Fig. 48), C.A.Gardner, *Flora of Western Australia, Vol 1, Part 1, Gramineae* (1952) (223, Pl. 66), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1125, Fig. 324), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales, 4th edn* (2008) (135), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (114), D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002), S-L Chen et al, *Flora of China, Illustrations, Poaceae* (2007) (Fig. 793).

**Images:** D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Nepal.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations extravaginal. Culms erect, 60–80 cm long, 1.5–5 mm diam. Culm-nodes pubescent. Leaves cauline. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades 8–30 cm long, 3–10 mm wide, coriaceous, stiff. Leaf-blade surface glabrous or pilose. Leaf-blade apex obtuse, hardened.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, lanceolate, 10–40 cm long, contracted about primary branches. Panicle branches angular, scaberulous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, angular.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse. Floret callus hairs 0.2–0.3 length of lemma.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume ovate, 3–5 mm long, 0.6–0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute or acuminate or setaceously acuminate. Upper glume ovate, 1.5–2 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume primary vein scabrous. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 1.3 length of fertile lemma, membranous, 1-keeled, 5 -veined, acute. Fertile lemma ovate, dorsally compressed, lanceolate in profile, 2–2.5 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4–6 mm long overall, with twisted column. Palea lanceolate, with auriculate flaps, 1 length of lemma, coriaceous, 2 -veined. Palea surface asperulous. Palea apex dentate, 2 -fid.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.7 mm long. Stigmas 2, protandrous, laterally exerted. Caryopsis with adherent pericarp, oblong. Hilum punctiform. Endosperm farinose.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia, Australasia.

**Country /Province /State.** **West tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean.** Guinea, Mali, Senegal. Kenya, Tanzania. Angola, Malawi, Zambia, Zimbabwe. Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. Madagascar. **Arabian Peninsula, China, Eastern Asia.** Oman. China South Central, China Southeast, Tibet. Japan. **Indian Subcontinent, Indo-China, Malesia.** Assam, Eastern Himalaya, India, Nepal, Pakistan, West Himalaya. Laos, Myanmar, Thailand, Vietnam. Java, Lesser Sunda Is, Philippines. **Australia.** New South Wales, Northern Territory, Queensland, Western Australia.

**TDWG4.** Fujian, Guangdong, Guangxi. Guizhou, Hubei, Yunnan. Darjeeling, Bhutan, Sikkim. Meghalaya, Nagaland. Kerala. Tamilnadu, Uttah Pradesh. Kimberley. Darwin & Gulf, Victoria R & Barkly Tableland. North, Central, South East, Inland. Coast, Tablelands, Western Slopes.

**Arundinella nervosa** (Roxb.) Nees ex Hook. & Arn. *Bot. Beech. Voy.* 237 (1836).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Basionym or Replaced Name:** *Holcus nervosus* Roxb., *Fl. Ind.* 1 : 320 (1820).

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills Supplement* (1998).

**Derivation** (Clifford & Bostock 2007): *L. nervus*, nerve; -osa, abundance. With conspicuous nerves in the glumes or lemmas.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Annual. Culms 15–80 cm long, without nodal roots or rooting from lower nodes. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface to pubescent. Ligule an eciliate membrane. Leaf-blades 12–24 cm long, 3–7 mm wide. Leaf-blade surface glabrous to pilose, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, elliptic or ovate, 6–25 cm long, contracted about primary branches. Panicle axis scabrous. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, bearing a few hairs, hairy at tip.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume ovate, 3.5 mm long, 0.6 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins, glabrous or pilose, hairy on veins. Lower glume apex setaceously acuminate. Upper glume elliptic, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined.

Upper glume surface scabrous, glabrous or pilose, hairy on veins, with tubercle-based hairs. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 3.5 mm long, membranous, 1-keeled, 3 -veined, obtuse. Fertile lemma oblong, 2.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 5–9 mm long overall, with twisted column. Column of lemma awn 2–4 mm long. Lateral lemma awns present, arising on apex of lobes, 2 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.2–1.4 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

**TDWG4.** Meghalaya, Kerala, Karnataka, Maharashtra, Tamilnadu.

**Arundinella nodosa** B.S. Sun & Z.H. Hu. *Acta Bot. Yunnanica* 2(3): 327 (1980).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 789).

**Derivation** (Clifford & Bostock 2007): *L. nodus*, knot; -osa, abundance. Culm nodes swollen.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–45 cm long, 0.8–1.2(–1.5) mm diam., 7–13 -noded. Culm-internodes distally glabrous. Culm-nodes brown, glabrous. Leaf-sheaths hispid, with tubercle-based hairs, outer margin glabrous. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades linear, 4–6 cm long, 1 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 4–6 cm long. Panicle branches angular, scabrous. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, 0.5–2.5 mm long, ciliate, hairy at tip.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 4.5–4.9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse. Floret callus hairs 0.7 mm long, 0.33 length of lemma.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 3.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface hispid. Lower glume hairs white. Lower glume apex acuminate. Upper glume lanceolate or ovate, 4.5–4.9 mm long, membranous, 1-keeled, 5 -veined. Upper glume surface hispid. Upper glume hairs white. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 3.2 mm long, membranous, 1-keeled, 5 -veined, obtuse. Palea of lower sterile floret membranous, 2 mm long. Fertile lemma lanceolate, 2 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 3 -awned. Principal lemma awn geniculate, 6 mm long overall, with twisted column. Column of lemma awn 2.5 mm long. Lateral lemma awns present, 1.5–1.7 mm long. Palea coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Yunnan.

**Arundinella palmeri** Vasey ex Beal. *Grasses N. Ant.* 2: 76 (1896).

Regarded by K as a synonym (*A. hispida*).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Edward Palmer (1831–1911) United States botanist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Culms 100–180 cm long, 2–3 mm diam. Ligule an eciliate membrane. Leaf-blades flat or involute, 10–30 cm long, 5–10 mm wide.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, lanceolate or oblong, 20–35 cm long, contracted about primary branches. Primary panicle branches 10–20 cm long. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 3.5–4 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 3.5–4 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma lanceolate, 1.8–2.3 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4.5–7 mm long overall, with twisted column. Column of lemma awn 1.3–2 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico.

**TDWG4.** Mexico State. Durango. Veracruz. Sonora. Guerrero, Jalisco, Nayarit.

**Arundinella parviflora** B.S. Sun & Z.H. Hu. *Acta Bot. Yunnanica* 2(3): 319 (1980).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 793).

**Derivation** (Clifford & Bostock 2007): *L. parvus*, small; flos, flower. Spikelets small or with few florets.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect, 60–120(–200) cm long, 2–4 mm diam. Culm-internodes distally glabrous. Culm-nodes pubescent. Lateral branches sparse. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades linear or lanceolate, 17–25 cm long, 8 mm wide. Leaf-blade surface pilose, with tubercle-based hairs. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 16–32 cm long, 2–4 cm wide. Panicle axis scaberulous. Panicle branches angular, scaberulous, glabrous. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 2–2.5(–2.7) mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse. Floret callus hairs 0.6 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 1.9–2.7 mm long, 0.75–1 length of upper glume, membranous, purple, 1-keeled, 3–5 -veined. Lower glume apex acuminate. Upper glume ovate, 2–2.5(–2.7) mm long, membranous, purple, 1-keeled, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 2.2–2.6 mm long, chartaceous, 1-keeled, 5 -veined, acute, mucronate. Fertile lemma lanceolate, 1.1–1.8 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 2.4–2.9 mm long overall, with twisted column, limb scaberulous. Column of lemma awn 0.7–1.1 mm long. Palea coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Yunnan.

**Arundinella pilaxilis** B.S. Sun & Z.H. Hu. *Acta Bot. Yunnanica* 2(3): 324 (1980).

Not on *GrassBase*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. pilus*, a hair; *axilis*, arm-pit. Lower axils of inflorescence densely hairy.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, (150–)200–250 cm long, (2–)4–6 mm diam. Culm-internodes distally pubescent or pilose. Culm-nodes pubescent. Leaf-sheaths hispid, with tubercle-based hairs. Ligule a ciliolate membrane. Leaf-blades linear or lanceolate, 28–52 cm long, 8–10 mm wide. Leaf-blade surface pilose, densely hairy, hairy on both sides, with tubercle-based hairs.

**Inflorescence.** Inflorescence a panicle. Peduncle hispid above. Panicle open, oblong, 30–58 cm long, 4–5 cm wide. Primary panicle branches whorled at most nodes, 10–20 cm long. Panicle axis angular, scabrous, pilose. Panicle branches angular, scabrous, pilose. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse. Floret callus hairs 0.5–0.9 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 3–3.5 mm long, 0.8–1 length of upper glume, membranous, purple, 1-keeled, 3–5(–7) -veined. Lower glume primary vein scabrous. Lower glume surface glabrous or pilose, hairy above. Lower glume apex acuminate. Upper glume ovate, 3.5–4 mm long, membranous, purple, 1-keeled, 5 -veined. Upper glume primary vein scabrous. Upper glume surface glabrous or pilose, hairy above. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 3–3.5 mm long, membranous, 1-keeled, 3–5 -veined, obscurely veined, acute. Fertile lemma lanceolate, 1.9–2.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 3.2–3.5 mm long overall, with twisted column. Column of lemma awn 1–1.3 mm long. Palea coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, purple. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Yunnan.

**Arundinella pubescens** Merrill & Hackel. *Philipp. Journ. Sci.* 2: 419 (1907).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Philippine Is., Palawan, Iwahig: *Foxworthy 856*.

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (460), C-C Hsu, *Taiwan Grasses* (1975).

**Derivation** (Clifford & Bostock 2007): *L. pubesco*, become hairy. Plant whole or in part hairy.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms slender, 20–35 cm long, 0.8–1 mm diam., 4–6 -noded. Culm-internodes distally hirsute. Culm-nodes pubescent. Leaves mostly basal. Leaf-sheaths 2–6 cm long, hirsute. Ligule a ciliolate membrane. Leaf-blades 3–10 cm long, 4–6 mm wide, stiff. Leaf-blade surface hirsute, hairy on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, lanceolate or oblong, 12–25 cm long, 1.5–3 cm wide. Primary panicle branches 1.5–4 cm long. Panicle axis glabrous or pubescent. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, recurved at apex. Lower glume lanceolate or ovate, 2.3–2.5 mm long, 0.66 length of upper glume, chartaceous, 1-keeled, 5 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume lanceolate or ovate, 2.5

length of adjacent fertile lemma, 1 length of spikelet, chartaceous, 1-keeled, 5 -veined. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate or ovate, 3 mm long, chartaceous, 1-keeled, 3 -veined, acute. Fertile lemma lanceolate, 2–2.2 mm long, chartaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4.5–5 mm long overall, with twisted column. Palea with auriculate flaps, chartaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China, Eastern Asia. Taiwan. Malesia, Papuasias. Lesser Sunda Is, Philippines. New Guinea West Papua (Irian Jaya). New Guinea.

### **Arundinella pulchra** ms Veldk. Fm ms.

Not on *GrassBase*.

**Accepted by:** J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. beautiful. Attractive in appearance, usually the inflorescence.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia. Philippines, Sulawesi.

### **Arundinella pumila** (Hochst. ex A.Rich.) Steud. *Syn. Pl. Gram.* 114 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**TYPE** from Ethiopia. **Basionym or Replaced Name:** *Acratherum pumilum* Hochst. et A. Rich., *Tent. Fl. Abyss.* 2: 414 (1850).

**Illustrations (Books):** S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (285, Fig. 114), K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (Pl. 718).

**Derivation** (Clifford & Bostock 2007): L. dwarf, low growing. Habit typically depauperate.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 7–50 cm long, 1–3 -noded. Culm-nodes pubescent. Leaf-sheaths outer margin hairy. Ligule an eciliate membrane. Leaf-blades lanceolate, 3–15 cm long, 6–18 mm wide, flaccid. Leaf-blade surface glabrous or pilose, sparsely hairy.

**Inflorescence.** Inflorescence a panicle. Panicle open, obovate, effuse, 5–25 cm long, 2–18 cm wide. Primary panicle branches profusely divided. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1.5–8 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 1.5–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume ovate, 1–1.5 mm long, 0.5–0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute or acuminate. Upper glume ovate, 1.5–2.5 mm long, 1.5–2.5 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume surface glabrous or pilose. Upper glume apex acute or acuminate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 1.3 length of fertile lemma, membranous, 1-keeled, 3 -veined, truncate or obtuse. Fertile lemma ovate, 1 mm long, coriaceous, without keel, 1 -veined, more than 3-veined, one-veined. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 2–3 mm long overall, with twisted column. Column of lemma awn 1–1.5 mm long. Palea with auriculate flaps, 1 length of lemma, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Anthers 3, 0.3 mm long. Caryopsis with adherent pericarp, 1 mm long.

*N* = 12 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia, Tropical Asia.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, Northeast tropical Africa. Ghana, Guinea, Nigeria, Sierre Leone. Cameroon. Ethiopia (inc. Eritrea). **Arabian Peninsula.** Oman. **Indian Subcontinent, Indo-China, Malesia.** Assam, Bangladesh, India, Sri Lanka. Myanmar. Java, Lesser Sunda Is, Sulawesi.

**TDWG4.** Andhra Pradesh, Goa, Kerala, Karnataka. Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamilnadu, Uttah Pradesh, West Bengal.

**Arundinella purpurea** Hochst. ex Steud. *Syn. Pl. Gram.* 74 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Illustrations (Books):** K.M.Mathew, *Flora Palni Hills Supplement* (1998).

**Derivation** (Clifford & Bostock 2007): L. purple to reddish. Usually of purple spikelets.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE.**

**Habit, Vegetative Morphology.** Perennial. Culms 40–85 cm long. Culm-nodes pubescent. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths pilose or hirsute, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blade base broadly rounded. Leaf-blades linear or lanceolate or oblong, 10–20 cm long, 5–10 mm wide. Leaf-blade surface pubescent, densely hairy, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle scaberulous above, pilose above. Panicle open, elliptic or ovate, dense, 4–20 cm long, contracted about primary branches. Panicle axis hispid. Panicle branches hispid. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume orbicular, 2.5–3 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins, glabrous. Lower glume apex acute. Upper glume elliptic, 3.5–4 mm long, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, oblong, 3–3.5 mm long, 1 length of spikelet, membranous, 1-keeled, 3 -veined, acute. Fertile lemma elliptic or oblong, 1.5 mm long, coriaceous, pallid, without keel. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 3 mm long overall, with twisted column. Column of lemma awn 1 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous, pubescent, hairy on back, hairy above.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.75–1.25 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 10$  (1 ref TROPICOS), or  $20$  (1 ref TROPICOS).  $2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent, Indo-China. India. Myanmar.

**TDWG4.** Kerala, Karnataka. Tamilnadu.

**Arundinella ravii** Shaju & N.Mohanan. *Rheedea* 14(1–2): 47–49, f. 1 (2004).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: Kerala: Idukki District: Eravikulam National Park, ca. 1880 m, 8 Nov 2000, *Shaju 43700* (HT: TBGT; IT: CALI, MH).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE.**

**Habit, Vegetative Morphology.** Annual, caespitose. Culms slender, 15–20 cm long. Ligule an eciliate membrane. Leaf-blades 2–10 cm long, flaccid. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, effuse. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets ovate, laterally compressed, 1.5–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate or ovate, 1.5–2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate or ovate, 1.5–2 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 1–1.25 mm long, chartaceous, 1-keeled, 3 -veined, scaberulous, dentate, 2 -fid, mucronate. Palea of lower sterile floret 0.75 mm long. Fertile lemma lanceolate, 1.8 mm long, coriaceous, without keel. Lemma margins involute, interlocking with palea keels. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, setaceously acuminate, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 2.5 mm long overall, with twisted column. Column of lemma awn 1 mm long. Palea with auriculate flaps, 1 mm long, coriaceous, 2 -veined.

**Flower and Fruit.** Anthers 3, 0.25 mm long.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

Kerala.

### **Arundinella rupestris** A. Camus. *Bull. Mus. Hist. Nat. Paris* 25: 367 (1919).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**TYPE** from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: *Cavalerie & Fortunat 2034*; Indochina, Tonkin: *Balansa 1694*; Indochina, Tonkin: *Balansa 4901*;

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. rupe, rock; -estre, place of growth; Growing amongst rocks.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 35–70 cm long. Leaf-sheaths pubescent. Ligule a ciliate membrane. Leaf-blades involute, 15–20 cm long, 2–6 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, linear or lanceolate, 3–15 cm long, 1.5–2 cm wide, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Panicle axis scabrous. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, 0.8–4 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 3.5 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 5 -veined. Lower glume primary vein scaberulous. Lower glume apex acuminate. Upper glume ovate, 1.8 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 3.5–4 mm long, membranous, 1-keeled, 3 -veined, obtuse. Fertile lemma oblong, 2–2.2 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 2–3 mm long overall, with twisted column. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State. China.** China South Central, China Southeast. **Indo-China.** Thailand, Vietnam.

**TDWG4.** Guangxi, Hunan. Guizhou.

### **Arundinella setosa** Trin. *Gram. Panic.* 63 (1826).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).



**TYPE** from Nepal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nepal; *Lindley s.n.* (T: K).

**Recent Synonyms:** *Arundinella macauensis* Bor, *Garcia de Orta*, 13: 524 (1965).

**Illustrations (Books):** C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (462), C-C Hsu, *Taiwan Grasses* (1975) (513, Pl. 1415), K.M. Matthew, *Flora Palni Hills* (1996) (786, Pl. 786), K.M. Matthew, Further Illustrations on the *Flora of Tamilnadu Carnatic* (1988) (Pl. 719 & 720), H.J. Noltie, *The Grasses of Bhutan* (2000) (751, Fig. 48), E.E. Henty, *A Manual of the Grasses of New Guinea* (1969) (31, Pl. 4), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 788 as *A. setosa* var. *setosa*).

**Images:** D. Sharp & B.K. Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O. Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): L. seta, bristle; -osa, abundance. Glumes and/or lemmas awned or attenuated.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Rootstock evident. Butt sheaths glabrous or woolly. Culms 50–100 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface or pilose. Ligule a ciliate membrane. Leaf-blades 10–25 cm long, 2–5 mm wide. Leaf-blade surface glabrous to hirsute. Leaf-blade margins glabrous or ciliate. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, oblong or ovate, nodding, 5–30 cm long, contracted about primary branches. Primary panicle branches 1–15 cm long. Panicle axis smooth or scabrous. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1–2 in the cluster. Pedicels present, scabrous, bearing a few hairs, hairy at tip.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume elliptic, 3.5–5 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate, awned, 1 -awned. Upper glume elliptic, 5.5–7 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic, 3–4.5 mm long, membranous, 1-keeled, 5 -veined, obtuse. Fertile lemma lanceolate, 2.5–3 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 5–9.5 mm long overall, with twisted column. Column of lemma awn 3.5 mm long. Lateral lemma awns present, arising on apex of lobes, 2–3.5 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Embryo 0.6 length of caryopsis. Hilum punctiform.

$N = 16$  (1 ref TROPICOS), or 20 (1 ref TROPICOS).  $2n = 32$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia, Australasia.

**Country /Province /State. China, Eastern Asia.** China South Central, China Southeast. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Assam, Eastern Himalaya, India, Nepal, Sri Lanka. Cambodia, Laos, Myanmar, Thailand, Vietnam. Java, Lesser Sunda Is, Malaya, Philippines, Sulawesi, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea. **Australia.** Northern Territory, Queensland.

**TDWG4.** Anhui, Fujian, Guangdong, Guangxi, Henan, Hunan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan. Bhutan. Assam, Meghalaya, Nagaland. Andhra Pradesh, Bihar, Kerala, Karnataka. Orissa, Tamilnadu, Uttar Pradesh, West Bengal. Darwin & Gulf. North.

**Arundinella spicata** Dalz. Dalz. & Gibs. *Bomb. Fl.* 293 (1861).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L. Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Mahabaleshwar Hills: Coll?.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. spica, thorn; -ata, possessing; Inflorescence a spike or spicate panicle.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, slender, 15–30 cm long, rooting from lower nodes. Leaf-sheaths pilose, with tubercle-based hairs, outer margin hairy. Ligule a

ciliolate membrane. Leaf-blades lanceolate, 2–4 cm long, 3–6 mm wide. Leaf-blade surface pilose, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle antrorsely scabrous above. Panicle spiciform, linear, 2–5 cm long, 0.75–1 cm wide. Panicle axis pubescent. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 5.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2–3 mm long, 0.5 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface pilose, with tubercle-based hairs. Lower glume apex acuminate, awned, 1 -awned. Upper glume lanceolate, 5.5–6 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous, glabrous or pilose. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 2.5 mm long, membranous, 1-keeled, 5 -veined, acute. Fertile lemma oblong, 1 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–6 mm long overall, with twisted column. Column of lemma awn 3 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 0.25 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** India.

Maharashtra.

**Arundinella suniana** S.M. Phillips & S.L. Chen. *Novon* 15(3): 468 (2005).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of B. S. Sun, Chinese agrostologist.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 85 cm long, 3 mm diam. Culm-nodes pubescent. Leaf-sheaths smooth, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades 22 cm long, 2.5–3.5 mm wide. Leaf-blade surface scabrous, glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 10 cm long, 2.5 cm wide. Primary panicle branches 3.5 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1–2 in the cluster. Pedicels present, unequal, 0.5–3 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6.8–7.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus obtuse.

**Glumes.** Glumes persistent, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 6 mm long, 0.8 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface setose, with tubercle-based hairs. Lower glume apex acuminate. Upper glume lanceolate, 7.3 mm long, membranous, 1-keeled, 5 -veined. Upper glume surface setose, with tubercle-based hairs. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic, 6.5 mm long, membranous, 1-keeled, 3 -veined, obtuse. Fertile lemma elliptic or oblong, 3.8 mm long, coriaceous, without keel. Lemma surface pubescent, hairy above. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 6–6.3 mm long overall, with twisted column. Column of lemma awn 2 mm long. Lateral lemma awns present, arising on apex of lobes, 0.7–0.9 mm long. Palea with auriculate flaps, coriaceous, 2 -veined.

**Flower and Fruit.** Anthers 3, 2.5–2.7 mm long.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State. China.** China South Central.

**TDWG4.** Yunnan.

**Arundinella tenggarae** ms Veldk. Fm ms.

Not on *GrassBase*.

**Accepted by:** J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**TYPE** from Indonesia.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): named after the province Nusa Tenggara, where it occurs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** **Malesia.** Lesser Sunda Is.

**Arundinella thwaitesii** Hook. f. *Fl. Brit. Ind.* 7: 77 (1896).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sri Lanka, Ambayanava district: *Thwaites CP 3782* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of George Henry Kendrick Thwaites (1812–1882) English-born botanist, sometime Superintendent Botanic Gardens, Paradeniya, Sri Lanka.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Annual. Culms erect, 43–70 cm long. Culm-nodes glabrous or pubescent. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 3–6 mm wide, stiff. Leaf-blade surface glabrous, hairless except near base. Leaf-blade margins glabrous or tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, elliptic, 9–18 cm long, 3–5 cm wide. Panicle axis smooth. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, laterally compressed, 3.25–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume orbicular, 2 mm long, 0.66 length of upper glume, membranous, purple, 1-keeled, 3 -veined. Lower glume surface asperulous, rough on veins. Lower glume apex obtuse. Upper glume elliptic or orbicular, 3 mm long, 1.3 length of adjacent fertile lemma, 1 length of spikelet, membranous, purple, 1-keeled, 5 -veined. Upper glume surface asperulous, rough on veins. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 3 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma elliptic or oblong, 2.25 mm long, coriaceous, pallid, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex entire, obtuse, muticous. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 2.25 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** **Indian Subcontinent.** Sri Lanka.

**Arundinella tricholepis** B.S. Sun & Z.H. Hu. *Acta Bot. Yunnanica* 2(3): 321 (1980).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. thrix, hair; lepis, scale. Glumes or lemmas hairy.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Rhizomes short, scaly. Culms erect, 115–120 cm long, 2–3 mm diam., 5–6 -noded, without nodal roots or rooting from lower nodes. Culm-internodes distally glabrous. Culm-nodes pubescent. Leaf-sheaths hispid, with tubercle-based hairs, outer margin hairy. Ligule a ciliolate membrane, scarious, truncate. Leaf-blades linear or lanceolate, 20–40 cm long, 8–15 mm wide, herbaceous or coriaceous. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs.

**Inflorescence.** Inflorescence a panicle. Peduncle glabrous. Panicle open, linear or oblong, 42 cm long, 3–5 cm wide. Primary panicle branches ascending, 7 cm long. Panicle axis scaberulous. Panicle branches angular. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 3.9–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse. Floret callus hairs 0.5 mm long.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 2.5–3.2 mm long, 0.75 length of upper glume, membranous, 1-keeled, 5 -veined. Lower glume primary vein scabrous. Lower glume surface pilose, with tubercle-based hairs. Lower glume apex acuminate. Upper glume ovate, 3.9–4 mm long, membranous, 1-keeled, 5–7 -veined. Upper glume primary vein scabrous. Upper glume surface pilose, with tubercle-based hairs. Upper glume apex acute.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 2.5–3.2 mm long, chartaceous, 1-keeled, 5 -veined, acute. Palea of lower sterile floret 2.2 mm long. Fertile lemma ovate, 2–2.2 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 2.7–2.9 mm long overall, with twisted column. Column of lemma awn 0.9 mm long. Palea coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.3 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Temperate Asia.

**Country /Province /State.** China. China South Central.

**TDWG4.** Yunnan.

**Arundinella tuberculata** Munro ex Lisboa. *Bombay Grasses*, 29 (1891).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. tuberculus*, wart; -ata, possessing. Lemmas or glumes bearing wart-like projections.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ARUNDINELLINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect, 40–80 cm long. Culm-nodes bearded. Lateral branches lacking. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a ciliolate membrane. Leaf-blades oblong, 6–12 cm long, 6–11 mm wide. Leaf-blade surface scaberulous, hispid, hairy on both sides, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Panicle open, linear or lanceolate, dense or loose, 7–14 cm long, 1–3 cm wide. Panicle axis scabrous. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume ovate, 5 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins, pilose, hairy on veins, with tubercle-based hairs. Lower glume apex setaceously acuminate. Upper glume lanceolate, 3–3.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface pilose, hairy on veins, with tubercle-based hairs. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, lanceolate, 4.5 mm long, membranous, 1-keeled, 3 -veined, acute. Fertile lemma elliptic or oblong, 2.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 9 mm long overall, with twisted column. Column of lemma awn 4.5 mm long. Lateral lemma awns present, arising on apex of lobes, 1 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 2–3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent. India.

**TDWG4.** Madhya Pradesh, Maharashtra.

**Arundinella vaginata** Bor. *Journ. Ind. Bot. Soc.* 27: 66 (1948).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: : Based on *A. villosa* var. *heynei*.

**Illustrations (Books):** K.M.Matthew, *Flora Palni Hills Supplement* (1998).

**Derivation** (Clifford & Bostock 2007): *L. vagina*, sheath; -ata, possessing. Leaf-sheaths conspicuous.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial. Rootstock evident. Butt sheaths villous. Culms erect, 30–70 cm long. Culm-internodes distally hirsute. Culm-nodes bearded. Leaf-sheaths hirsute, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blades involute or convolute, 20–40 cm long, 3–7 mm wide. Leaf-blade surface scaberulous, rough on both sides, hirsute, hairy on both sides, with tubercle-based hairs. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle hirsute above. Panicle contracted, linear, 15 cm long, contracted about primary branches. Primary panicle branches 3 cm long. Panicle axis villous. Panicle branches bearing congested spikelets, villous. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 6.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume elliptic, 6–6.5 mm long, 0.9–1 length of upper glume, membranous, 1-keeled, 5 -veined. Lower glume surface pilose, hairy on veins, with tubercle-based hairs. Lower glume apex acute, awned, 1 -awned. Upper glume elliptic, 6.5–7 mm long, 2 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5 -veined. Upper glume surface pilose, hairy on veins, with tubercle-based hairs. Upper glume apex caudate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic, 6 mm long, 1 length of spikelet, membranous, 1-keeled, 5 -veined, scabrous, rough at apex or on midvein, acute. Fertile lemma elliptic or oblong, 3.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5.5 mm long overall, with twisted column. Column of lemma awn 3 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1.5–2.25 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indian Subcontinent. India.

**TDWG4.** Kerala. Tamilnadu.

**Arundinella vietnamensis** ms Veldk. FM ms.

Not on *GrassBase*.

**Accepted by:** J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Vietnam.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Indo-China. Vietnam.

**Arundinella villosa** Arn. ex Steud. *Syn. Pl. Gram.* 115 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Sri Lanka: *Herb. Wight 2037* (K holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. villi*, long weak hairs; -osa, abundance. The plant in whole or in part covered with long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial. Rootstock evident. Butt sheaths woolly. Culms 30–60 cm long. Leaf-sheaths pilose, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blades flat or involute or convolute, 20–45 cm long, 2–5 mm wide. Leaf-blade surface glabrous or pilose, with tubercle-based hairs. Leaf-blade apex acuminate, filiform.

**Inflorescence.** Inflorescence a panicle, bearing juvenile spikelets at emergence. Peduncle glabrous or pubescent above. Panicle contracted, linear, 2–18 cm long, contracted about primary branches. Primary panicle branches 1–2.5 cm long. Panicle axis scabrous, pubescent. Panicle branches pilose. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, laterally compressed, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 5–6 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface pilose, with tubercle-based hairs. Lower glume hairs 2.5 mm long. Lower glume apex acuminate. Upper glume elliptic, 2.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, 1-keeled, 5–7 -veined. Upper glume surface pilose, with tubercle-based hairs. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male or barren, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, elliptic, 5 mm long, membranous, 1-keeled, 5 -veined, acute. Fertile lemma oblong, 2.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 6 mm long overall, with twisted column. Column of lemma awn 2.5 mm long. Palea with auriculate flaps, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1–2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State. Indian Subcontinent.** Assam, India, Sri Lanka.

**Arundinella yunnanensis** Keng ex B.S. Sun & Z.H. Hu. *Acta Bot. Yunnanica* 2(3): 326 (1980).

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 794).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Yunnan Province, China.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ARUNDINELLINAE**.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–50 cm long, 1–5 mm diam., 4–7 -noded. Culm-internodes smooth, distally glabrous. Culm-nodes glabrous. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Ligule absent. Leaf-blades 3–10 cm long, 1–3 mm wide. Leaf-blade surface glabrous, hairless except near base.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 8–19 cm long. Primary panicle branches appressed, 2 -nate, 4–7.5 cm long. Panicle axis smooth or scaberulous, glabrous. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse. Floret callus hairs 0.5 length of lemma.

**Glumes.** Glumes persistent, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 2.5–3.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume primary vein smooth or scaberulous. Lower glume apex acuminate. Upper glume ovate, 3.5–4 mm long, membranous, glaucous or purple, 1-keeled, 5 -veined. Upper glume primary vein smooth or scaberulous. Upper glume apex acuminate.

**Florets.** Basal sterile florets 1, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 3.5–4 mm long, membranous, glaucous or purple, 1-keeled, 5 -veined, obtuse. Fertile lemma lanceolate, 2.5–3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 4 mm long overall, with twisted column. Palea 1 length of lemma, coriaceous, 2 -veined. Palea surface asperulous.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy. Anthers 3, 1–2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

**Distribution (TDWG).** Continent. Temperate Asia.  
**Country /Province /State.** China. China South Central, Tibet.  
**TDWG4.** Yunnan.

**Arundo donax** L. Sp. Pl. 81 (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

**TYPE** from Spain & France.

**Illustrations (Books):** G.Hegi, *Flora von Mitteleuropa* 1 (1909), H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (144, Fig. 69), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (229, Fig. 203), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (58, Fig. 24), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 351), L.Boulos, *Flora of Egypt* 4 (2005) (222, Pl. 63), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (371, Pl. 142), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (238, Fig. 87), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (224), C-C Hsu, *Taiwan Grasses* (1975) (383, Pl. 1368 as var *coleotricha*), N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (414, Fig. 44), K.M.Matthew, Illustrations on the *Flora of Tamilnadu Carnatic* (1982) (Pl. 812 & 813), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (22, Fig. 2), H.J.Noltie, *The Grasses of Bhutan* (2000) (645, Fig. 31), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (33, Fig. 21), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (284, Fig. 220), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (132), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (116), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (145, Fig. 22), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (7, Fig. 1), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), E.Edgar. & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000) (420, Fig. 15), W.L.Wagner et al., *Manual of the Flowering Plants of Hawaii'i*, Vol. 2 (1990) (1497, Pl. 219), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (12), F.W.Gould, *The Grasses of Texas* (1975) (53, Fig. 16), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (52, Fig. 27), S.A.Renouze, *Gramineas de Bolivia* (1998) (269, Fig. 54), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (145, Fig. 34), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (301, Fig. 67 & 319, Fig. 72), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, *Gramineas* (1969) (46, Fig. 9), W.Burger, *Flora Costaricensis* 15, *Gramineae: Fieldiana Botany New Series* 4 (1980) (66, Fig. 17), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (50, Fig. 11), B.Rosengurt, *Gramineas Uruguayas I* (1970) (220, Fig. 90), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 32, Fig. 6 (1997)), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 627), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:22(1980)).

**Illustrations (Journals):** *Ruizia* (13:220, Fig 24h-j (1993)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, L.Boulos, *Flora of Egypt* 4 (2005);, R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);,

**Derivation** (Clifford & Bostock 2007): Gk *donax*, a type of reed in Classical literature, so called because the inflorescences move to and fro in the slightest breeze (Gk *doneo*, shake) and so the diaspores are easily dispersed by the wind.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, reed-like, 200–600 cm long. Culm-internodes thin-walled. Leaves cauline. Ligule a ciliolate membrane. Leaf-blades drooping, 20–80 cm long, 10–70 mm wide. Leaf-blade surface smooth. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 30–60 cm long. Primary panicle branches profusely divided. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2–7 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pilose, obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets, similar to fertile lemma in texture. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume apex acute. Upper

glume lanceolate, 1.25 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 6–12 mm long, membranous, without keel, 5–9 -veined, more than 3-veined. Lemma surface villous, hairy below. Lemma hairs 5–8 mm long. Lemma apex acute or acuminate, mucicous or mucronate. Palea 0.5–0.7 length of lemma, 2 -veined. Palea keels ciliolate.

**Flower and Fruit.** Lodicules 2. Anthers 3, 2.5–3 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ovoid, 2 mm long. Embryo 1 length of caryopsis. Hilum punctiform.

$N = 12$  (1 ref TROPICOS), or 32 (1 ref TROPICOS), or 36 (1 ref TROPICOS).  $2n = 100$  (1 ref TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Balears, Corsica, France, Portugal, Sardinia, Spain, Azores. : Albania, Greece, Italy, Crete, Sicily, Turkey Europe, Yugoslavia. Krym. **Northern Africa, Macaronesia, Northeast tropical Africa, South tropical Africa, Southern Africa** (\*), **Middle Atlantic ocean, Western Indian ocean.** Algeria, Egypt, Libya, Morocco, Tunisia. Azores, Canary Is, Cape Verde, Madeira. Ethiopia (inc. Eritrea), Somalia (\*). Zimbabwe. Namibia (?), Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Free State, Kwazulu-Natal, Northern Cape, Western Cape, Eastern Cape. St Helena. Madagascar (\*), Seychelles (\*). **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia.** Kazakhstan, Turkmenistan, Tadzhikistan, Uzbekistan. Afghanistan, Iran, Iraq, Sinai. Gulf States, Oman. China South Central, Hainan, China Southeast, Tibet. Japan, Nansei-Shoto, Ogasawara-shoto, Taiwan. Japan Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, Bangladesh, Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka, West Himalaya. Andaman Is, Cambodia, Laos, Myanmar, Thailand, Vietnam. Borneo, Java, Malaya, Singapore, Moluccas, Philippines, Sumatra, Christmas I. New Guinea PNG, or West Papua (Irian Jaya). New Guinea. **Australia, New Zealand.** New South Wales (\*), Northern Territory (\*), Queensland (\*), South Australia (\*), Western Australia (\*), Lord Howe-Norfolk Is (\*). New Zealand North I, New Zealand South I. **Southwestern Pacific, South-central Pacific, Northwestern Pacific, North-central Pacific.** Fiji (\*), Niue (\*), New Caledonia (\*), Samoa (\*), Tonga (\*), Vanuatu (\*), Wallis-Futuna Is (\*). Cook Is (\*), Easter Is (\*), Marquesas (\*), Society Is (\*). Caroline Is (\*), Marianas (\*), Marshall Is (\*). Hawaii (\*). **Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Missouri, Nebraska. Arizona, California, Nevada, Utah. New Mexico, Texas. Arkansas, Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Bahamas, Bermuda, Cayman Is, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico, Trinidad-Tobago. Venezuela. Bolivia, Colombia, Ecuador, Peru. Argentina Northeast, Chile North, Chile Central.

**TDWG4.** Fujian, Guangdong, Guangxi, Hunan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Sichuan, Yunnan. Bhutan, Sikkim. Assam, Meghalaya. Andhra Pradesh, Bihar, Delhi, Goa, Karnataka, Kerala. Maharashtra, Punjab, Tamilnadu, Uttah Pradesh. Himachal Pradesh. South-West. Central Australia. Southern. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains. Catamarca, La Rioja, Mendoza, Salta. Buenos Aires, Chaco, Cordoba, Distrito Federal, Entre Rios, Formosa, La Pampa, Misiones, Santa Fe. Tarapaca, Antofagasta, Atacama. Coquimbo, Santiago, La Araucania. Distrito Federal, Mexico State, Morelos, Puebla. Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo Leon, Queretaro, Tamaulipas, Zacatecas. Veracruz. Sinaloa, Sonora. Colima, Jalisco, Michoacan, Nayarit, Oaxaca. Chiapas.

**Arundo formosana** Hack. *Bull. Herb. Boiss.* 7: 724 (1899).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Taiwan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Taiwan, Shinchiku: *Makino* .

**Illustrations (Books):** T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (239, Fig 88), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (226), C-C Hsu, *Taiwan Grasses* (1975) (385, Pl. 1369), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 626).

**Images:** R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From Formosa, now Taiwan.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.



**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect or geniculately ascending, reed-like, 50–150 cm long, 2–6 mm diam. Culm-internodes thin-walled. Lateral branches ample. Leaves cauline. Leaf-sheaths longer than adjacent culm internode. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades lanceolate, 10–25 cm long, 5–15 mm wide. Leaf-blade surface smooth. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, lanceolate or elliptic, dense, 10–30 cm long, 3–10 cm wide. Primary panicle branches 2-nate, profusely divided, 5–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–2 mm long.

**Fertile Spikelets.** Spikelets comprising 2–5 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or elliptic, laterally compressed, 6–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–0.7 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 4–7 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 4–9 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 4–6 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma surface villous, hairy below. Lemma hairs 3 mm long. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 2–4.5 mm long overall. Palea 3–4 mm long, 0.6–0.8 length of lemma, 2 -veined.

**Flower and Fruit.** Lodicules 2. Anthers 3, 1.2–1.7 mm long. Ovary glabrous. Caryopsis with adherent pericarp, 2 mm long.

**Distribution (TDWG). Continent.** Temperate Asia, Tropical Asia.

**Country /Province /State.** China, Eastern Asia. Nansei-Shoto, Taiwan. Malesia. Philippines.

**Arundo plinii** Turra. *Farset.* 11 (1765).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Italy. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Italy: Coll?.

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 352).

**Images:** R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): in honor of Gaius Plinius Secundus (23–79 PE) Roman Admiral and Natural Historian.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, reed-like, 100–200 cm long. Culm-internodes thin-walled. Lateral branches lacking. Leaves cauline. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades 15–60 cm long, 5–30 mm wide. Leaf-blade surface smooth. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 20–70 cm long. Primary panicle branches profusely divided. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, glabrous, obtuse.

**Glumes.** Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 7–9 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 7–9 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 7–9 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface villous, hairy below. Lemma hairs 4 mm long. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 1.5–2.5 mm long overall. Palea 0.5–0.7 length of lemma, 2 -veined.

**Flower and Fruit.** Lodicules 2. Anthers 3. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : Balears, Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Italy, Crete, Sicily, Turkey Europe, Yugoslavia. **Northern Africa.** Algeria, Morocco, Tunisia. **Western Asia.** Lebanon-Syria, Turkey.

**Arundoclaytonia dissimilis** G. Davidse & R.P. Ellis. *Ann. Missouri Bot. Gard.*, 74(3): 479 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Brazil, Aripuana R.: *Calderon, Monteiro & Guedes 2706* (INPA holo, CANB, K).

**Illustrations (Journals):** *Ann. Missouri Bot. Gard.* (74: 483, Fig.7 (1987)).

**Derivation** (Clifford & Bostock 2007): L. different. Male and female inflorescences and spikelets dissimilar.

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae. Tribe: Steyermarkochloaeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths absent. Culms erect, 200–300 cm long, firm or woody, with aerial roots from the nodes (lower part). Culm-internodes abbreviated and closely packed at the base, solid (lower part). Lateral branches sparse. Culm-sheaths absent. Leaves basal and cauline, spiral. Leaf-sheaths longer than adjacent culm internode (densely), glabrous on surface. Ligule a ciliate membrane, 0.9–2.1 mm long. Leaf-blades 45–80 cm long, 8–16 mm wide. Leaf-blade midrib indistinct. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex hooded. Monoecious, with male and female spikelets in the same inflorescence.

**Inflorescence.** Synflorescence compound, paniculate.

Inflorescence comprising only a few spikelets, comprising 7–20 fertile spikelets, terminal and axillary, subtended by a spatheole. Sexes segregated, with male above. Spikelets clustered at each node. Fertile spikelets sessile and pedicelled. Male spikelets sessile and pedicelled. Pedicels absent or present, 0.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, curved (slightly), dorsally compressed, 7–19 mm long, falling entire.

**Glumes.** Glumes dissimilar, shorter than spikelet. Lower glume ovate, 1.5–2 mm long, 0.6–0.7 length of upper glume, herbaceous, 1-keeled, 1–3 -veined. Lower glume apex acute. Upper glume ovate, 2.2–3.5 mm long, 0.4 length of adjacent fertile lemma, herbaceous, without keels, 3–5 -veined. Upper glume lateral veins without cross-veins or with cross-veins. Upper glume apex obtuse or acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 3–5.1 mm long, 0.3–0.4 length of spikelet, herbaceous, 7–9 -veined, acute. Fertile florets female. Fertile lemma ovate, 5.7–8 mm long, herbaceous, keeled, 9–11 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface pilose, hairy below (at base). Lemma hairs 1–1.5 mm long. Lemma apex acute. Palea lanceolate, tightly convolute around flower, falcate, 1.3–2.1 length of lemma, spongy (lower part), 9–13 -veined. Palea keels approximate (resulting in a shallow groove). Apical sterile florets distinct from fertile, 1 in number, barren, linear to lanceolate, 0.1–4 mm long.

**Flower and Fruit.** Lodicules absent. Anthers 2, 2.2–2.9 mm long. Filaments free. Stigmas 2. Caryopsis fusiform, 6–7 mm long. Embryo 0.3–0.4 length of caryopsis. Hilum elliptic.

Male spikelets distinct from female, 3–9 flowered, without rhachilla extension or with rudimentary apical florets, elliptic or oblong, 3.5–7.5 mm long. Male spikelet glumes 2. Male spikelet lemma 3–9 -veined.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil North.

**Arundoclaytonia jauensis** Davidse & Vincent. *Novon.*

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Arundinoideae. Tribe: Arundineae. Tribe: Steyermarkochloaeae.

**Distribution (TDWG). Continent.** South America.

**Asthenochloa tenera** Bse. *Miq. Pl. Jungh.* 368 (1854).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*.

**TYPE** from Java. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Java, Pidjungan: *Junghuhn*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. thin. Culms slender.

**Classification.** Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe SACCHARINAE.

**Habit, Vegetative Morphology.** Annual. Culms prostrate, 10–90 cm long, rooting from lower nodes. Ligule an eciliate membrane. Leaf-blades 3–15 cm long, 2–10 mm wide, flaccid.

**Inflorescence.** Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 4–7 cm long. Primary panicle branches spreading. Panicle branches capillary, terete. Racemes bearing a triad of spikelets. Rhachis obsolete. Raceme-bases filiform, pubescent, hairy at tip. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, oblong, flattened, 0.3 mm long, 0.15 length of fertile spikelet, plumose.

**Sterile Spikelets.** Companion sterile spikelets represented by barren pedicels.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, laterally compressed, 2 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse. Spikelet callus hairs 0.5 length of spikelet.

**Glumes.** Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 1 length of spikelet, cartilaginous, without keels, 5 -veined. Lower glume margins ciliolate. Lower glume apex dentate, 2 -fid. Upper glume oblong, cartilaginous, 3 -veined. Upper glume surface pubescent, hairy above. Upper glume apex acute, mucronate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma oblong, 1 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex lobed, 2 -fid, incised 0.4 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 6–8 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

**Flower and Fruit.** Lodicules absent. Anthers 2.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia. Java, Lesser Sunda Is, Sulawesi, Philippines.

**Astrebala elymoides** F. Muell. ex F. M. Bailey. *Grass. Queensl.* 1 (1879).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia, Queensland. **Basionym or Replaced Name:** *Astrebala pectinata* var. *elymoides* F. Muell. ex F.M.Bailey, *Bot Bull. Dept. Agric. Queensland* 13: 15 (1896). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: from North Queensland and from meeting with it the Warrego in 1876 during the long drought' holo: not designated.

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (203, Pl. 60), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1125, Fig. 324), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (136), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (455, Fig. 81), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.Domin, *Bibliotheca Botanica* 85 (1915) (375, Fig. 88).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, similar to. Resembling *Elymus* with respect to the inflorescence.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths glabrous. Culms erect or geniculately ascending, 80–120 cm long, 4–5 -noded. Leaf-sheaths keeled. Ligule a fringe of hairs. Leaf-blades 12–35 cm long, 3–5 mm wide, glaucous. Leaf-blade surface ribbed. Leaf-blade margins scaberulous. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, straight or arcuate, unilateral, 12–35 cm long, 2–3 mm wide. Rhachis flattened, 1–1.5 mm wide. Spikelet packing broadside to rhachis, lax, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 1–2 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, subterete, 10–20 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes 2–4 mm long. Floret callus pubescent.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume linear or lanceolate, 5–12 mm long, 0.5–0.7 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 11–17 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 7–11 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 10–15 mm long, coriaceous, much thinner above, without keel, 3 -veined (in the body), 0–3 -veined. Lemma lateral veins augmented by subsidiaries in lobes. Lemma surface pubescent, hairy at base. Lemma apex lobed, 3 -fid, with simple equal lobes, with linear lobes, incised 0.25–0.8 of lemma

length, awned, 1 -awned. Principal lemma awn 6–12 mm long overall. Palea 8 mm long. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp, oblong, 4–6 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Northern Territory, Queensland, Western Australia.

**TDWG4.** Eremean. Victoria R & Barkly Tableland, Central Australia. North, Central, South East, Inland. Western Slopes, Western Plains.

### **Astrebla lappacea** (Lindl.) Domin. *Biblioth. Bot.* 1, 5: 372 (1915).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Danthonia lappacea* Lindl., *Three Exped. Australia* 1: 309 (1838). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *Coll. Ukn. s.n.*, no date, Australia: along the Bogan (US-0865614 (fragm. ex Cambridge)).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (339, Fig. 271), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (203, Pl. 60), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (136), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (118), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.Domin, *Bibliotheca Botanica* 85 (1915) (373, Fig.86; 374, Fig.87 as *A. triticoides*).

**Derivation** (Clifford & Bostock 2007): *L. lappa*, burr; -acea, indicating resemblance. Lemmas shortly awned and overlapping.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Culms erect or decumbent, 30–80 cm long. Ligule a fringe of hairs. Leaf-blades 10–20 cm long, 4–5 mm wide, glaucous.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1–2, single or paired, straight or arcuate, unilateral, 5–30 cm long. Rhachis flattened. Spikelet packing broadside to rhachis, lax, 1 their length apart, regular, 2 -rowed. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 7–13 mm long, breaking up at maturity, disarticulating above glumes but not between florets.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 0.66 length of upper glume, scarious, 1-keeled, 1–5 -veined. Lower glume apex acute. Upper glume ovate, 7–13 mm long, 1.2 length of adjacent fertile lemma, scarious, without keels, 7–13 -veined. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 6–10 mm long, coriaceous, much thinner above, without keel, 3 -veined (in the body), 0–3 -veined. Lemma lateral veins augmented by subsidiaries in lobes. Lemma surface pubescent. Lemma apex lobed, 3 -fid, with outer lobes longer, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn 4–14 mm long overall. Palea keels pubescent. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 2 mm long.

**Distribution (TDWG). Continent.** Europe (\*), Australasia.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). Australia. New South Wales, Northern Territory, Queensland, South Australia, Western Australia.

**TDWG4.** Eremean. Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, Inland. Western Slopes, Western Plains.

### **Astrebla pectinata** (Lindl.) F. Muell. ex Benth. *Fl. Austral.* 7: 602. (1878).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Danthonia pectinata* Lindl. *Three Exped. Australia* 2: 26 (1838). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Coll. Ukn.* 60, 1836, Australia: eastern Australia (US-0865621 (fragm.)). From Cambridge.

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (340, Fig. 272), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (203, Pl. 60), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (137), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (164, Fig. 25), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (455, Fig. 81), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. pecten, comb; -ata, possessing. Inflorescence with spikes or racemes bearing a fanciful resemblance to a comb.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Rhizomes short. Butt sheaths glabrous. Culms erect, 30–120 cm long, 6–9 -noded. Ligule a ciliate membrane. Leaf-blades 7.5–25 cm long, 3–6 mm wide, glaucous. Leaf-blade surface ribbed. Leaf-blade margins scaberulous. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence composed of racemes, embraced at base by subtending leaf. Racemes 1, single, unilateral, 4–13 cm long, 10–20 mm wide. Rhachis flattened, puberulous on surface. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

**Fertile Spikelets.** Spikelets comprising 2–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–17 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes 0.5 mm long. Floret callus pilose.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 7–14 mm long, 0.9–1 length of upper glume, chartaceous, much thinner on margins, 1-keeled, 5–9 -veined. Lower glume apex acuminate. Upper glume lanceolate or ovate, 8–13 mm long, 0.66–0.75 length of adjacent fertile lemma, chartaceous, with membranous margins, without keels, 7–16 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, 12–17 mm long, coriaceous, much thinner above, without keel, 3 -veined (in the body), 0–3 -veined. Lemma lateral veins augmented by subsidiaries in lobes. Lemma surface villous, hairy below. Lemma apex lobed, 3 -fid, with outer lobes longer, with lanceolate lobes, incised 0.5–0.7 of lemma length, awned, 1 -awned. Principal lemma awn 6 mm long overall. Palea 4–6 mm long. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** New South Wales, Northern Territory, Queensland, South Australia, Western Australia.

**TDWG4.** Kimberley, Eremaean. Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Tablelands, Western Slopes, Western Plains.

**Astrebla squarrosa** C. E. Hubbard. *Kew Bull.* 1928, 259 (1928).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia, Queensland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Longreach, Apr 1913, *Bick s.n.*.

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (341, Fig. 273), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (203, Pl 60), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1129, Fig. 325), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (137), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (455, Fig. 81), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Hooker's Icones Plantarum* (t.3142 (1933)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): L. spreading at right angles from a common axis. Inflorescence arms held at right angles to common axis.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 20–150 cm long. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 15–30 cm long, 3–6 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scaberulous. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence composed of racemes, embraced at base by subtending leaf. Racemes 1, single, unilateral, 7–18 cm long. Rhachis flattened, scabrous on surface. Spikelet packing broadside to rhachis, regular, 2 -rowed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 1.5–2.5 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 2–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 8–11 mm long, breaking up at maturity, disarticulating above glumes but not between florets.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5–10 mm long, 0.8–0.9 length of upper glume, chartaceous, 1-keeled, 1–5 -veined. Lower glume apex acuminate, mucronate. Upper glume elliptic, 6–11 mm long, 1 length of adjacent fertile lemma, chartaceous, without keels, 9–11 -veined. Upper glume apex acuminate, mucronate.

**Florets.** Fertile lemma oblong, 9–12 mm long, coriaceous, much thinner above, without keel, 3 -veined (in the body), 0–3 -veined. Lemma lateral veins augmented by subsidiaries in lobes. Lemma surface villous, hairy below. Lemma apex lobed, 3 -fid, with outer lobes longer, incised 0.4–0.5 of lemma length, awned, 3 -awned. Principal lemma awn hooked, 5 mm long overall. Lateral lemma awns present, 3–4 mm long, shorter than principal. Palea 0.6–0.7 length of lemma. Palea keels ciliate. Palea apex lobed, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, truncate. Anthers 3, 2 mm long. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, 2.5–3 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, Northern Territory, Queensland, South Australia, Western Australia.

**TDWG4.** Kimberley. Darwin & Gulf, Victoria R & Barkly Tableland. NW & Lake Eyre. North, Central, South East. Western Plains.

### **Athroostachys capitata** (Hook.) Benth. *Gen. Pl.* 3: 1209. 1883.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Merostachys capitata* Hook., *Icon. Pl.* 3: t. 273, 274 (1840)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *G. Gardner 136*, Brazil: Rio de Janeiro: common in low woods around Rio, flowers (K (2 sheets); ILT: BM, US-79094). LT designated by Clark, *Bamboo Sci. Cult.* 14(1): 1 (2000). ST: *Tweedie s.n.*, southern Brazil (K).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (20, Fig. 4), E.J.Judziwicz et al, *American Bamboos* (1999) (161, Fig. 72).

**Illustrations (Journals):** *Smithsonian Contributions to Botany* (9: 47, Fig. 19; 49, Fig. 20; (1973)).

**Derivation** (Clifford & Bostock 2007): L. caput, head; -ata, possessing. Inflorescence condensed to a sphere-like structure.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 300–800 cm long, 10–15 mm diam., woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches. Culm-sheaths present. Leaf-sheath oral hairs setose, spreading. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 8–40 cm long, 25–85 mm wide. Leaf-blade venation without cross veins.

**Inflorescence.** Synflorescence bractiferous, globose, with glumaceous subtending bracts, bracts 5 mm long, without axillary buds at base of spikelet.

Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 13–16 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 4–5 mm long, 1 length of upper glume, chartaceous, without keels, 7 -veined. Lower glume apex acute, awned,

1 -awned, awn 2–5 mm long. Upper glume ovate, 4–5 mm long, 0.3–0.4 length of adjacent fertile lemma, chartaceous, without keels, 7 -veined. Upper glume apex acute, awned, 1 -awned, awn 2–5 mm long.

**Florets.** Fertile lemma ovate, 13–16 mm long, coriaceous, keeled, 7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma hairs red. Lemma apex acuminate. Palea 1 length of lemma. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate, 10 mm long.

**Flower and Fruit.** Lodicules 3, oblanceolate, membranous, ciliate. Anthers 3. Stigmas 2.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil West Central, Brazil Northeast, Brazil Southeast.

**TDWG4.** Mato Grosso, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

### **Atractantha amazonica** E.J. Judziewicz & L.G. Clark. *Novon* 1(2): 78 (1991).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Amazonas, Rio Marie: Kubitzki, Calderon & Poppendiek 79–222 (INPA holo, B, CANB, COL, CTES, F, G, ISC, K, LE, MO, NY, P, PE, PRE, SI, SP, TULV, US, USCH, W, WIS).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (41, Fig. 21).

**Illustrations (Journals):** *Novon* (1:79, Fig.2 (1991)).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Amazonas Province, Brazil.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 600 cm long, 40–80 mm diam., woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Lateral branches dendroid. Bud complement 1. Branch complement many, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, 7–9 cm long, 4 times as long as wide, glabrous, glabrous on shoulders. Culm-sheath ligule 0.2–0.3 mm high. Culm-sheath blade triangular, as wide as sheath at base, demarcated but persistent, erect, 3–5 cm long, 14–16 mm wide, acute. Leaves 5–9 per branch. Leaf-sheaths keeled (above), glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, 3–6 mm long, dark (brown). Ligule an eciliate membrane, 0.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long, petiole glabrous. Leaf-blades lanceolate, 10–17 cm long, 10–14 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal. Peduncle 5–13 cm long. Racemes 1, single, 7–15 cm long, bearing 8–13 fertile spikelets on each. Rhachis glabrous on surface. Spikelets appressed or ascending. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, subterete, 20–28 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated between glumes and elongated below proximal fertile floret. Rhachilla elongation 1 mm long (between glumes) or 2–3.5 mm long (below floret).

**Glumes.** Glumes shorter than spikelet, thinner than fertile lemma. Lower glume elliptic, 4.5–5.5 mm long, membranous, without keels, keel-less throughout, 5 -veined. Lower glume apex awned, 1 -awned, awn 1.5–3.5 mm long. Upper glume lanceolate, 6–7 mm long, membranous, without keels, keel-less except near apex, 7 -veined. Upper glume mucronate or awned, 1 -awned, awn 1–3 mm long.

**Florets.** Fertile lemma lanceolate, subterete, 18–23 mm long, 1.2–2 mm wide, coriaceous, without keel, 7–11 -veined, more than 3-veined. Lemma margins convolute, covering most of palea, ciliolate. Lemma apex acuminate, pungent or awned, 1 -awned. Principal lemma awn 1–3 mm long overall. Palea tightly convolute around flower, coriaceous, 4 -veined. Palea keels approximate, ciliolate. Rhachilla extension 10–20 mm long. Apical sterile florets 1 in number, lanceolate, 1–1.5 mm long.

**Flower and Fruit.** Lodicules absent. Anthers 3, 4–10 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. Venezuela. Colombia. Brazil West Central, Brazil North.

### **Atractantha aureolanata** E.J. Judziewicz. *Ann. Missouri Bot. Gard.* 79(1): 166 (1992).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Belmonte: *Soderstrom, Russell & Hage 2148* (CEPEC holo, B, C, CANB, COL, F, G, ISC, K, LE, MO, NY, P, PE, PRE, SGO, SI, SP, US, W, WIS).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. aureus*, golden-yellow; lana, wool; -ata, possessing. Nodes with a skirt of golden woolly hairs.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 1000–2000 cm long, 5–20 mm diam., woody. Culm-internodes terete, solid, dark green or black, smooth, distally glabrous or pubescent. Culm-nodes glabrous. Lateral branches dendroid, intravaginal. Branch complement several, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent or deciduous but leaving a persistent girdle, 6–25 cm long, 4–5 times as long as wide, without basal lobes, glabrous, hairy on margins, auriculate, with 3 mm high auricles, setose on shoulders, shoulders with 5–15 mm long hairs. Culm-sheath ligule 0.5–1 mm high. Culm-sheath blade lanceolate, deciduous, reflexed, attenuate. Leaves 5–13 per branch. Leaf-sheaths pubescent. Leaf-sheath oral hairs setose, 2–12 mm long, pale. Leaf-sheath auricles absent or erect, 1–2 mm long. Ligule an eciliate membrane, 0.2–0.5 mm long. Leaf-blade base cuneate or broadly rounded, with a brief petiole-like connection to sheath, petiole 0.15–0.35 cm long, petiole glabrous or pubescent. Leaf-blades lanceolate, 9–17 cm long, 10–20 mm wide, light green and glaucous, discolorous with last colour beneath. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or puberulous. Leaf-blade apex acute.

**Inflorescence.** Synflorescence bractiferous, fasciculate, 3–5 cm long, lax, with glumaceous subtending bracts and foliaceous subtending bracts, bracts 80–170 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 27–36 mm long, falling entire.

**Glumes.** Glumes both absent or obscure.

**Florets.** Fertile lemma lanceolate, subterete, 27–36 mm long, coriaceous, dark green or black, shiny, without keel, 11–15 -veined, more than 3-veined. Lemma surface smooth or scaberulous, with distinct germination flap, glabrous. Lemma margins convolute, covering most of palea. Lemma apex setaceous acuminate. Palea tightly convolute around flower, 1 length of lemma, chartaceous. Palea keels contiguous above a sulcus, eciliate or ciliate. Palea apex lobed, 2 -fid (lobes 2–4 mm). Rhachilla extension 30 mm long.

**Flower and Fruit.** Lodicules 3, 4–5 mm long, membranous, ciliate. Anthers 3, 10–13 mm long, purple. Stigmas 2. Ovary pubescent on apex. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil. Brazil Northeast.

**Atractantha cardinalis** E.J. Judziewicz. *Ann. Missouri Bot. Gard.* 79(1): 170 (1992).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Una: *Calderon, dos Santos & de Oliveira 2385* (CEPEC holo, ISC, K, MO, NY, P, SI, SP, TULV, US, USCH).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. cardo*, hinge; -alis, pertaining to. Chief or by transfer of meaning red. The secondary branchlets are subtended by reddish bracts.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose, clumped loosely. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 1000–1500 cm long, 5–13 mm diam., woody. Culm-internodes terete, solid, dark green or black, retrorsely scabrous, distally glabrous or pubescent. Culm-nodes glabrous. Lateral branches dendroid, intravaginal. Branch complement several, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent or deciduous but leaving a persistent girdle, 13–33 cm long, 10 times as long as wide, with basal lobes, antrorsely scabrous, glabrous, glabrous on margins, without auricles, setose on shoulders, shoulders with 5–10 mm long hairs. Culm-sheath ligule 1 mm high. Culm-sheath blade linear, deciduous, erect or spreading or reflexed, 3–13 cm long, 1–13 mm wide, attenuate. Leaves 5–13 per branch. Leaf-sheaths glabrous on surface or pubescent, outer margin hairy. Leaf-sheath oral hairs setose, 3–8 mm long, pale. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.2–0.5 mm long. Leaf-blade base cuneate or broadly rounded, with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long,



petiole glabrous or pubescent. Leaf-blades linear or lanceolate, 6–11 cm long, 4–8 mm wide, dark green and light green, discolorous with last colour beneath. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acute.

**Inflorescence.** Synflorescence bractiferous, paniculate, 3–6 cm long, lax, with glumaceous subtending bracts and foliaceous subtending bracts, bracts 70–200 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension or with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 29–35 mm long, falling entire.

**Glumes.** Glumes both absent or obscure.

**Florets.** Fertile lemma lanceolate, subterete, 29–35 mm long, 1.8–2.3 mm wide, coriaceous, without keel, more than 3-veined. Lemma surface with distinct germination flap, pubescent. Lemma margins convolute, covering most of palea. Palea tightly convolute around flower, chartaceous.

**Flower and Fruit.** Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** **Continent.** South America.

**Country /Province /State.** **Brazil.** Brazil Northeast.

**Atractantha falcata** McClure. *Smithsonian Contrib. Bot.*, 9: 48 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Brazil, Esplanada: *Pinto 681* (US holo, CEPEC).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (20, Fig. 4), E.J.Judziewicz et al, *American Bamboos* (1999) (163, Fig. 73).

**Illustrations (Journals):** *Smithsonian Contributions to Botany* (9: 51, Fig. 21 (1973)).

**Derivation** (Clifford & Bostock 2007): *L. falx*, sickle; -ata, possessing. Inflorescence branches curved.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, woody. Culm-internodes terete. Lateral branches dendroid. Branch complement several, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths hispid. Leaf-sheath oral hairs setose. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole pilose. Leaf-blades lanceolate, 5–10.5 cm long, 5–10 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or puberulous. Leaf-blade apex acute.

**Inflorescence.** Synflorescence bractiferous, paniculate, lax, with glumaceous subtending bracts or foliaceous subtending bracts.

Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15 mm long, falling entire.

**Glumes.** Glumes both absent or obscure.

**Florets.** Fertile lemma lanceolate, subterete, 15 mm long, chartaceous, without keel, more than 3-veined. Lemma margins convolute, covering most of palea. Lemma apex acuminate. Palea tightly convolute around flower, chartaceous, 2 -veined. Palea keels approximate, ciliolate.

**Flower and Fruit.** Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG).** **Continent.** South America.

**Country /Province /State.** **Brazil.** Brazil Northeast.

**TDWG4.** Bahia.

**Atractantha radiata** McClure. *Smithsonian Contrib. Bot.* 9: 50 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Brazil, Olivenca: *Froes 19947* (US holo, CEPEC, IAN).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (30, Fig. 8).

**Illustrations (Journals):** *Smithsonian Contributions to Botany* (9: 22, Fig.22: 54, Fig. 23 (1973)).

**Images:** E.J.Judziewicz, E.J., *American Bamboos* (1999);

**Derivation** (Clifford & Bostock 2007): *L. radius*, spoke of a wheel; -ata, possessing. With racemes arranged in fascicles along a central axis.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 500–1200 cm long, 5–10 mm diam., woody. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement three, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, deciduous. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–18 cm long, 20–35 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous or pubescent, sparsely hairy, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Synflorescence bractiferous, globose, 20–30 cm long, with glumaceous subtending bracts, bracts 7–9 mm long, with axillary buds at base of spikelet.

Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15–19 mm long, falling entire.

**Glumes.** Glumes both absent or obscure.

**Florets.** Fertile lemma lanceolate, subterete, 13–17 mm long, chartaceous, dark brown, shiny, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins convolute, covering most of palea. Lemma apex acuminate. Palea tightly convolute around flower, 1.1 length of lemma, chartaceous, 2 -veined. Palea keels approximate, ciliolate. Rhachilla extension 1 length of fertile floret.

**Flower and Fruit.** Lodicules 3, lanceolate, membranous, ciliate. Anthers 3. Stigmas 2(–3). Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast.

Bahia.

***Atactrantha shepherdiana*** Santos-Gonçalves, Filg. & L.G. Clark. *Syst. Bot.* 36 (2): 311 (2011).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Brazil: Espírito Santo: Município de Linhares: Reserva Natural da Vale do Rio Doce, 19°23'27.96"S, 40°4'19.92"W, ca. 60 m, Estrada Jacarandá, próximo ao Aceiro da Aracruz, 14 Oct 2002 (veg.) A.P. Santos-conçalves & K. Matsumoto 510 HT: UEC; IT: IBGE, ISC, K, MBM, MO, RB, SP, UFMG, US

**Illustrations (Journals):** *Systematic Botany* (36: 312, fig.1 (2011)).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

***Aulonemia amplissima*** (Nees) McClure. *Smithsonian Contrib. Bot.* 9: 56 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria amplissima* Nees, *Linnaea* 9(4): 479 (1834)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, no date, Brazil (B; IT: LE-TRIN-3160.01, US-1021434, US-2808846, US-1021433, US-557547).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. amplus*, large; -issima, most. Culms taller than many other species of the genus.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms 200 cm long, woody. Culm-internodes terete. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Culm-sheaths present. Leaf-sheaths striately veined. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or ovate, 15–20 cm long, 15–75 mm wide. Leaf-blade venation with 18–22 secondary veins, without cross veins. Leaf-blade surface scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, effuse, 45 cm long, 20–25 cm wide. Primary panicle branches spreading. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2–5 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, 5–6 mm long, membranous, without keels, 5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 5–7 mm long, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex acute.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

*N* = 20 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast. Minas Gerais, Rio de Janeiro, Espirito Santo.

***Aulonemia aristulata*** (Doell) McClure. *Smithsonian Contrib. Bot.* 9: 56 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria aristulata* Döll, *Fl. Bras.* 2(3): 165, pl. 44 (1880)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *H.A. Weddell MUS. PARIS 1723*, 1858, Brazil (P; IST: US-1445600 (fragm. ex P)). ST: *Regnell II 315*, Brazil: Minas Gerais: ad Caldas.

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineae* (1981–1982) (112, Fig. 25).

**Derivation** (Clifford & Bostock 2007): *L. arista*, bristle; -*ula*, diminutive; -*ata*, possessing. Lemma awned.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 60–300 cm long, woody. Culm-internodes terete, thin-walled. Culm-nodes without obvious supra-nodal ridge. Lateral branches suffrutescent. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, persistent. Leaf-sheaths pilose. Leaf-sheath oral hairs bearded. Ligule an eciliate membrane. Collar pubescent. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades spreading, lanceolate, 10–19 cm long, 12–23 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface scaberulous, rough adaxially, pubescent, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 15–45 cm long. Primary panicle branches spreading. Panicle branches angular, scabrous, with insignificant pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 3–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, 12–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent, hairy at tip.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.7–0.8 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex obtuse, muticous or awned, 1 -awned. Upper glume lanceolate, 0.3–0.4 length of adjacent fertile lemma, membranous, without keels, 5–7 -veined. Upper glume apex obtuse, muticous or awned, 1 -awned.

**Florets.** Basal sterile florets 1, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, elliptic, awned. Fertile lemma elliptic, 8 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 2–3 mm long overall. Palea 0.8–0.9 length of lemma. Palea keels ciliolate. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South.

**TDWG4.** Goias, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

**Aulonemia bogotensis** L.G. Clark X. Londono & M. Kobayashi. *Brittonia* 49(4): 504 (1997).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Colombia, Paramo de Cruz Verde: *Cleef* 2879 (COL holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Bogota, Colombia.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or decumbent or scandent, 30–110 cm long, 1–2.5 mm diam., woody. Culm-internodes terete, thin-walled, 4–10 cm long, distally glabrous. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, persistent, 2.4–6.2 cm long. Culm-sheath blade triangular, deciduous, reflexed, 0.6–3.4 cm long. Leaf-sheaths pubescent. Leaf-sheath oral hairs setose, 2–13 mm long, pale. Ligule an eciliate membrane, 0.5 mm long, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.15 cm long, petiole pubescent. Leaf-blades reflexed, lanceolate, 1.4–4.2 cm long, 2–5 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade margins cartilaginous, serrulate. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 4–14 cm long, 1–2 cm wide. Panicle axis angular, puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–12 mm long, pubescent.

**Fertile Spikelets.** Spikelets comprising 3–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, subterete, 9.7–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1–2.3 mm long.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.5–5.5 mm long, membranous, without keels, 3 -veined. Lower glume primary vein scabrous. Lower glume surface puberulous. Lower glume apex attenuate. Upper glume ovate, 4.8–6.8 mm long, membranous, without keels, 5–7 -veined. Upper glume surface pubescent, hairy above. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Fertile lemma ovate, 3.5–6 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma margins ciliate, hairy above. Lemma apex obtuse. Palea 2.5–5 mm long, 2–4 -veined. Palea keels ciliate, adorned above, with 0.5 of their length adorned. Palea surface puberulous, hairy on back and on flanks, hairy above. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 0.5–0.9 mm long. Anthers 3, 0.8–2.8 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Aulonemia bromoides** Judz. & E. Shea. *J. Bot. Res. Inst. Texas* 4 (2): 570–573, f. 1–3D–F (2010).

**TYPE** from Bolivia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: La Paz: Prov. Franz Tamayo: Senda Apolo-San Jose de Uchupiamonas, a media hora de 3 de Mayo, hacia Turnia, 14°33.654'S [-39.2"]. 68°20.076'W [04.6"], 1824 m [1740 m on Google Earth], hierba graminoide 2 m, tallo hueso, espigas verde plumizo, 22 Apr 2003 HT: LPB; IT: MO-4893775, MO-4893776

**Illustrations (Journals):** *J. Bot. Res. Inst. Texas* (4 (2) 571, Fig.1 (2010)).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 159–200 cm long, 10–12 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Lateral branches dendroid. Culm-sheaths present, 3–18 cm long, glabrous, without auricles, glabrous on shoulders. Culm-sheath ligule 0–5 mm high. Culm-sheath blade lanceolate, erect, 0.25 cm long, 1.5 mm wide. Leaves 3 per branch. Leaf-sheaths striately veined, glabrous on surface or pubescent. Leaf-sheath oral hairs lacking. Leaf-sheath auricles absent. Ligule an eciliate membrane, 20–25 mm long. Collar with external ligule. Leaf-blade base cuneate or broadly rounded, with a brief petiole-like connection to sheath, petiole 0.4–0.6 cm long. Leaf-blades lanceolate or ovate, 18–25 cm long, 53–67 mm wide. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, ovate, effuse, 25–35 cm long, 17–22 cm wide. Primary panicle branches ascending. Panicle branches capillary, scaberulous, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 30–60 mm long.

**Fertile Spikelets.** Spikelets comprising 2 basal sterile florets, 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or oblong, laterally compressed, 40–43 mm long, 3–4.1 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 1.9–2.2 mm long, pubescent.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2.7–4.4 mm long, 0.5–0.66 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume surface glabrous. Lower glume margins ciliolate. Lower glume apex acute. Upper glume lanceolate, 4.8–6.7 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels, 5–7 -veined. Upper glume surface glabrous. Upper glume margins pubescent. Upper glume apex acute.

**Florets.** Basal sterile florets 2 or more, similar, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, lanceolate, 6.1–10.1 mm long, membranous, 7–9 -veined, pubescent on margins, acute. Lemma of upper sterile floret lanceolate, 9–11 mm long, membranous, ciliolate on margins, acute. Fertile lemma lanceolate, 11.7–14.9 mm long, 2.5–2.8 mm wide, chartaceous, without keel, 9–11 -veined, more than 3-veined. Lemma margins ciliolate. Lemma apex acute. Palea elliptic, 8.4–12.5 mm long, 1 length of lemma. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, lanceolate, 1.5 mm long, veined, ciliate, hairy across the apex. Anthers 3, 3.6–6.2 mm long, orange.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

**Aulonemia boliviana** Renvoize. *Gr. Boliv.* 39 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Bolivia, Yollossa: *Renvoize 4779* (LPB, K).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (34, Fig. 3).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating location. From Bolivia.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning or scandent, 5 mm diam., woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths striately veined. Leaf-sheath oral hairs ciliate, erect, 1–3 mm long. Leaf-sheath auricles erect. Ligule an eciliate membrane. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–19 cm long, 15–30 mm wide. Leaf-blade surface scabrous, glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 20–26 cm long. Primary panicle branches spreading. Panicle branches glabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 10–45 mm long.

**Fertile Spikelets.** Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 12–30 mm long, 0.5–1 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–2 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 3–4 mm long, membranous, without keels, 7 -veined. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate or oblong, 6 mm long, herbaceous, purple, without keel, 7–9 -veined, more than 3-veined. Lemma margins ciliate, hairy above. Lemma apex acute. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

**Aulonemia chimantaensis** E.J. Judziewicz & G. Davidse. *Novon* 1(2): 80 (1991).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: J.A. Steyermark, O. Huber & V. Carreño-Espinosa 128369, 30 Jan 1983–1 Feb 1983, Venezuela: Bolívar: Dist. Piar: altiplanicie en la base meridional de los farallones superiores del Apacara-tepuí, drier part of savanna bordering large swampy savana, 5°20'N, 62°12'W, ca. 2200 m, plants branching, 1–1.5 m tall, in large colony (MO-3018574; IT: BRI, ISC, K, PRE, SP, US-3084364, US-2982031, VEN).

**Illustrations (Books):** J.A. Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (43, Fig. 23).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Maizo del Chimanta District, Venezuela.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 100–150 cm long, woody. Culm-internodes terete, smooth. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Culm-sheaths present. Leaf-sheath oral hairs setose, 10–20 mm long, dark. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–0.6 cm long. Leaf-blades lanceolate, 11–14 cm long, 15–35 mm wide. Leaf-blade surface scabrous, rough abaxially, puberulous, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Peduncle 5–15 cm long, antrorsely scabrous above. Panicle open, ovate, 22–28 cm long. Primary panicle branches ascending, 6–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 9–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 13–40 mm long, 1.8–2.5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 1.5–1.7 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–4.5 mm long, membranous, without keels, 3–5 -veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, developed, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret present, similar to upper glume, ovate, 4.5–6 mm long, purple, 3–5 -veined, acute. Fertile lemma ovate, (6–)8–10 mm long, 3–4 mm wide, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface glabrous or puberulous. Lemma margins ciliolate. Lemma apex obtuse. Palea 7–9 mm long. Palea keels ciliolate.

**Flower and Fruit.** Lodicules 3, 0.9–1 mm long, veined, ciliate. Anthers 3, 2.5–3.3 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Aulonemia deflexa** (N.E. Brown) McClure. *Smithsonian Contrib. Bot.* 9: 56 (1973).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guyana. **Basionym or Replaced Name:** *Arundinaria deflexa* N.E. Br., *Trans. Linn. Soc. London, Bot.* 6(1): 75 (1901). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: F.V. McConnell & J.J. Quelch 678, 1898, Guyana: (K; IT: US-2808842 (fragm. ex K), US-1039476 (ex K)).

**Recent Synonyms:** *Arthrostylidium steyermarkii* McClure, *Fieldiana, Bot.*, 28 No. 1, 31 (1951).

**Illustrations (Books):** J.A. Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (44, Fig. 24), E. Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (79, Fig. 11).

**Derivation** (Clifford & Bostock 2007): L. bent abruptly downwards. Inflorescence branches drooping.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 100–150 cm long, 4–5 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary, as thick as stem. Culm-sheaths present. Leaf-sheaths keeled, striately veined, glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs setose, 10–18 mm long. Ligule an eciliate membrane, 1 mm long, brown, erose, truncate. Collar with external ligule. Leaf-blade base cuneate or broadly rounded, symmetrical, with a brief petiole-like connection to sheath, petiole 0.3–0.4 cm long, petiole glabrous. Leaf-blades reflexed, deciduous at the ligule, lanceolate, 12–15 cm long, 22–28 mm wide. Leaf-blade midrib indistinct. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle 10–30 cm long. Panicle open, pyramidal, effuse, 12.5–28 cm long, 2.5–5 cm wide. Primary panicle branches ascending, 10–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 6–60 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 11–13 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2–3 mm long, 0.5 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 4–5 mm long, 0.5–0.75 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1. Lemma of lower sterile floret lanceolate, 6–7 mm long, 5–7 -veined, obscurely veined. Fertile lemma lanceolate, 8–10 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma margins ciliolate. Lemma apex acute. Palea 8 mm long. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 4 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Guyana, Venezuela.

**Aulonemia dinirensis** Judz. & Riina. *Bamboo Sci. Cult.* 19(1): 11–15, f. 1–2 (2005).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela: Lara: Parque Nacional Dinira, vertiente hacia El Tocuyo, sector "La Lajita." camino hacia "La Lajita," 9°32'47"N, 80°05'38"W, 2700 m, vegetación herbácea con arbustos dispersos o agrupados en pequeñas islas, bambusillo de 1 m alto, espiguillas verde-grisáceas, frecuente en ladera, 15 Aug 1999, R. Diina, R. Duno, R. Ghinaglia & R. Gonto 713 (HT: VEN; IT: ISC, MO, SI).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 40–80 cm long, 3–4 mm diam., woody. Culm-internodes terete, thick-walled, distally pruinose. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement one. Culm-sheaths present. Leaves 4–5 per branch. Leaf-sheaths without keel, striately veined, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.4–0.6 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole glabrous. Leaf-blades reflexed, deciduous at the ligule, lanceolate, 7–10 cm long, 10–23 mm wide. Leaf-blade surface puberulous, hairy on both sides. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 20–25 cm long, 8–10 cm wide. Panicle branches capillary, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 8–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25–35 mm long, 1.5–2.7 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2–2.5 mm long, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume lanceolate, 5–5.7 mm long, membranous, 3–5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 8–10 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex apiculate, mucronate. Palea 6.5–7.5 mm long, 2 -veined.

**Flower and Fruit.** Anthers 3, 3 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Aulonemia effusa** (Hackel) McClure. *Smithsonian Contrib. Bot.* 9: 56 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria effusa* Hack., *Oesterr. Bot. Z.* 53(2): 71 (1903)

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IST: *A.F.M. Glaziou 15623*, no date, Brazil: Rio de Janeiro (US-1021437, US-1021438, US-1021439, US-1021440, US-2808861, US-1127456, US-1127451). ST: *Glaziou 16627*, Brazil: Rio de Janeiro (W). ST: *Glaziou 17449*, Brazil: Rio de Janeiro (W). ST: *Glaziou 17915*, Brazil: Rio de Janeiro (W).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. spread out. Inflorescence an open panicle.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 150 cm long, 5 mm diam., woody. Culm-internodes terete, thin-walled. Culm-nodes without obvious supra-nodal ridge. Lateral branches suffrutescent. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, deciduous, setose on shoulders. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4 cm long. Leaf-blades lanceolate, 10–15 cm long, 20–25 mm wide, mid-green or glaucous, discolorous with last colour beneath. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, globose, effuse, 40 cm long. Primary panicle branches 1-nate, 20–30 cm long. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 20–30 mm long, 3 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas, scaberulous.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3 mm long, 0.5 length of upper glume, membranous, without keels, 1-veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 6 mm long, 0.75 length of adjacent fertile lemma, membranous, without keels, 3-veined. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, lanceolate, 6 mm long, 5-veined, obtuse, mucronate. Fertile lemma elliptic, 7–8 mm long, chartaceous, without keel, 5–7-veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute, mucronate. Palea 1 length of lemma. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1.5 mm long, ciliate. Anthers 3, 3 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

**TDWG4.** Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

**Aulonemia fimbriatifolia** L.G.Clark. *Revista Brasil. Bot.* 27(1): 31 (-36; fig. 1A-B). (2004).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: São Paulo: Alto da Serra. mata de Estação Biológica, 6 Oct 1936, flowers, *F.C. Hoehne & A. Gerht s.n.* (HT: SP-36504; IT: US-1764156, US-1764157, US-2926655).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *fimbriae*, fringe; *-ata*, possessing; *folium*, leaf.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or scandent, 150–400 cm long, 5–10 mm diam., woody. Culm-internodes terete, 30 cm long, distally glabrous. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement one. Culm-sheaths present, 10–15 cm long, glabrous, setose on shoulders, shoulders with curved hairs, shoulders with 10–30 mm long hairs. Culm-sheath blade lanceolate, narrower than sheath, deciduous, reflexed, 6–12 cm long. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, flat, curly, 30–120 mm long, pale. Ligule a ciliate membrane. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades lanceolate, 17.5–30 cm long, 22–60 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins ciliate (fimbriate), hairy at base. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, 28–45 cm long. Primary panicle branches ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 5–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 30–50 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes several, 3 empty glumes, persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 1.7–3.2 mm long, membranous, without keels. Lower glume apex mucronate or awned, 1-awned, awn 2.2–3 mm long. Upper glume lanceolate, 5–7.5 mm long, membranous, without keels. Upper glume awned, 1-awned, awn 2–2.3 mm long.



**Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret lanceolate, 7.5–9 mm long, awned. Awn of lower sterile floret 1.2–3.6 mm long. Fertile lemma lanceolate, 6.5–9.5 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma apex awned, 1 -awned. Principal lemma awn 2.4–5 mm long overall. Palea 5–7 mm long.

**Flower and Fruit.** Anthers 3, 3.5 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast, Brazil South.

**Aulonemia glaziovii** (Hackel) McClure. *Smithsonian Contrib. Bot.*, 9: 56 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria glaziovii* Hack., *Oesterr. Bot. Z.* 53(2): 72 (1903). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziou 18614*, no date, Brazil: Minas Gerais (W; IT: US-2808856 (fragm. ex W), US-1163027 (fragm. ex W)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. phyton, plant. In honor of Auguste Francois Marie Glaziou (fl. 1833–1906) French-born artist and Brazilian botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Culm-sheaths present. Leaf-sheath oral hairs setose, 20 mm long. Ligule an eciliate membrane, 1–2 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long, petiole glabrous. Leaf-blades lanceolate, 12–15 cm long, 20 mm wide, stiff. Leaf-blade venation with 12 secondary veins, with distinct cross veins. Leaf-blade margins smooth. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, dense, 13–18 cm long, with spikelets clustered towards branch tips. Primary panicle branches 1 -nate, 5–10 cm long. Panicle axis smooth. Panicle branches capillary, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 30 mm long, 2.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, 4 mm long, membranous, without keels, 5 -veined. Upper glume apex obtuse, mucronate.

**Florets.** Fertile lemma ovate, 6 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent, hairy at base. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn 2 mm long overall. Palea 1 length of lemma. Palea keels scaberulous.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 3, 4 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.  
Minas Gerais, Rio de Janeiro, Espirito Santo.

**Aulonemia goyazensis** (Hackel) McClure. *Smithsonian Contrib. Bot.* 9: 56 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria goyazensis* Hack., *Oesterr. Bot. Z.* 53(2): 71 (1903). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziou 22615*, 16 Feb 1894, Brazil: Goiás (W; IT: US-2808855 (fragm. ex W), US-1021441 (fragm. ex W), US-1127448 (fragm. ex W), US-1646516 (fragm. ex W)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Goyaz Province, Brazil.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement one or two. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, 13 mm long. Ligule an eciliate membrane, 0.2 mm long. Collar with

external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole glabrous. Leaf-blades lanceolate, 10–20 cm long, 20–30 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface smooth, glabrous. Leaf-blade margins smooth or scaberulous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate or globose, effuse, 9–18 cm long. Primary panicle branches 1-nate, bearing 3–6 fertile spikelets on each lower branch. Panicle axis smooth. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5 mm long, smooth.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 20–30 mm long, 10–25 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 6 mm long, glabrous.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 4 mm long, membranous, red, without keels, 3 -veined. Lower glume apex acute, mucronate. Upper glume ovate, 6 mm long, membranous, red, without keels, 7 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 10 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins without cross-veins. Lemma apex acute. Palea 1 length of lemma, 6 -veined.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 3, 6 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast. Goias.

**Aulonemia haenkei** (Ruprecht) McClure. *Smithsonian Contrib. Bot.* 9: 56 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Arthrotylidium haenkei* Rupr., *Bambuseae* 27, t. 3, f. 12 (1839)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke* 598, Peru (PR; IT: LE-TRIN-3178.01 (fragm. ex PR), US-78827).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Thaddaeus Peregrinus Xaverius Haenke (1761–1816), Bohemian botanist who travelled widely in the Pacific.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 150–200 cm long, woody. Culm-internodes terete. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary, as thick as stem. Culm-sheaths present. Leaf-sheaths striately veined. Leaf-sheath oral hairs setose. Ligule an ciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 5–23 cm long, 40–60 mm wide. Leaf-blade venation without cross veins.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 30–40 cm long. Primary panicle branches ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 15–20 mm long, 2–5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3 mm long, 0.75 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 0.5 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, 7.5–8 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America.** Ecuador, Peru.

**Aulonemia herzogiana** (Henrard) McClure. *Smithsonian Contrib. Bot.* 9: 56 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. **Basionym or Replaced Name:** *Arundinaria herzogiana* Henrard, *Meded. Rijks-Herb.* HT: *T. Herzog 2396*, Oct 1911, Bolivia: Río Saujana (L; IT: US). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Herzog 2396*, Oct 1911, Bolivia: Río Saujana (L; IT: US).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (40, Fig. 5).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Theodor Herzog (1880–1961) German botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 300–6700 cm long, 0.5–4 mm diam., woody. Culm-internodes alternately elongated and bunched, terete, thin-walled. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Leaf-sheaths smooth. Leaf-sheath oral hairs setose, erect, 10–40 mm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 15–30 cm long, 10–35 mm wide. Leaf-blade surface scabrous, glabrous or pilose or hispid, sparsely hairy. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, dense, 10–30 cm long. Panicle branches flexuous, scabrous. Spikelets solitary. Fertile spikelets sessile or pedicelled. Pedicels present, filiform, 5–20 mm long.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15–30 mm long, 0.5–1 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–4 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 1–3 mm long. Upper glume ovate, 3–4 mm long, membranous, without keels. Upper glume apex acute, awned, 1 -awned, awn 0.5–5 mm long.

**Florets.** Fertile lemma lanceolate, 8–10 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acute, muticous or awned, 1 -awned. Principal lemma awn 3.5 mm long overall. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 6 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** **Continent.** South America.

**Country /Province /State.** **Western South America.** Bolivia.

**Aulonemia hirtula** (Pilger) McClure. *Smithsonian Contrib. Bot.* 9: 56 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Arundinaria hirtula* Pilg., *Repert. Spec. Nov. Regni Veg.* 17(19–30): 445 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Weberbauer 7031*, Aug 1914, Peru: La Libertad: Prov. Pataz (B; IT: US-1126709 (fragm. ex B), US-2808853 (fragm. ex B), US-1498110 (fragm. ex B), US-1517225 (fragm. ex B)).

**Illustrations (Journals):** *Ruizia* (13:24, Fig.1h-i (1993)).

**Derivation** (Clifford & Bostock 2007): L. hirtus, hairy; -ula, diminutive. Somewhat hairy with respect to some or all parts.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 150–200 cm long, woody. Culm-internodes terete. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary, as thick as stem. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 8–12 cm long, 9–10 mm wide. Leaf-blade venation without cross veins. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 10–15 cm long. Primary panicle branches appressed. Panicle branches capillary, flexuous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 22–28 mm long, 2–5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2 mm long, 0.5 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 0.5 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, 10 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acute. Apical sterile florets resembling fertile though underdeveloped.  
**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.  
**Distribution (TDWG). Continent.** South America.  
**Country /Province /State.** Western South America. Ecuador, Peru.

**Aulonemia humillima** (Pilger) McClure. *Smithsonian Contrib. Bot.* 9: 58 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Arundinaria humillima* Pilg., *Verh. Bot. Vereins Prov. Brandenburg* 47: 100 (1905)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *E. Ule* 6598, Nov 1902, Peru: Loreto (B; IT: US-2808852 (fragm. ex B)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. most low growing. Low growing with respect to related species.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 50–70 cm long, woody. Culm-internodes terete. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary, as thick as stem. Culm-sheaths present. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs setose. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 6–12 cm long, 5–8 mm wide. Leaf-blade venation without cross veins.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, effuse, 10 cm long. Panicle branches capillary. Spikelets ascending or spreading, solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 10–20 mm long.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 9–10 mm long, 0.5–1 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–2 mm long.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.5 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 0.5 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex obtuse.

**Florets.** Fertile lemma lanceolate, 4.4–4.6 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Peru.

**Aulonemia jauaensis** E.J. Judziewicz & G. Davidse. *Novon* 1(2): 83 (1991).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Venezuela, Cerro Jaua: *Steyermark* 98093 (US holo, F, NY).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (43, Fig. 22).

**Illustrations (Journals):** *Novon* (1:81, Fig.3 (1991)).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Cerro Jaua, Venezuela.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 500–1000 cm long, 10 mm diam., woody. Culm-internodes terete, thick-walled, smooth, distally glabrous. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, 10–20 mm long, dark. Ligule an eciliate membrane, 0.5–0.7 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.6 cm long. Leaf-blades lanceolate or ovate, 15–20 cm long, 30–45 mm wide. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Peduncle 25–30 cm long. Panicle open, ovate, 25–30 cm long. Primary panicle branches ascending, 8–12 cm long. Panicle branches stiff, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 5–23 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, curved, subterete, 20–70 mm long, 2–3.5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–4 mm long.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2.5–3 mm long, membranous, purple, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume ovate, 5–6 mm long, membranous, purple, without keels, 5–7 -veined. Upper glume surface puberulous. Upper glume apex obtuse or acute.

**Florets.** Basal sterile florets 1, developed, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret present, similar to upper glume, ovate, 7–8 mm long, 3–5 -veined, acute. Fertile lemma ovate, 10–13 mm long, 4 mm wide, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex acute. Palea 7–8 mm long. Palea keels ciliolate.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Aulonemia laxa** (F. Maekawa) McClure. *Smithsonian Contrib. Bot.* 9: 58 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Matudacalamus laxis* F. Maek., *J. Jap. Bot.* 36(10): 345 (1961). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Maekawa & Tateoka 603183*, Mexico: Chiapas (TI; IT: MEXU).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. loose. Inflorescence much branched either as a single panicle or from branching of the culms.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 100–120 cm long, 4–4.5 mm diam., woody. Culm-internodes terete, thin-walled, 7.5–21 cm long. Lateral branches dendroid, erect. Bud complement 1. Branch complement one, solitary. Culm-sheaths present. Leaf-sheaths 7.5–10 cm long, glabrous on surface. Leaf-sheath oral hairs setose, 15–20 mm long. Ligule an eciliate membrane, 0.8–1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 15–24.5 cm long, 42–48 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 30 cm long. Primary panicle branches 3–4 in number, ascending or spreading or drooping. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 35–48 mm long, 3 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 8 mm long.

**Glumes.** Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 13 mm long, membranous, without keels.

**Florets.** Fertile lemma ovate, 17–20 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 8.5–14.2 mm long overall. Palea 15 mm long. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 2.8 mm long. Anthers 3, 10.5 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Gulf (Mexico), Southwest Mexico, Southeast Mexico.

**Aulonemia longiaristata** L.G. Clark & X. Londono. *Ann. Missouri Bot. Gard.* 77(2): 353 (1990).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Camp E-2177*, 10 March 1945, Ecuador: Azuay: 2745 m (US-2011118; IT: NY).

**Illustrations (Books):** No illustration found (BKS).

**Images:** E.J.Judziewicz, E.J., *American Bamboos* (1999);.

**Derivation** (Clifford & Bostock 2007): L. longus, long; arista, bristle. Lemmas or glumes long awned.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, erect at the tip or inclined at the tip, 200–400 cm long, 9–18 mm diam., woody. Culm-internodes terete, thin-walled, 30–40 cm long, distally glabrous. Culm-nodes swollen, with distinct supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, 10.5–13 cm long, auriculate, setose on shoulders. Culm-sheath blade lanceolate, reflexed, 4.5–5.5 cm long. Leaf-sheaths keeled, glabrous on surface, outer margin glabrous. Leaf-sheath oral hairs setose, erect, 15–40 mm long. Leaf-sheath auricles falcate. Ligule an eciliate membrane, 0.5–1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–1.2 cm long. Leaf-blades reflexed, ovate, 14–29 cm long, 35–100 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface smooth or scabrous, rough abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 14–20 cm long. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 10–15 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 24–34 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2.5–5 mm long, pubescent. Floret callus evident, 3–5 mm long.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5–6 mm long, membranous, without keels, 3 -veined. Lower glume surface pubescent. Lower glume apex acute, awned, 1 -awned, awn 1–4 mm long. Upper glume lanceolate, 6–7 mm long, membranous, without keels, 5–7 -veined. Upper glume surface pubescent. Upper glume apex acuminate, awned, 1 -awned, awn 3.7–4.8 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 11–13 mm long, membranous, 7–9 -veined, pubescent, awned. Awn of lower sterile floret 4.5–5.5 mm long. Fertile lemma ovate, 10–20.4 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn straight or curved, 9.5–20 mm long overall. Palea 2.5–11.2 mm long, 4 -veined. Palea surface pubescent. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 5–5.4 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Ecuador.

### ***Aulonemia longipedicellata*** Renvoize. *Gr. Boliv.* 41 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolivia, Nor Yungas: *Solomon 5205* (LPB holo, MO).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (34, Fig. 3).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; pedicellus, stalk; -ata, possessing. Spikelets with long pedicels.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning, 200 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 3 mm long. Leaf-blade base cordate, asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 12–14 cm long, 30 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 20–23 cm long. Panicle branches glabrous, with insignificant pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 30–90 mm long.

**Fertile Spikelets.** Spikelets comprising 6–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15–23 mm long, 0.5–1 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.5–2 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 2.5–3.5 mm long, membranous, without keels, 3 -veined. Upper glume margins ciliate. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 6–6.5 mm long, herbaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.  
**Country /Province /State.** Western South America. Bolivia.

**Aulonemia nitida** Judz. *Sida* 21(3): 1263–1265, f. 1 (2005).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Guyana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Guyana: Potaro-Sipuaruni Region, upper slopes of Mt. Wokomung, 5°05'N, 59°50'W, 1530 m, Hedyosmum-bamboo dominated moist forest, bamboo with culms at base to 2 cm diam., overall height 4 m, common and at times dense on upper slopes, sterile, 14 Jul 1989, *B.M. Boom & G.J. Samuels* 9224 (HT: FDG; IT: MO (3 sheets), NY).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500 cm long, 25 mm diam., woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary. Leaves 5 per branch. Leaf-sheaths keeled, smooth (shiny), glabrous on surface. Leaf-sheath oral hairs setose, spreading, 12–20 mm long, pale. Ligule an eciliate membrane, 1–7.5 mm long. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.7–1 cm long. Leaf-blades lanceolate or ovate, 25–37 cm long, 70–105 mm wide. Leaf-blade venation without cross veins. Leaf-blade apex acuminate. Flowering specimens unknown.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Guyana.

**Aulonemia parviflora** (Presl) McClure. *Smithsonian Contrib. Bot.* 9: 58 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Guadua parviflora* J. Presl, *Reliq. Haenk.* 1(4–5): 257 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, no date, Peru: (PR; IT: US-79107).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. parvus*, small; flos, flower. Spikelets small or with few florets.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 300–500 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary, as thick as stem. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 30–35 cm long, 35–42 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface scabrous. Leaf-blade margins glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 20–30 cm long. Primary panicle branches ascending. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25 mm long, 0.5–1 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.5 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute or acuminate. Upper glume ovate, 0.5 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, 10–12 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 6. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Peru.

**Aulonemia patriae** R.W. Pohl. *Fieldiana, Bot.*, n.s., 4: 68 (1980).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Costa Rica, Heredia: *Pohl & Gabel 13577* (ISC holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): From the Rio Patria, Costa Rica.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 300–500 cm long, 5–10 mm diam., woody. Culm-internodes terete, thin-walled, 50–100 cm long, distally glabrous. Culm-nodes without obvious supra-nodal ridge, viscid (below node). Lateral branches dendroid. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, persistent, green or green or purple, concolorous or distinctly mottled with last colour. Leaf-sheaths viscid (at apex), glabrous on surface. Leaf-sheath oral hairs setose, 10–30 mm long. Ligule a ciliolate membrane, 1.2–2 mm long. Collar with external ligule. Leaf-blade base broadly rounded, asymmetrical, with a brief petiole-like connection to sheath, petiole 0.5–0.6 cm long. Leaf-blades spreading or drooping, ovate, 20–26 cm long, 40–80 mm wide, dark green or glaucous (above/below), discoloured with last colour beneath. Leaf-blade venation without cross veins. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle 15–25 cm long. Panicle open, pyramidal, 20–40 cm long. Primary panicle branches ascending, 1-nate, branching divaricately, 15–34 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 20–40 mm long.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 25–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 6–8.5 mm long.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 5–7 mm long, 0.75–1 length of upper glume, membranous, without keels, 7-veined. Lower glume apex acute. Upper glume ovate, 7 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels, 11-veined. Upper glume apex obtuse.

**Florets.** Fertile lemma ovate, 13–17 mm long, chartaceous, without keel, 9–11-veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute. Palea 1 length of lemma. Palea keels ciliolate. Palea apex dentate, 2-fid. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, obovate, ciliate. Anthers 3, 9 mm long. Stigmas 2. Caryopsis with adherent pericarp, oblong, 8–10 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica. Costa Rica, Panama.

**Aulonemia patula** (Pilger) McClure. *Smithsonian Contrib. Bot.* 9: 58 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. **Basionym or Replaced Name:** *Arundinaria patula* Pilg., *Bot. Jahrb. Syst.* 25(5): 719 (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. *Stübel 465*, no date, Colombia (B; IT: US-2809008).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. outspread. Inflorescence an open panicle.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching, 250–500 cm long, 5–15 mm diam., woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs setose. Ligule an eciliate membrane, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or ovate, 10–25 cm long, 30–60 mm wide. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, globose, effuse, 20–40 cm long. Primary panicle branches spreading, 1-nate, 30 cm long. Panicle axis angular, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 3–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 20–40 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 4.5 mm long, membranous, without keels. Lower glume apex acuminate. Upper glume lanceolate, 8 mm long, membranous, without keels. Upper glume apex acuminate.



**Florets.** Fertile lemma lanceolate, 15 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1–3 mm long overall. Palea 10 mm long. Palea keels ciliolate, adorned above. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia, Ecuador, Peru.

**Aulonemia pumila** L.G. Clark & X. Londono. *Ann. Missouri Bot. Gard.* 77(2): 356 (1990).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Colombia, Pasto to Sibundoy: *Londono & Glark 382* (COL holo, MO, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. dwarf, low growing. Habit typically depauperate.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or geniculately ascending, 50–100 cm long, 2–3 mm diam., woody. Culm-internodes terete, thick-walled, 8–10 cm long, distally pubescent. Culm-nodes swollen, with distinct supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, 5–5.5 cm long, without auricles, glabrous on shoulders or setose on shoulders, shoulders with 2–6 mm long hairs. Culm-sheath blade lanceolate, reflexed, 0.8 cm long. Leaf-sheaths glabrous on surface or pubescent, outer margin glabrous. Leaf-sheath oral hairs setose, erect, 5–6 mm long. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades reflexed, ovate, 5–7 cm long, 6–14 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or pubescent, hairy abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, dense, 5.5–11 cm long. Primary panicle branches appressed or ascending. Panicle axis pubescent. Panicle branches angular, pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–9 mm long, pubescent.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8.4–11.2 mm long, breaking up at maturity, disarticulating below each fertile floret (or the lowest persistent). Floret callus evident, 1–2 mm long.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex acute, awned, 1 -awned, awn 6 mm long. Upper glume ovate, 5 mm long, membranous, without keels, 3–5 -veined. Upper glume surface pubescent. Upper glume apex acuminate, awned, 1 -awned, awn 3 mm long.

**Florets.** Fertile lemma ovate, 5.5–9.2 mm long, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex setaceously acuminate. Palea 4.3–6.3 mm long, 4 -veined. Palea keels ciliate. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

*N* = 20 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Aulonemia purpurata** (McClure) McClure. *Smithsonian Contr. Bot.*, 9: 58 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Arthrostylidium purpuratum* McClure, *J. Wash. Acad. Sci.* 32(6): 170, f. 3 (1942)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *L. Williams 10905*, 1938, Venezuela: Federal District (US-2808831).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. purpureus, purple; -ata, possessing. Inflorescence or spikelets purple.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete, thick-walled. Lateral branches dendroid. Bud complement 1. Branch complement in a clump, subtended by a bare patch above the node, with subequal branches. Culm-sheaths present. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs setose, 5–10 mm long. Leaf-sheath auricles erect. Ligule a ciliate membrane, 0.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole glabrous. Leaf-blades lanceolate, 5–10.5 cm long, 6–12 mm wide. Leaf-blade venation with 8–10 secondary veins, without cross veins. Leaf-blade surface pubescent, sparsely hairy, hairy abaxially. Leaf-blade margins cartilaginous, scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 10–15 cm long. Racemes 1, single, paucilateral, 5–10 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 35–45 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes clavate, 4–7 mm long, eventually visible between lemmas.

**Glumes.** Glumes persistent, shorter than spikelet. Lower glume lanceolate, 3–4 mm long, chartaceous, without keels, 4 -veined. Lower glume primary vein scabrous. Lower glume apex acute, awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 7–8 mm long, purple, 1-keeled or 2-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface glabrous to pubescent, hairy above. Upper glume margins ciliate. Upper glume apex entire or dentate, 2 -fid, acute, awned, 1 -awned, awn 1–2 mm long.

**Florets.** Fertile florets increasing in size upwards. Fertile lemma lanceolate, 10–11 mm long, chartaceous, purple, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous. Lemma margins ciliate, hairy above. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 7 mm long overall. Palea 9–10 mm long, 0.9 length of lemma. Palea keels ciliate. Palea surface scabrous, pubescent, hairy on back, hairy above. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1.5–2 mm long, ciliate. Anthers 2, 7 mm long. Stigmas 2. Ovary umbonate, glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Aulonemia queko** Goudot. *Ann. Sc. Nat. Ser. 3, 5:* 76 t. 5 (1846).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>; *vide* TROPICOS and Kew Synonymy Database: Colombia, Quindiu Mt.: *Goudot* (P holotype).

**Illustrations (Books):** E.J.Judziewicz et al., *American Bamboos* (1999) (166, Fig. 75 & 167, Fig. 76).

**Illustrations (Journals):** *Smithsonian Contributions to Botany* (9: 57, Fig. 24; 59, Fig. 25; 60, Fig. 26 (1973)).

**Images:** E.J.Judziewicz, E.J., *American Bamboos* (1999);

**Derivation** (Clifford & Bostock 2007): vernacular name in Colombia for the flute made from the internode of *Aulonemia queko*.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 800–1000 cm long, 30 mm diam., woody. Culm-internodes terete, thick-walled. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement many, in a clump. Culm-sheaths present, setose on shoulders. Culm-sheath blade linear, reflexed. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs setose. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or ovate, 13–20 cm long, 33–50 mm wide. Leaf-blade venation without cross veins. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 25–50 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3 mm long, 0.6 length of upper glume, membranous, without keels, 7 -veined. Lower glume surface puberulous. Lower glume apex obtuse, awned, 1 -awned, awn 5 mm long. Upper glume ovate, 5 mm long, 0.5 length of

adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume surface puberulous. Upper glume apex obtuse, awned, 1 -awned, awn 5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, oblong, 10 mm long, 7 -veined, puberulous, obtuse, awned. Awn of lower sterile floret 6 mm long. Fertile lemma oblong, 10–12 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex obtuse, pungent, 1 -awned. Principal lemma awn 5 mm long overall. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia, Ecuador, Peru.

**Aulonemia radiata** (Rupr.) McClure & L. B. Smith. *Fl. Illustr. Catar., Pt. 1, Gramin., Supl. Bambus.* 56 (1967).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria radiata* Rupr., *Bambuseae* 25, t. 15, f. 9 (1839). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. Riedel s.n.*, Jan, Brazil, without locality, in sylvia umbrosis (LE (photo, US); IT: US-280919).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (123, Fig. 26).

**Derivation** (Clifford & Bostock 2007): *L. radius*, spoke of a wheel; -ata, possessing. With racemes arranged in fascicles along a central axis.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–300 cm long, 10 mm diam., woody. Culm-internodes terete, thin-walled, smooth, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid, ascending or spreading. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, deciduous, 6 cm long. Leaf-sheaths striately veined, pubescent. Leaf-sheath oral hairs setose. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades spreading, oblong, 10–19 cm long, 10–20 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle, terminal and axillary. Panicle open, linear, 10–20 cm long. Primary panicle branches indistinct the panicle almost racemose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 5–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 30–50 mm long, 2 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 5 mm long, 0.9 length of upper glume, membranous, without keels. Lower glume apex setaceously acuminate. Upper glume ovate, 5 mm long, membranous, without keels. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma lanceolate, 7.5 mm long, chartaceous, without keel, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn 2–4 mm long overall. Palea 8 mm long. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Southeast, Brazil South.

**TDWG4.** Catarina, Rio Grande do Sul.

**Aulonemia ramosissima** (Hackel) McClure. *Smithsonian Contrib. Bot.* 9: 58 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria ramosissima* Hack., *Oesterr. Bot. Z.* 53(2): 74 (1903). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziovii* 20149, 4 Jun 1892, Brazil: Rio de Janeiro (W; IT: US-80199). Also type collection of *Arundinaria glaziovii* var. *macroblephara* Camus, *Bambusées* 41 (1913).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. ramus, branch; -osa, abundance; -issima, most. Culms much branched.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Culm-sheaths present. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs setose, 25 mm long. Ligule an eciliate membrane, 0.5 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades ovate, 5–15 cm long, 10–25 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface scaberulous, rough abaxially, glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, dense, 15–30 cm long. Primary panicle branches appressed, 1-nate, 10–20 cm long. Panicle axis scabrous. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 40 mm long, 2.5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 4 mm long, glabrous.

**Glumes.** Glumes several, 4 empty glumes, persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3–4 mm long, membranous, without keels, 3–5 -veined. Lower glume apex obtuse, mucronate. Upper glume lanceolate, 5–7 mm long, membranous, without keels, 5–7 -veined. Upper glume apex obtuse, mucronate.

**Florets.** Fertile lemma lanceolate, 7–8 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex obtuse, mucronate. Palea keels ciliate.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

**Aulonemia robusta** L.G. Clark & X. Londono. *Ann. Missouri Bot. Gard.* 77(2): 356 (1990).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Paramo La Laguna: *Clark, Gaviria & Adamo 533* (VEN holo, ISC, MO, NY, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. robust. Culms tall, or leaf-blades or spikelets large.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–400 cm long, 10–25 mm diam., woody. Culm-internodes terete, thin-walled, distally mealy or glabrous. Culm-nodes swollen, with distinct supra-nodal ridge. Lateral branches dendroid. Buds or branches absent from lower part of culm. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, 12–12.5 cm long, without auricles, setose on shoulders, shoulders with 20–30 mm long hairs. Culm-sheath blade lanceolate, reflexed, 6–8.5 cm long. Leaf-sheaths without keel, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, erect, 30–40 mm long. Ligule an eciliate membrane, 2–8 mm long. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.5–0.7 cm long. Leaf-blades reflexed, ovate, 19–32 cm long, 5–13.5 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface scabrous, rough abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 35–50 cm long. Primary panicle branches ascending. Panicle axis smooth. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–10 mm long, smooth.

**Fertile Spikelets.** Spikelets comprising 4–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 11–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–2 mm long, glabrous or pubescent. Floret callus evident, 1–2 mm long.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2.5–4 mm long, membranous, without keels, 3 -veined. Lower glume apex acute, awned, 1 -awned, awn 0.5–1 mm long. Upper glume ovate, 4–4.7 mm long, membranous, without keels, 5–7 -veined. Upper glume surface puberulous, hairy at apex. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 5.3–6.7 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex acuminate. Palea 5.3–6.4 mm long, 2 -veined. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 0.9–1.2 mm long, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America. Colombia.

***Aulonemia scripta*** Judz. & Wayda. *J. Bot. Res. Inst. Texas* 4 (2): 573–578, f. 3A–c, 4–6 (2010).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: La Paz: Prov. Franz Tamayo: Senda Apolo-San José de Uchupiamonas, quebrada antes de cruzar arroyo Huacataya, 14°31.478'S [=28.7"], 68°17.914 [=54.8"], 1960 m [1980 m on Google Earth], hierba graminoide 50 cm, espigas verde amarillentas, 10 Jul 2002 HT: LPB; IT: MO-4793771, MO-4793772

**Illustrations (Journals):** *J. Bot. Res. Inst. Texas* (4 (2): 576 & 577, Figs 5 & 6 (2010)).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Butt sheaths absent. Culms 50 cm long, 7 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Culm-nodes viscid (below node). Lateral branches dendroid. Bud complement 1. Branch complement one, solitary. Culm-sheaths present, yellow and purple, distinctly mottled with last colour, glabrous. Culm-sheath blade inconspicuous or lanceolate, reflexed, 0–2 cm long. Leaves 6–12 per branch. Leaf-sheaths viscid, striately veined, glabrous on surface or pubescent, outer margin glabrous. Leaf-sheath oral hairs scanty, curly, 4–8 mm long. Leaf-sheath auricles absent or erect, 3 mm long. Ligule an eciliate membrane, 1.5–2.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5–0.6 cm long. Leaf-blades reflexed, lanceolate, 16–18 cm long, 20–27 mm wide, indurate, viscid. Leaf-blade surface scaberulous, rough abaxially, glabrous. Leaf-blade margins cartilaginous, scaberulous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle 6–8 cm long, smooth, glabrous. Panicle open, ovate, loose, 20–23 cm long, 12–20 cm wide. Primary panicle branches 3–6 in number, ascending, 1 -nate. Panicle branches capillary, scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 6–24 mm long.

**Fertile Spikelets.** Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 18.3–23.1 mm long, 2.9–5.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2.1–3 mm long, 0.33 length of upper glume, membranous, without keels, 3–7 -veined. Lower glume surface pubescent. Lower glume apex acute. Upper glume lanceolate, 6–7.8 mm long, 0.66 length of adjacent fertile lemma, membranous, without keels, 9–11 -veined. Upper glume surface pubescent. Upper glume apex acute, mucronate or awned, 1 -awned, awn 0.4–0.5 mm long.

**Florets.** Fertile florets decreasing in size upwards. Fertile lemma lanceolate, 9.1–11.6 mm long, 1.5–2.1 mm wide, chartaceous, without keel, 9–15 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1–4.7 mm long overall. Palea elliptic, 8–11 mm long, 1 length of lemma. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, 1–1.3 mm long, veined, ciliate. Anthers 3, 4.5 mm long, yellow or brown. Caryopsis with adherent pericarp, oblong, 4.3–5.9 mm long. Embryo 0.66 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America.

***Aulonemia setigera*** (Hackel) McClure. *Smithsonian Contrib. Bot.* 9: 58 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria setigera* Hack., *Oesterr. Bot. Z.* 53(2): 73 (1903). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *A.F.M. Glaziou 17916*, Dec 1888, Brazil: Rio de Janeiro (W; IST: US-2809005 (fragm. ex W)). ST: *Glaziou 470*, Brazil: Rio de Janeiro (W).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. seta, bristle; gero, carry. With hairs or awns on the glumes or lemmas.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 500–1000 cm long, woody. Culm-internodes terete, solid. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Culm-sheaths present. Leaf-sheaths subequal to internodes, smooth. Leaf-sheath oral hairs setose. Ligule an eciliate membrane, 1 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.8 cm long. Leaf-blades ovate, 12–24 cm long, 30–50 mm wide, mid-green and glaucous, discolorous with last colour beneath. Leaf-blade venation with distinct cross veins. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 20–45 cm long. Primary panicle branches 1-nate, 12–24 cm long. Panicle axis smooth. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 5–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 40–50 mm long, 3 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3 mm long, scaberulous, glabrous.

**Glumes.** Glumes several, 4 empty glumes, persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3–4 mm long, membranous, without keels, 3–5 -veined. Lower glume apex acute, mucronate. Upper glume ovate, 5–7 mm long, membranous, without keels, 5–7 -veined. Upper glume apex acute, mucronate.

**Florets.** Fertile lemma lanceolate, 6–7 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex obtuse, mucronate, 1 -awned. Principal lemma awn 3–5 mm long overall. Palea 1 length of lemma. Palea keels ciliolate.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 3, 6 mm long. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast, Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

### **Aulonemia sodiroana** (Hack.) McClure. *Smithsonian Contrib. Bot.*, 9: 61 (1973).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ecuador. **Basionym or Replaced Name:** *Arundinaria sodiroana* Hack., *Oesterr. Bot. Z.* 53(2): 70 (1903). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *A. Sodiro* 237, 1903, Ecuador: Pichincha (W; IT: US-1163141 (fragm. ex W)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Luigi Sodiro (1836–1909) Italian-born Ecuadorean cleric and amateur botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 10–30 mm diam., woody. Culm-internodes terete, thin-walled, 40–100 cm long, distally glabrous. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Leaf-sheath oral hairs setose, 10–40 mm long. Ligule an eciliate membrane, 2 mm long, truncate. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3 cm long, petiole glabrous. Leaf-blades lanceolate, 13 cm long, 30 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, globose, 20–40 cm long. Primary panicle branches 15–30 cm long. Panicle axis angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 10–20 mm long.

**Fertile Spikelets.** Spikelets comprising 5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 30 mm long, 3 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 4 mm long, membranous, without keels, 5 -veined. Upper glume lanceolate, 7 mm long, membranous, without keels, 7 -veined. Upper glume surface scabrous. Upper glume apex acuminate, awned, 1 -awned, awn 2 mm long.

**Florets.** Fertile lemma lanceolate, 10–12 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute, awned, 1 -awned. Principal lemma awn 4 mm long overall. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, ciliate. Anthers 3, 5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Ecuador.

**Aulonemia subpectinata** (O. Kuntze) McClure. *Smithsonian Contrib. Bot.* 9: 61 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Arthrostylidium subpectinatum* Kuntze, *Revis. Gen. Pl.* 2: 760 (1891)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela: Silla de Caracas, *Kuntze s.n.* (HT: NY).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. sub, approaching; pecten, comb; -ata, possessing. With setose fimbriae on the margins of the leaf-sheath.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or leaning, 200–600 cm long, 5–10 mm diam., woody. Culm-internodes terete, distally glabrous. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Culm-sheaths present. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs setose, 10–20 mm long. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or ovate, 10–15 cm long, 10–40 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, dense, 30–50 cm long. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3 mm long, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, 5 mm long, membranous, without keels. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 7–8 mm long, chartaceous, without keel, more than 3-veined. Lemma surface puberulous. Lemma apex obtuse.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Colombia.

**Aulonemia tremula** Renvoize. *Gr. Boliv.* :39 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolivia, Nor Yungas: *Beck 5361* (LPB holo, K).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (34, Fig. 3).

**Derivation** (Clifford & Bostock 2007): L. trembling. Inflorescence subject to movement in a slight breeze.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 400–1000 cm long, 2 mm diam., woody. Culm-internodes terete, thick-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths punctate. Leaf-sheath oral hairs pubescent. Ligule an eciliate membrane, 0.2 mm long. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 8–15 cm long, 10–20 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 10–20 cm long. Primary panicle branches spreading. Panicle branches pilose, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 5–45 mm long.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 10–20 mm long, 0.5–1 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–1.5 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent, hairy at apex. Lower glume apex obtuse. Upper glume ovate, 2–3 mm long, membranous, without keels, 3–5 -veined. Upper glume surface pubescent, hairy at apex. Upper glume apex obtuse.

**Florets.** Fertile lemma oblong, 5.5–6.5 mm long, herbaceous, purple, without keel, 5 -veined, more than 3-veined. Lemma apex acute. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

**Aulonemia trianae** (Munro) McClure. *Smithsonian Contrib. Bot.* 9: 61 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. **Basionym or Replaced Name:** *Arundinaria trianae* Munro, *Trans. Linn. Soc. London* 26(1): 25 (1868). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *J.J. Triana* 308, Mar 1856, Colombia (US-1646312, US-820824, US-1865288, US-1574213).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Josi Gersnimo Triana (1828–1890) Columbian botanist.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete, 5–8 cm long. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement one or two. Culm-sheaths present. Leaf-sheaths viscid, striately veined. Leaf-sheath oral hairs ciliate, 3 mm long. Ligule an eciliate membrane, 0.2 mm long. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–13 cm long, 10–18 mm wide, yellowish green (distally). Leaf-blade venation with 4–8 secondary veins. Leaf-blade surface scaberulous. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, 10–13 cm long. Primary panicle branches reflexed, 7.5 cm long. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 1.5 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, 3 mm long, membranous, 1-keeled, 5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 6 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface glabrous or hirsute, hairy at base. Lemma apex acute, mucronate.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.

**Aulonemia ulei** (Hackel) McClure & L. B. Smith. *Fl. Illustr. Catar., Pt. 1, Gramin., Supl. Bambus.* 57 (1967).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Arundinaria ulei* Hack., *Oesterr. Bot. Z.* 53(2): 75 (1903)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Ule* 1955, 1891, Brazil: Santa Catarina (W; IT: US-2808997).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (123, Fig. 26).

**Images:** E.J.Judziwicz, E.J., *American Bamboos* (1999);

**Derivation** (Clifford & Bostock 2007): in honor of Ernst Heinrich Georg Ule (1854–1915) German botanist sometime resident in Brazil.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–300 cm long, 6 mm diam., woody. Culm-internodes terete, thin-walled, 8–16



cm long, smooth, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid, erect. Bud complement 1. Branch complement one, solitary. Culm-sheaths present. Leaf-sheaths striately veined, pubescent. Leaf-sheath oral hairs setose, 8 mm long, pale. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades appressed or erect, lanceolate, 4–8 cm long, 5–9 mm wide, stiff. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 8–15 cm long. Primary panicle branches indistinct the panicle almost racemose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1–3 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 18–22 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 7 mm long, 0.75 length of upper glume, membranous, without keels. Lower glume apex acute, awned, 1 -awned, awn 5 mm long. Upper glume lanceolate, 10 mm long, membranous, without keels. Upper glume apex acute, awned, 1 -awned, awn 3 mm long.

**Florets.** Fertile lemma lanceolate, 12 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 3 mm long overall. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil South.

Sao Paulo Parana, Catarina, Rio Grande do Sul.

**Aulonemia ximena** L.G. Clark, Judz. & C.D. Tyrrell. *Bamboo Sci. Cult.* 20 (1): 3, 1–6, f. 1–2 (2007).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. G. Clark, J. Gaviria & G. Adamo 531*, 14 Jun 1989, Venezuela: Mérida: Distrito Tovar: vía Las Colorados - Santa Cruz de Mora, Páramo de Los Colorados, alt. 2690 m, 71°35' W, 8°18' 50" N (HT: MERC; IT: ISC, K, MO, NY, US-3251261).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 200–500 cm long, 3–6(–10) mm diam., woody. Culm-internodes terete, thick-walled, 10–26 cm long, distally hispid (above). Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid, intravaginal. Bud complement 1. Culm-sheaths present, tardily deciduous, 10–18 cm long, 4–8 times as long as wide, glabrous or hispid, hairy on margins, setose on shoulders, shoulders with 7–15 mm long hairs. Culm-sheath blade lanceolate, constricted at base, deciduous, reflexed, 3–10 cm long, 8–25 mm wide. Leaf-sheaths striately veined, glabrous on surface or pubescent, outer margin hairy. Leaf-sheath oral hairs setose, curly, 7–15 mm long. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.5 cm long, petiole pubescent. Leaf-blades reflexed, lanceolate, 8–17 cm long, 10–28 mm wide. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Peduncle 3–7 cm long. Panicle open, loose, 15–20 cm long, 4–10 cm wide. Panicle branches capillary, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising (4–)5(–9) fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or oblong, laterally compressed, 13–36 mm long, 3–5.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 4–5.5 mm long, membranous, without keels, 1–3(–5) -veined. Lower glume lateral veins absent or distinct. Lower glume apex acute. Upper glume lanceolate, 6–8.5 mm long, membranous, without keels, 3–5(–7) -veined. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate, 8–12.5 mm long, chartaceous, without keel, 7–11 -veined, more than 3-veined. Lemma apex acute, muticous or awned, 1 -awned. Principal lemma awn 1.5–3(–5) mm long overall. Palea 1 length of lemma, 2-keeled. Palea keels winged (above), narrowly winged, scabrous. Palea surface scaberulous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3, obovate, 1–1.4 mm long, veined, ciliate. Anthers 3, 3–4 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America and Western South America. Venezuela. Colombia.

**Aulonemia viscosa** (Hitchcock) McClure. *Smithsonian Contrib. Bot.* 9: 61 (1973).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Coasta Rica. **Basionym or Replaced Name:** *Arundinaria viscosa* Hitchc., *Proc. Biol. Soc. Wash.* 40: 79 (1927). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Collected in forests at the summits of Velirla, Copey, Costa Rica, 1800 to 2700 m, Feb 1898, A. Tonduz 11729 (HT: US-577479).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (70, Fig. 18).

**Derivation** (Clifford & Bostock 2007): L. sticky. Panicle-branches or foliage sticky.

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or scandent, 400–500 cm long, 5–15 mm diam., woody. Culm-internodes terete, thin-walled, mid-green or purple, mottled, distally glabrous. Culm-nodes without obvious supra-nodal ridge, viscid. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary, as thick as stem. Culm-sheaths present, persistent, green or purple, distinctly mottled with last colour. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 1–2.5 mm long. Collar with external ligule. Leaf-blade base broadly rounded, asymmetrical, with a brief petiole-like connection to sheath, petiole 0.5–0.7 cm long, petiole glabrous (viscid). Leaf-blades ovate, 21–26 cm long, 40–50 mm wide, dark green or glaucous (above/below), discolourous with last colour beneath. Leaf-blade venation without cross veins. Leaf-blade surface scaberulous, rough abaxially. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Peduncle glabrous (viscid). Panicle open, pyramidal, 15–25 cm long. Primary panicle branches ascending, 1-nate. Panicle branches viscid. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flexuous.

**Fertile Spikelets.** Spikelets comprising 3–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15–25 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3–5 mm long, 0.5 length of upper glume, membranous, without keels, 3-veined. Lower glume apex acute. Upper glume ovate, 7–9 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels, 7-veined. Upper glume apex obtuse.

**Florets.** Fertile lemma ovate, 13–14 mm long, chartaceous, without keel, 7-veined, more than 3-veined. Lemma apex obtuse. Palea 1 length of lemma. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ovoid, dark brown.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America. Costa Rica. Venezuela.

**Aulonemia yanachagensis** Judz. & C.D. Tyrrell. *Brittonia* 59(1): 84–87, f. 1, t. 1 (2007).

**TYPE** from Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Pasco: Prov. Oxapampa, trail to summit of Cordillera Yanachaga vía Río San Daniel, 10°23'S, 75°27'W, 2700–3000 m, 11 Jul 1984 (fl), *David Smith 7666* (HT: USM; IT: ISC, MO, US).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Bambusoideae. Tribe: Bambuseae.

**Habit, Vegetative Morphology.** Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or scandent, 100–200 cm long, 20–30 mm diam., woody. Culm-internodes terete, distally glabrous or pubescent. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement one, solitary. Culm-sheaths present. Leaves 3–4 per branch. Leaf-sheaths pilose, with tubercle-based hairs. Leaf-sheath oral hairs setose, spreading, 8–17(–30) mm long. Leaf-sheath auricles falcate, 3–4.5 mm long. Ligule absent. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long. Leaf-blades reflexed, deciduous at the ligule, lanceolate, 7–

14 cm long, 13–22(–30) mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 16–24 cm long, 6–25 cm wide. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising (4–)5–7(–8) fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 20–37 mm long, 1–2 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 4.5–5.8 mm long.

**Glumes.** Glumes persistent, shorter than spikelet. Lower glume lanceolate or ovate, 2.5–3 mm long, 0.66–0.75 length of upper glume, membranous, without keels, 7 -veined. Lower glume surface puberulous. Lower glume apex acute. Upper glume lanceolate, (3–)3.8–4.5 mm long, 0.5–0.66 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume surface puberulous. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, 6.5–8.5 mm long, chartaceous, without keel, (7–)9 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex acute. Palea 6.5–8.5 mm long, 1.1 length of lemma. Palea keels 0.8–1 mm apart, ciliolate. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 3. Anthers 3, 3–4 mm long. Stigmas 2. Ovary pubescent all over. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Peru.

**Australopyrum calcis** Connor & Molloy. *New Zealand Journal of Botany* 31:2 (1993).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Zealand, Marlborough: Molloy & Ryan (CHR holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. calx, lime. Growing on limestone.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms geniculately ascending, 17–60 cm long, 3 -noded. Culm-nodes swollen, brown or black. Leaf-sheaths 2.5–5 cm long, glabrous on surface or pubescent, with reflexed hairs. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate, 0.1–0.5 mm long. Ligule an eciliate membrane, 0.6–1.25 mm long, lacerate. Collar dark, glabrous. Leaf-blades 6–25 cm long, 0.5–3.5 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence composed of racemes. Peduncle glabrous or pubescent above, tipped by a glumaceous appendage. Racemes 1, single, bilateral, 3–13 cm long, bearing 4–13 fertile spikelets on each. Rhachis glabrous on surface or woolly on surface, scabrous on margins. Spikelet packing broadside to rhachis, distant, regular, 2 -rowed. Spikelets ascending or spreading, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 4–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1–1.25 mm long, pubescent. Floret callus 0.25–0.4 mm long, pubescent, disarticulating obliquely.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume linear, 2.5–4 mm long, 0.66–0.75 length of upper glume, coriaceous, 1-keeled, 3–5 -veined. Lower glume primary vein scabrous. Lower glume apex acuminate. Upper glume lanceolate, 3.7–5.5 mm long, 0.4–0.5 length of adjacent fertile lemma, coriaceous, 1-keeled, 3–5 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, 7–8 mm long, chartaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma midvein scabrous. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 1.5–4 mm long overall. Palea 5.3–7 mm long. Palea keels scabrous. Palea surface puberulous, hairy on back or on margins. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, 0.4–0.6 mm long, ciliate. Anthers 3, 2.4–2.75 mm long. Ovary pubescent on apex. Caryopsis with adherent pericarp, 3.5–4 mm long, hairy at apex. Embryo 0.2 length of caryopsis. Hilum linear, 0.75–1 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand South I.

**Australopyrum pectinatum** (Labillardiere) A.Löve. Feddes, *Repert.*, 95: 443 (1984).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Agropyron*).

**TYPE** from Australia. **Basionym or Replaced Name:** *Festuca pectinata* Labill. *Nov. Holl. Pl.* 1: 21, t. 25 (1805). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Habitat in capite Van-Diemen, *Labillardiere s.n.*.

**Recent Synonyms:** *Agropyron pectinatum* (Bieb.) Beauv., *Agrost.* 102. (1812). *Agropyron brownii* (Labill.) Á.Löve, *Repert. Spec. Nov. Regni Veg* 95: 443 (1984).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (138), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (137, Fig. 21), D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002); K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): L. pecten, comb; -ata, possessing. Inflorescence with spikes or racemes bearing a fanciful resemblance to a comb.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 15–60 cm long. Culm-internodes distally pubescent, with reflexed hairs. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane, 0.5 mm long, entire or erose. Leaf-blades 3–20 cm long, 1–4 mm wide, coriaceous, stiff. Leaf-blade surface scaberulous, rough abaxially, puberulous or hirsute, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes. Racemes 1, single, oblong, bilateral, 1.5–8 cm long, bearing 4–10 fertile spikelets on each. Rhachis pubescent on surface (antrorsely). Spikelet packing broadside to rhachis, distant, 3 spikelets per cm, regular, 2 -rowed. Rhachis internodes oblong. Spikelets spreading or deflexed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 3–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or cuneate, laterally compressed, 10–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus 0.5 mm long.

**Glumes.** Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma, gaping. Lower glume linear, 4–7 mm long, 0.8 length of upper glume, coriaceous, 1-keeled, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 5–7 mm long, 0.75–1 length of adjacent fertile lemma, coriaceous, 1-keeled, 5–7 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic or ovate, 5–11 mm long, chartaceous, keeled, 5–7 -veined, more than 3-veined. Lemma surface asperulous, pubescent. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 2–3 mm long overall. Palea 4–6.5 mm long. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 1.5 mm long. Ovary pubescent on apex. Caryopsis with adherent pericarp, hairy at apex. Hilum linear.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. New South Wales, Queensland, Tasmania, Victoria. New Zealand North I, New Zealand South I.

**TDWG4.** South East. Tablelands, Western Slopes.

**Australopyrum retrofractum** (J.W. Vickery) A.Löve. Feddes, *Repert.*, 95: 443 (1984).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Agropyrom*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Agropyron retrofractum* Vickery, *Contrib. N. S. Wales Nat. Herb.* 1: 340 (1951). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia: New South Wales: Rock Flat near Cooma, E. Betche, 2.1893. (NSW. No. 9116. Duplicate at K.), (HT: NSW-9116; IT: K).

**Recent Synonyms:** *Agropyron retrofractum* Vickery, *Contrib. N. S. Wales Nat. Herb.* 1: 340 (1951).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (512, Fig. 100), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (138), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (109, Fig. 16), D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002).

**Derivation** (Clifford & Bostock 2007): *L. retro*, backwards; *fractus*, broken. With retrorse hairs on the rhachis.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 20–35 cm long, 2–3 -noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5 mm long, truncate. Leaf-blades flat or involute, 5–15 cm long, 1–2 mm wide, grey-green. Leaf-blade surface ribbed, scabrous, pubescent.

**Inflorescence.** Inflorescence composed of racemes. Peduncle hirsute above. Racemes 1, single, bilateral, 1.5–6 cm long, bearing 4–10 fertile spikelets on each. Rhachis pubescent on surface. Spikelet packing broadside to rhachis, contiguous. Rhachis internodes oblong. Spikelets ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 5–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 6–7 mm long, 1 length of upper glume, coriaceous, 1-keeled, keeled all along, 5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 5–7 mm long, 0.66–0.75 length of adjacent fertile lemma, coriaceous, 1-keeled, 7 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 9–10 mm long, coriaceous, keeled, keeled above, 5–7 -veined, more than 3-veined. Lemma surface asperulous, rough above. Lemma apex acuminate, mucronate or awned, 1 -awned. Principal lemma awn 0.5–3 mm long overall. Palea 6–7 mm long. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Anthers 3, 2.5 mm long. Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, linear, hairy at apex, apex fleshy. Hilum linear.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. New South Wales, Victoria. New Zealand North I, New Zealand South I.

**TDWG4.** Tablelands.

### **Australopyrum uncinatum** J.F. Veldkamp. *Blumea*, 34(1): 67 (1989).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Agropyron*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

**Basionym or Replaced Name:** *Agropyron uncinatum*.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. uncinus*, hook; -ata, possessing. Upper glume drawn out into a hook.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms erect, 30–80 cm long. Culm-internodes distally glabrous. Culm-nodes pallid or brown. Lateral branches lacking. Leaf-sheaths pubescent or pilose. Ligule an eciliate membrane, 0.5–1 mm long, erose. Leaf-blades involute, 12–25 cm long, 1–2 mm wide. Leaf-blade surface pilose, hairy on both sides.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 10–25 cm long, pubescent above. Racemes 1, single, bilateral, 2–3 cm long, bearing few fertile spikelets, bearing 3–5 fertile spikelets on each. Rhachis flattened, pubescent on surface, terminating in a barren extension, extension bristle-like, extension 5–6 mm long. Spikelet packing broadside to rhachis. Rhachis internodes linear. Spikelets appressed (anthesis) or spreading to deflexed (fruiting), solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 1 mm long, pubescent.

**Fertile Spikelets.** Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 15–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5–1 mm long, pubescent. Floret callus glabrous, disarticulating obliquely.

**Glumes.** Glumes persistent, similar, shorter than spikelet. Lower glume linear, 7–9 mm long, 1 length of upper glume, coriaceous, 1-keeled, 3 -veined. Lower glume apex acuminate, mucicous or awned, 1 -awned, awn 0.5 mm long, awn hooked. Upper glume linear, 7.7–8 mm long, 0.5–0.66 length of adjacent fertile lemma, coriaceous, 1-keeled, 3–5 -veined. Upper glume apex acuminate, mucicous or awned, 1 -awned, awn 0.5 mm long (hooked).

**Florets.** Fertile lemma lanceolate, 12–15 mm long, coriaceous, keeled, 10–14 -veined, more than 3-veined. Lemma lateral veins more or less parallel. Lemma surface pubescent. Lemma apex acuminate, awned, 1 -awned.

Principal lemma awn hooked, 1 mm long overall. Palea 7.5–10 mm long. Palea keels ciliate. Palea surface pubescent, hairy on back or on flanks. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 2–2.5 mm long, retained within floret. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Tropical Asia.

**Country /Province /State.** Malesia, Papuaasia. New Guinea PNG. New Guinea.

### **Australopyrum velutinum** (Nees) B.K.Simon. *Austrobaileya*, 2(3): 241 (1986).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Agropyron*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Agropyron*).

**TYPE** from Australia. **Basionym or Replaced Name:** *Agropyron velutinum* Nees *Hooker's J. Bot. Kew Gard. Misc.* 2: 417 (1843). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia: In Chilton, Surrey Hills, Insulae Van Diemen, Februario 1837, *Gunn 770*.

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (512, Fig. 100), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (138), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (109, Fig. 16), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. velvety. Plant in whole or in part covered with dense short hairs.

**Classification.** Subfamily Pooideae. Tribe: Triticeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 15–40 cm long. Leaf-sheaths pubescent. Ligule an eciliate membrane. Leaf-blades convolute, 5–15 cm long, 2–3 mm wide. Leaf-blade surface pubescent, densely hairy. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1, single, oblong, bilateral, 2.5–3 cm long. Spikelet packing broadside to rhachis, contiguous. Rhachis internodes oblong. Spikelets ascending, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 6–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

**Glumes.** Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 5–6 mm long, 1 length of upper glume, coriaceous, 1-keeled, keeled all along, 7 -veined. Lower glume apex acuminate. Upper glume ovate, 5–6 mm long, 1 length of adjacent fertile lemma, coriaceous, 1-keeled, 9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma ovate, 5–7 mm long, coriaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1–2 mm long overall. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Ovary with a fleshy appendage below style insertion, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex, apex fleshy. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, A.C.T., Tasmania, Victoria.

**TDWG4.** Western Slopes.

### **Austrochloris dichanthioides** (Everist) Lazarides. *Austral. J. Bot.*, Suppl. 5: 35 (1972).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia, Queensland. **Basionym or Replaced Name:** *Chloris dichanthioides* Everist, *Queensland Agric. J.* 49(5): 432, t. 155 (1938). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *W. White* 6, May 1936, Australia: Queensland: Warrego Dist. (US-2830884). HT: *White s.n.*, May 1936, Australia: Queensland: Warrego Dist: Oakwood, N of Charleville (BRI).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (120 & 156(10)), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (283, Fig. 45), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Illustrations (Journals):** *Austr. J. Bot.* (Suppl.5: 36, Fig.14 (1972)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Dichanthium*.

**Classification.** Subfamily Chloridoideae. Tribe: Cynodonteae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–100 cm long, 4–7 -noded. Leaves cauline. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades 5–12 cm long, 3 mm wide. Leaf-blade midrib evident.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, unilateral, 6–12 cm long. Rhachis angular. Spikelet packing regular, 2 -rowed. Spikelets solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, dorsally compressed, 4.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes lower persistent, upper deciduous, dissimilar, exceeding apex of florets, thinner than fertile lemma, gapping. Lower glume linear, 4.5–5 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4.5–5 mm long, 2 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex acute.

**Florets.** Fertile lemma ovate, dorsally compressed, 2.5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma midvein pubescent, hairy above. Lemma margins ciliate, hairy above. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn 1.5–3 mm long overall. Apical sterile florets 1 in number, barren, oblong. Apical sterile lemmas winged on margins (above).

**Flower and Fruit.** Anthers 3, 0.5 mm long. Caryopsis with free soft pericarp, ellipsoid, dorsally compressed, biconvex.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** North, Central, South East.

**Austroderia fulvida** (J. Buch.) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 344 (2010).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (*Cortaderia*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (*Cortaderia*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae 5* (2000) (*Cortaderia*).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Arundo fulvida* Buchanan *Trans. & Proc. New Zealand Inst.* 6: 242 (1874)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Buchanan s.n.*, 1873, New Zealand: Wellington (WELT-59573).

**Recent Synonyms:** *Cortaderia fulvida* (J. Buch.) Zotov, *N. Zeal.Journ. Bot.* 1: 84 (1963).

**Illustrations (Books):** No illustration found (BKS).

**Images:** E.Edgar & H.E.Connor, *Flora of New Zealand 5, Gramineae* (2000);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Classification.** Subfamily Danthonioideae. Tribe: Danthonieae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms robust, 150–250 cm long. Ligule a fringe of hairs. Leaf-blades 75–100 cm long, 10–15 mm wide, coriaceous, stiff. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, dense, nodding, 30–60 cm long. Primary panicle branches drooping. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 10–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, similar to fertile lemma in texture, shiny. Lower glume linear, 10–20 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume linear, 10–20 mm long, 1.5 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile florets female. Fertile lemma lanceolate, 7–13 mm long, hyaline, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface plumose, hairy below. Lemma hairs 5 mm long. Lemma apex entire or lobed, 2 -fid, with filiform lobes, with lobes 0–3 mm long, attenuate, awned, 1 -awned. Principal lemma awn apical or from a sinus, 2–7 mm long overall. Palea hyaline, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, ciliate. Anthers 3, 2 mm long. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand North I, New Zealand South I.

**Austroderia richardii** (Endl.) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 344 (2010).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (*Cortaderia*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (*Cortaderia*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (*Cortaderia*).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Arundo richardii* Endl., *Ann. Wiener Mus. Naturgesch.* 1: 158 (1836). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Herb. Richard* 29, New Zealand: Havre de l'Astrolabe (P; IT: CHR-236584 (fragm. ex P)).

**Recent Synonyms:** *Cortaderia richardii* (Endl.) Zotov, *N. Zeal. Journ. Bot.* 1: 84 (1963).

**Illustrations (Books):** K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (23, Fig. 3), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, E.Edgar & H.E.Connor, *Flora of New Zealand 5, Gramineae* (2000);, R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Classification.** Subfamily Danthoioideae. Tribe: Danthoieae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms robust, 200–300 cm long. Ligule a fringe of hairs. Leaf-blades 60–80 cm long, 5–10 mm wide, coriaceous, stiff. Leaf-blade surface glabrous, hairless throughout. Gynodioecious ("male", in this context, indicating the bisexual state).

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, dense, 30–60 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 20–35 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, similar to fertile lemma in texture, shiny. Lower glume linear, 20–35 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume linear, 20–35 mm long, 3 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile florets female. Fertile lemma lanceolate, 6–15 mm long, 1–3 mm wide, hyaline, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface plumose, hairy below. Lemma hairs 6–8 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 3–7 mm long, attenuate, awned, 1 -awned. Principal lemma awn from a sinus, 8–10 mm long overall. Palea hyaline, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, ciliate. Anthers 3, 2–2.2 mm long. Caryopsis with adherent pericarp, fusiform, 2.5 mm long. Embryo 0.3 length of caryopsis.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

**Distribution (TDWG). Continent.** Australasia (\*).

**Country /Province /State.** Australia, New Zealand. Tasmania (\*). New Zealand South I.

**Austroderia splendens** (Connor) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 344 (2010).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (*Cortaderia*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (*Cortaderia*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae 5* (2000) (*Cortaderia*).

**TYPE** from New Zealand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Bell s.n.*, 20 Dec 1967, New Zealand: Ruapuke Beach (CHR-184354).

**Recent Synonyms:** *Cortaderia splendens* Connor, *New Zealand J. Bot.*, 9(3): 519 (1971).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. shining. Culms glossy.

**Classification.** Subfamily Danthoioideae. Tribe: Danthoieae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms robust, 300–600 cm long. Leaf-sheaths glabrous on surface or pilose, outer margin glabrous or hairy. Ligule a fringe of hairs. Leaf-blades 200–300 cm long, 30–50 mm wide, firm. Leaf-blade surface scaberulous. Leaf-blade margins scaberulous. Gynodioecious ("male", in this context, indicating the bisexual state).

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, dense, nodding, 75 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile.



Spikelets cuneate, laterally compressed, 22–50 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, similar to fertile lemma in texture, shiny, gaping. Lower glume linear, 22–50 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume linear, 22–50 mm long, 2–5 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile florets female. Fertile lemma lanceolate, 10 mm long, hyaline, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface plumose, hairy below. Lemma hairs 10 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 4–7 mm long, attenuate, awned, 1 -awned. Principal lemma awn from a sinus, 10–15 mm long overall. Palea 6–9 mm long, hyaline, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, ciliate. Anthers 3, 3–5 mm long. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand North I.

**Austroderia toetoe** (Zotov) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 344 (2010).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (*Cortaderia*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (*Cortaderia*).

**TYPE** from New Zealand. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: Zotov *s.n.*, Feb 1955, New Zealand: Wainui-o-mata Valley, near sea (CHR-95457).

**Recent Synonyms:** *Cortaderia toetoe* Zotov, *N. Zeal. Journ. Bot.* 1: 85 (1963).

**Illustrations (Books):** No illustration found (BKS).

**Images:** R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): Maori, to divide into strips. Maori vernacular name for several grasses.

**Classification.** Subfamily Danthonioideae. Tribe: Danthonieae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms robust, 400–600 cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades 200–300 cm long, 10–30 mm wide, stiff. Leaf-blade surface scabrous, glabrous, hairless except near base. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, dense, equilateral, 60–100 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 15–24 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, similar to fertile lemma in texture, shiny, gaping. Lower glume linear, 15–24 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume linear, 15–24 mm long, 2–2.5 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

**Florets.** Fertile florets female. Fertile lemma lanceolate, 8–9 mm long, hyaline, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface plumose, hairy below. Lemma hairs 8–9 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 3–7 mm long, attenuate, awned, 1 -awned. Principal lemma awn from a sinus, 10 mm long overall. Palea 5–6.5 mm long, hyaline, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, cuneate, fleshy, ciliate. Anthers 3, 2–4 mm long. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** New Zealand. New Zealand North I.

**Austroderia turbaria** (H.E. Connor) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 344 (2010).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (*Cortaderia*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (*Cortaderia*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (*Cortaderia*).

**TYPE** from New Zealand. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: New Zealand: Rakeinui, east end of Lake, Chatham Island, 24 Feb 1985, *D.R. Given 13899* (HT: CHR-417471).

**Recent Synonyms:** *Cortaderia turbaria* H.E. Connor, *New Zealand J. Bot.*, 25(1): 167 (1987).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Middle English *turbary*, medieval L. *turbaria*, peat-bog or peat-moss. Occurring in peat-bog.

**Classification.** Subfamily Danthonioideae. Tribe: Danthonieae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms robust, 100–200 cm long. Leaf-sheaths hirsute. Ligule a fringe of hairs. Leaf-blades 50–100 cm long, 5–10 mm wide, firm. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–30 cm long. Panicle branches hirsute. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

**Glumes.** Glumes similar, exceeding apex of florets, similar to fertile lemma in texture, shiny, gaping. Lower glume linear, 20 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface hirsute. Lower glume apex setaceously acuminate. Upper glume linear, 20 mm long, 3–4 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface hirsute. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma lanceolate, 5–7 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma surface hirsute. Lemma apex lobed, 2 -fid, with lobes 0.5–1 mm long. Palea 5–7 mm long, hyaline, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

**Flower and Fruit.** Lodicules 2, fleshy. Anthers 3, 2–5 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** New Zealand. Chatham Is.

**Austrostipa acrociliata** (Reader) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584 (1996).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa acrociliata* Reader, *Victoria Naturalist* 13: 167 (1897). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F. Reader s.n.*, 1895, Australia: Victoria: Sandy Desert, Lowan Shire (MEL-59867; IT: MEL-59869?, MEL-59868).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (69, Fig. 30), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (382, Fig. 75), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (151), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): Gk. akros, at the tip; L. cilium, hair; -ata, possessing. Glume apices hairy.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Cataphylls evident. Rhizomes short, woody. Culms robust, 60–150 cm long, woody. Culm-internodes glaucous, distally glabrous. Culm-nodes glabrous. Ligule an eciliate membrane, 4–5 mm long. Leaf-blades 3–8 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 20–40 cm long. Primary panicle branches appressed, 8–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume oblong, 7–10 mm long, 1.2–1.3 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume lateral veins all extending to apex. Lower glume margins ciliate. Lower glume apex

obtuse. Upper glume oblong, 6–8 mm long, membranous, with hyaline margins, without keels, 3 -veined. Upper glume lateral veins all extending to apex. Upper glume margins ciliate. Upper glume apex obtuse.

**Florets.** Fertile lemma lanceolate, subterete, 5–6 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, limb subterete below, 60–80 mm long overall, with twisted column. Column of lemma awn 7–10 mm long, glabrous. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, South Australia, Victoria, Western Australia.

**TDWG4.** Eremean, South-West. Southern. Western Plains.

### **Austrostipa aphylla** (Rodway) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584 (1996).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa aphylla* (Rodway) Townrow, *Pap. & Proc. Roy. Soc. Tasmania* 104: 85, 96 (1970). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Rodway* 995, Nov 1897, Australia: Tasmania: Huon Road, Hobart (HO). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 27 (1986).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig. 8), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): Gk. a-, without; phyllon, leaf. The leaves lack blades.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, slender, 50–90 cm long, 0.5–1 mm diam., 3–4 -noded. Culm-nodes pubescent. Leaf-sheaths deciduous, 0.4–1.8 cm long, glabrous on surface. Ligule a ciliate membrane, 0.1 mm long. Leaf-blades deciduous at the ligule (when inflorescence emerges), involute, 2–4.5 cm long, 1 mm wide, stiff. Leaf-blade surface ribbed.

**Inflorescence.** Inflorescence a panicle, comprising 30 fertile spikelets. Panicle open, lanceolate, 17 cm long, 3 cm wide. Primary panicle branches appressed. Panicle axis scaberulous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–20 mm long, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 13.5–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.6–2.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume linear, 13.5–15 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex attenuate. Upper glume linear, 12.5–15 mm long, membranous, without keels, 3–5 -veined. Upper glume apex attenuate.

**Florets.** Fertile lemma linear, subterete, 8–11 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface papillose, pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 60–70 mm long overall, with twisted column, limb puberulous. Column of lemma awn 40–51 mm long, puberulous. Palea 5.2–7 mm long, 0.8–1 length of lemma, without keels. Palea surface puberulous.

**Flower and Fruit.** Lodicules 3, 1.5 mm long. Anthers 3, 2.5–5.1 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Tasmania.

### **Austrostipa aquarii** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa aquarii* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 27 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Northern Territory: Waterhouse range, 24.02S, 133.36E, 3 Feb. 1976. Erect perennial, rare in skeletal soil, walls of gully, sand, *Latz* 6349 (HT: NT).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig.2A), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. aquarius*, water man. From the Waterhouse Range, Northern Territory, Australia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms 50–100 cm long, 1.5 mm diam., 5–6 -noded. Culm-internodes distally glabrous or pubescent. Culm-nodes pubescent. Lateral branches lacking. Leaf-sheaths antrorsely scabrous, glabrous on surface or hirsute, outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 1–2 mm long, pubescent on abaxial surface, obtuse. Leaf-blades convolute, 30–60 cm long, 1–2 mm wide. Leaf-blade surface ribbed, scabrous, rough abaxially, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 14–20 cm long, 1 cm wide. Primary panicle branches 1–3 cm long. Panicle axis scaberulous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, curved, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–12 mm long, 1 length of upper glume, hyaline, without keels, 3 -veined. Lower glume primary vein scaberulous. Lower glume apex acuminate. Upper glume lanceolate, 9–10 mm long, hyaline, without keels, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3.5–5 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above, pilose, hairy below. Lemma margins convolute, covering most of palea. Lemma hairs yellow. Lemma apex awned, 1 -awned. Principal lemma awn bigenulate, 40–50 mm long overall, with twisted column, limb limb ciliate, glabrescent towards tip. Middle segment of lemma awn 3–4 mm long, hirtellous. Column of lemma awn 7–9 mm long, hirtellous, with 0.8–1.3 mm long hairs. Palea 0.9 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 2, 0.7 mm long. Anthers 3, 0.8 mm long, anther tip smooth. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory.

**TDWG4.** Central Australia.

**Austrostipa aristiglumis** (F. Muell.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa aristiglumis* F. Mueller, *Trans. & Proc. Victorian Inst. Advancem. Sci.* 43 (1855). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: In bushy parts of the Murray Desert, *F. Mueller*.

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (392, Fig. 78 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (151), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. arista*, bristle; *gluma*, husk. With awned subtending glumes or lemmas.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–200 cm long, 2.5 mm diam., 3 -noded. Culm-internodes distally glabrous or pubescent. Culm-nodes pubescent. Lateral branches lacking. Leaf-sheaths ribbed, smooth or scaberulous, outer margin hairy. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.8–3 mm long, truncate or obtuse. Leaf-blades flat or convolute, 20–40 cm long, 3–6 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, 20–40 cm long, 6–10 cm wide. Primary panicle branches 10–20 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flattened, 6–12 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4–1 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume oblong, 8–14 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface smooth or asperulous, rough generally or on veins. Lower glume apex attenuate or setaceously acuminate. Upper glume oblong, 6–12 mm long, membranous, without keels, 5 -veined. Upper glume surface smooth or asperulous, rough generally or on veins. Upper glume apex attenuate or setaceously acuminate.

**Florets.** Fertile lemma elliptic, subterete, 4–7.5 mm long, coriaceous, light brown or dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy below. Lemma margins convolute, covering most of palea. Lemma hairs yellow. Lemma apex surmounted by a ring of hairs, awned, 1 -awned. Principal lemma awn bigeniculate, 25–40 mm long overall, with twisted column. Middle segment of lemma awn 6–8 mm long. Column of lemma awn 4–9 mm long. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, 0.5–1.8 mm long. Anthers 3, 2–3 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 3–4.5 mm long. Embryo 0.33–0.5 length of caryopsis. Hilum linear, 0.75–0.9 length of caryopsis.

**Distribution (TDWG).** Continent. Europe (\*), Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia.** New South Wales, Queensland, Victoria.

**TDWG4.** Central, South East. Coast, Tablelands, Western Slopes, Western Plains.

### **Austrostipa bigeniculata** (Hughes) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa bigeniculata* Hughes, *Bull. Misc. Inform. Kew* 1922: 20 (1922). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.T. Baker s.n.*, Jan 1887, Australia: New South Wales: Cooma (K; IT: US-993695).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (392, Fig. 78 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (151), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. bis, twice; geniculata, kneed. Awn of lemma bent in two places.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths pubescent. Culms erect, 20–50 cm long, 2–4 -noded. Culm-nodes pubescent. Leaf-sheaths 1.5–3 cm long, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.4–0.5 mm long. Leaf-blades filiform, convolute, 20–45 cm long, 1–2 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially, glabrous. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–25 cm long, 1–3 cm wide. Primary panicle branches 3–6 cm long, bearing 1–10 fertile spikelets on each lower branch. Panicle axis scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 5–10 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.7–3 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 15–20 mm long, 1.1–1.4 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 13–14 mm long, membranous, without keels, 5 -veined. Upper glume surface puberulous, hairy above. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7.3–10.5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface scaberulous, rough above, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs yellow or tawny. Lemma apex surmounted by a ring of hairs, with this appendage 2.2–4.4 mm long, awned, 1 -awned. Principal lemma awn bigeniculate, 40–50 mm long overall, with twisted column, limb puberulous. Column of lemma awn 20–25 mm long, puberulous. Palea 5–7 mm long, 0.9 length of lemma, without keels. Palea surface puberulous.

**Flower and Fruit.** Lodicules 3, 2.4 mm long. Anthers 3, 3.3–4.4 mm long. Stigmas 2.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** **Australia, New Zealand.** New South Wales, A.C.T., Tasmania, Victoria. New Zealand South I.

**TDWG4.** Coast, Tablelands, Western Slopes, Western Plains.

**Austrostipa blackii** (C.E. Hubb.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa blackii* C.E. Hubb., *Bull. Misc. Inform. Kew* 1925: 431 (1925). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.M. Black* 2, Australia: South Australia: Jamestown (K(photo, CANB; IT: AD, MEL-59881(probably)).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (81, Fig. 42), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (392, Fig. 78 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (152), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor John McConnell Black (1855–1951) Scots-born South Australian botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 100 cm long, 1.5–2.5 mm diam., 3–4 -noded. Culm-internodes distally glabrous or pubescent. Culm-nodes swollen, pubescent. Lateral branches lacking. Leaf-sheaths scaberulous, pubescent, outer margin hairy. Leaf-sheath oral hairs pubescent. Ligule a ciliolate membrane, 0.3–1.5 mm long, pubescent on abaxial surface, truncate. Leaf-blades flat or involute, 10–20 cm long, 2–5 mm wide. Leaf-blade surface ribbed, scabrous, rough on both sides, pubescent, hairy abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, 10–30 cm long, 2–6 cm wide. Primary panicle branches 2–8 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, terete or angular, 5–13 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1.2–2.3 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume oblong, 10–17 mm long, 1.2 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface smooth or scabrous. Lower glume margins eciliate or ciliate. Lower glume apex acuminate. Upper glume oblong, 8–15 mm long, membranous, without keels, 4–5 -veined. Upper glume surface smooth or asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma oblanceolate, subterete, gibbous, 5–7 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface pilose, hairy on veins. Lemma margins convolute, covering most of palea. Lemma hairs yellow. Lemma apex scabrous, surmounted by a ring of hairs, with this appendage 2–3 mm long, awned, 1 -awned. Principal lemma awn bigeniculate, 28–40 mm long overall, with twisted column. Middle segment of lemma awn 7–10 mm long. Column of lemma awn 6–10 mm long. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3, 2.3–3.5 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 3.4–3.8 mm long. Embryo 0.33–0.5 length of caryopsis. Hilum linear, 0.9 length of caryopsis.

**Distribution (TDWG). Continent.** Europe (\*), Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia, New Zealand.** New South Wales, South Australia, Tasmania, Victoria, Western Australia. New Zealand South I.

**TDWG4.** South-West. Southern. Western Slopes, Western Plains.

**Austrostipa blakei** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa blakei* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 34 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Warrego: Charleville, 4 Apr 1936, open places on sand, ca. 950 ft, tufted, erect, 2–3 ft, dark green, spikelets paler, *S.T. Blake 11024* (HT: BRI-250581).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (152), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): in honor of Stanley Thatcher Blake (1911–1973), Queensland botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Butt sheaths pubescent. Culms 30–100 cm long, 1–2 mm diam., 2–4 -noded. Culm-internodes distally glabrous or pubescent. Culm-nodes swollen, glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface or puberulous, outer margin glabrous or hairy. Leaf-sheath oral hairs scanty or lacking. Ligule a ciliolate membrane, 1–2.5 mm long, truncate. Leaf-blades involute, 15–28 cm long, 1.5–2 mm wide. Leaf-blade surface ribbed, pubescent, hairy abaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 20–35 cm long, 2–3 cm wide. Primary panicle branches 3–6 cm long. Panicle axis glabrous or puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flattened, 7–25 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 14–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, straight, 2.5–3 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 14–18 mm long, 1 length of upper glume, hyaline, without keels, 3 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 13–17 mm long, hyaline, without keels, 5 -veined. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 7–8 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface papillose, puberulous. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, with lobes 0.1–0.2 mm long, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, recurved at base of limb, 70–100 mm long overall, with twisted column. Column of lemma awn 9–13 mm long, pubescent, with 0.2–0.3 mm long hairs. Palea 1 length of lemma, 2 -veined, without keels. Palea surface puberulous, hairy on back.

**Flower and Fruit.** Lodicules 2, 2 mm long. Anthers 3, 3 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 4.5 mm long. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland.

**TDWG4.** Central, Inland.

**Austrostipa breviglumis** (J.M. Black) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa breviglumis* J. M. Black, *Trans. & Proc. Roy. Soc. South Australia* 65: 333 (1941). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *J.B. Cleland s.n.*, 8 Oct 1927, Australia: South Australia: Lyndoch (AD; ILT: MEL-59884). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 35 (1986).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (70, Fig. 31), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (382, Fig. 75), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. brevis*, short; *gluma*, husk. One or both glumes short with respect to the length of the spikelet.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths distinctly ribbed. Culms erect or geniculately ascending, 150 cm long, 2.5 mm diam., 2–4 -noded. Culm-nodes swollen, glabrous. Lateral branches ample. Leaves cauline. Leaf-sheaths loose or inflated, scaberulous, glabrous on surface. Ligule an eciliate membrane, 1–7 mm long, truncate. Leaf-blades flat or involute, 10–20 cm long, 2–2.5 mm wide. Leaf-blade surface ribbed, scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 20–40 cm long, 2–4 cm wide. Primary panicle branches 5–10 cm long. Panicle axis angular, glabrous or puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 0.5 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 5.5–6.5 mm long, 1 length of upper glume, hyaline, without keels, 3–5 -veined. Lower glume surface puberulous. Lower glume apex acute or acuminate. Upper glume lanceolate, 4.5–6 mm long, hyaline, without keels, 3 -veined. Upper glume surface puberulous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 3–4.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs 0.2–0.4 mm long. Lemma apex with a short cylindrical neck or surmounted by a ring of hairs, with this appendage 0.2 mm long (as to hairs), awned, 1 -awned. Principal lemma awn geniculate or bigeniculate, 20–35 mm long overall, with twisted column. Middle segment of lemma awn 5–8 mm long. Column of lemma awn 5–6.5 mm long. Palea 0.5–0.6 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3, 1.25 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** South Australia, Victoria.

**TDWG4.** Southern.

### **Austrostipa bronwenae** A.R.Williams. *Telopea* 13 (1–2) 189 (2011).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Western Australia, Harvey, 8 Dec 2008, *B.J.Keighery* (holo: PERTH; iso: NSW, MEL, CANB).

**Classification.** Subfamily Pooideae.

**Habit, Vegetative Morphology.** Perennial. Culms 90–150 cm long. Leaf-sheaths glabrous on surface, outer margin glabrous or hairy. Leaf-sheath auricles erect. Ligule an eciliate membrane or absent, 0–1(–2) mm long. Leaf-blades erect, filiform, involute or convolute, 35–45 cm long, 0.5–0.8 mm wide, stiff. Leaf-blade surface ribbed, grooved adaxially, pubescent, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 25–30 cm long, 3–4 cm wide. Primary panicle branches 8–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–13 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 11–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.5–1.8 mm long, pubescent, acute. Floret callus hairs 0.4–1 mm long (tawny).

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 11–13 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 11–12 mm long, membranous, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7–8 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs tawny, 0.5–0.6 mm long. Lemma apex dentate, 2 -fid, with lobes 0.3–1 mm long, awned, 1 -awned. Principal lemma awn bigeniculate, 42–55 mm long overall, with twisted column. Middle segment of lemma awn 8–9 mm long. Column of lemma awn 11–12 mm long, puberulous, with 0.2–0.4 mm long hairs. Palea 1 length of lemma, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Lodicules 3, ovate, 1–1.2 mm long. Anthers 3, 4.2–5 mm long, anther tip penicillate. Caryopsis with adherent pericarp, fusiform, 4.1–4.6 mm long. Embryo 0.25 length of caryopsis. Hilum linear, 0.75 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Western Australia.

**TDWG4.** South-West.

### **Austrostipa campylachne** (Nees) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584 (1996).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa campylachne* Nees, *Pl. Preiss.*, 2: 99 (1846). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Preiss 1848*, Australia: "In solo sublimoso jugi montium Darling's-range, Perth Herb. Preiss. no. 1848. -- ad flumen Cygnorum. Drummond." (MEL-59990). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 37 (1986).



**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2G), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 60–80 cm long, 1–2 mm diam., 2–4 -noded. Culm-internodes terete, distally pubescent. Culm-nodes swollen, pubescent. Leaf-sheaths tight, mostly shorter than adjacent culm internode, ribbed, pubescent to hirsute, outer margin hairy. Leaf-sheath auricles absent or erect. Ligule a ciliolate membrane, 0.3–0.6 mm long, truncate. Leaf-blades convolute, 15–35 cm long, 1.5–2 mm wide. Leaf-blade surface ribbed, scaberulous, rough adaxially, pubescent to hirsute, hairy on both sides. Leaf-blade margins ciliate. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear or lanceolate, 10–20 cm long, 2–3 cm wide. Primary panicle branches 2–3 cm long. Panicle axis scaberulous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–10 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 14–23 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–2.5 mm long, pubescent, acute. Floret callus hairs 0.2–0.8 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 15–23 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface scabrous. Lower glume apex acuminate. Upper glume lanceolate, 14–18 mm long, membranous, without keels, 5 -veined. Upper glume surface scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 8–9 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent or pilose. Lemma margins convolute, covering most of palea. Lemma hairs 0.3–1 mm long. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 50–70 mm long overall, with twisted column, limb scaberulous. Middle segment of lemma awn 10 mm long. Column of lemma awn 20 mm long, pubescent to hirsute, with 0.3–1.6 mm long hairs. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Lodicules 2, 1.6–1.8 mm long. Anthers 3, 2.5–3.5 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 4–5 mm long. Embryo 0.2 length of caryopsis. Hilum linear, 0.8–1 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** Eremean.

**Austrostipa centralis** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa centralis* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 39 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Northern Territory: Mt. Riddock, 23.06S 134.38E, erect perennial, common in skeletal soil, southern slope of metamorphic hill, 13 Sep 1973, P.K. Latz 4305 (HT: NT-41138).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig.2M), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. centrum, centre of a circle; -ale, pertaining to. From Central Australia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Butt sheaths woolly. Basal innovations extravaginal. Culms 40–80 cm long, 1 mm diam., 4–5 -noded. Culm-internodes smooth. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths tight, glabrous on surface or puberulous. Ligule an eciliate membrane, 0.6–1 mm long, scarious, pubescent on abaxial surface, acute. Leaf-blades involute, 10–25 cm long, 1.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough adaxially. Leaf-blade margins smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle, comprising 10–30 fertile spikelets. Panicle open, 10–20 cm long, 1–2.5 cm wide, bearing few spikelets. Primary panicle branches 1.5–4 cm long. Panicle axis scaberulous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–25 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 13–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume elliptic, 13–18 mm long, 1 length of upper glume, hyaline, without keels, 3 -veined. Lower glume surface puberulous, hairy below. Lower glume apex acuminate. Upper glume elliptic, 12–16 mm long, hyaline, without keels, 5 -veined. Upper glume surface puberulous, hairy below. Upper glume apex acuminate.

**Florets.** Fertile lemma oblanceolate, subterete, 5–9 mm long, coriaceous, light brown or dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface granulose, glabrous. Lemma margins convolute, covering most of palea. Lemma apex entire or dentate, 2 -fid, with lobes 0.3 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 50–60 mm long overall, with twisted column. Middle segment of lemma awn 7–12 mm long. Column of lemma awn 12–13 mm long, pubescent, with 0.25–0.4 mm long hairs. Palea 0.9 length of lemma, 2 -veined, without keels. Palea surface puberulous, hairy on back.

**Flower and Fruit.** Lodicules 2 or 3, 1 mm long. Anthers 3, 0.8–1.5 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory.

**TDWG4.** Central Australia.

**Austrostipa compressa** (R. Br.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 584. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa compressa* R.Br, *Prodr.* 175 (1810). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A. Menzies s.n.*, Australia: Western Australia: King Georges Sound (BM).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. comprimo*, squeeze together. Culms flattened.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Butt sheaths glabrous. Culms 20–45 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 10 mm long, erose or bilobed or trilobed. Leaf-blades filiform or linear, involute, 1–2 mm wide, firm.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, 20 cm long. Primary panicle branches whorled at most nodes. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 10–15 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 13 mm long, 1.5 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 9 mm long, membranous, without keels, 3–5 -veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, subterete, 7–8 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 70–170 mm long overall, with twisted column, limb pubescent. Column of lemma awn pubescent. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** Eremean, South-West.

**Austrostipa crinita** (Gaudich.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa crinita* R.Br., *Prodr.* 175 (1810). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Labillardiere s.n.*, Australia: Western Australia: Shark Bay (P; IT: G, FI-W).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. with long hair. Hairy as of leaf-blades or awns invested in long weak hairs.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–80 cm long. Culm-internodes smooth or scaberulous. Ligule a ciliate membrane. Leaf-blades filiform, involute, 1–2 mm wide. Leaf-blade surface glabrous or pubescent.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume primary vein scabrous. Lower glume lateral veins obscure. Lower glume apex acuminate. Upper glume lanceolate, 12 mm long, membranous, with hyaline margins, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, ascending (straight), 40 mm long overall, with twisted column. Column of lemma awn 11 mm long, glabrous. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG), Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** Eremean.

**Austrostipa curticoma** (Vickery) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa curticoma* Vickery, *Telopea* 2(1): 11 (1980). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia: South Australia: Mt. Lofty Ranges, 3 km S of Mt. Barker, 13 Oct 1974, *M.D. Crisp* 884 (CBG-058899).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (82, Fig. 43), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (392, Fig. 78 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. curtus, short; coma, hair-tuft. With a short tuft of hairs at the apex of the lemma.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 60–120 cm long, 2–3 mm diam., 3–4 -noded. Culm-internodes distally glabrous. Culm-nodes swollen, pubescent. Lateral branches lacking. Leaf-sheaths glabrous on surface or puberulous, outer margin hairy. Leaf-sheath oral hairs ciliate, 1 mm long. Ligule a ciliolate membrane, 0.5–1.5 mm long, pubescent on abaxial surface, truncate. Leaf-blades flat or involute, 15–30 cm long, 3–5 mm wide. Leaf-blade surface ribbed, scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–30 cm long, 5–7 cm wide. Primary panicle branches spreading, 5–10 cm long. Panicle axis smooth or scabrous, with scattered hairs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 4–16 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1.5–2.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume oblong, 12–16 mm long, 1.1–1.3 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface asperulous, rough generally or on veins. Lower glume apex acuminate. Upper glume oblong, 9–14 mm

long, membranous, without keels, 5 -veined. Upper glume surface asperulous, rough generally or on veins. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, subterete, 6.5–8 mm long, coriaceous, dark brown or black, without keel, 5 -veined, more than 3-veined. Lemma surface granulose, pilose. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, with lobes 0.1–0.5 mm long, with a short cylindrical neck or surmounted by a ring of hairs, with this appendage 0.5–1 mm long (as to hairs), awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 45–65 mm long overall, with twisted column. Middle segment of lemma awn 9–14 mm long. Column of lemma awn 9–11 mm long, pubescent, with 0.25–0.5 mm long hairs. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, 1–2 mm long. Anthers 3, 3–3.5 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 4 mm long. Embryo 0.33 length of caryopsis. Hilum linear, 0.9 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** South Australia, Victoria.

**TDWG4.** Southern.

**Austrostipa densiflora** (Hughes) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa congesta* Summerh. & C.E. Hubb., *Bull. Misc. Inform. Kew* 1925: 362 (1927). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Etheridge s.n.*, 1865, Australia: South Victoria (K).

**Recent Synonyms:** *Stipa densiflora* D.K.Hughes, *Kew Bull.* 1921, 18. (1921).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (101, Fig. 63), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (398, Fig. 79 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (152), D.Sharp & B.K.Simon, *AusGrass*. *Grasses of Australia*. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. densus*, dense; flos, flower. Inflorescences congested.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms 60–100 cm long. Culm-nodes pubescent. Leaf-sheaths pubescent. Ligule a ciliolate membrane. Leaf-blades convolute, 6–13 cm long, 1–2 mm wide. Leaf-blade surface pubescent, hairy on both sides. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, elliptic or oblong, 10–20 cm long, 2–4 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 14–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface pubescent. Lower glume apex acuminate. Upper glume lanceolate, 14–16 mm long, membranous, without keels, 3 -veined. Upper glume surface puberulous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma apex emarginate, awned, 1 -awned. Principal lemma awn geniculate, 30–38 mm long overall, with twisted column, limb hirsute, with 1 mm long hairs. Column of lemma awn 16–18 mm long, hirsute, with 1 mm long hairs. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** New South Wales, A.C.T., Queensland, South Australia, Tasmania.

**TDWG4.** Southern. South East. Coast, Tablelands, Western Slopes.

**Austrostipa dongicola** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa dongicola* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 46 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Western Australia: Blackoak Donga, Kanandah Station, ca. 20 km N of Naretha Donga, 16 Sep 1974, M.G. Brooker 160 (HT: CANB-249733; IT: NSW).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. -cola, dweller. Growing in shallow gullies, that is dongas (from Zulu, udonga) in Western Australia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations extravaginal. Culms 100 cm long, 1.3–2.2 mm diam., 3–4 -noded. Culm-internodes distally pubescent. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths loose, glabrous on surface. Ligule an eciliate membrane, 0.8–1.5 mm long, pubescent on abaxial surface, truncate or obtuse. Leaf-blades straight or flexuous, flat or involute, 15–35 cm long, 3–4 mm wide. Leaf-blade surface pubescent, hairy on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, 14–30 cm long, 1–6 cm wide. Primary panicle branches 2–5 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–11 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume oblong, 7–12 mm long, 1 length of upper glume, membranous, purple, without keels, 3 -veined. Lower glume apex acuminate. Upper glume oblong, 8–11 mm long, membranous, purple, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong, subterete, 5–6.5 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white or yellow. Lemma apex with a short cylindrical neck or surmounted by a ring of hairs, with this appendage 0.7 mm long (as to hairs), awned, 1 -awned. Principal lemma awn bigenulate, 30–40 mm long overall, with twisted column. Middle segment of lemma awn 5 mm long. Column of lemma awn 10 mm long, hirtellous, with 0.5–1.5 mm long hairs. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, 0.4–0.6 mm long. Anthers 3, 3.5 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 3–3.5 mm long. Embryo 0.33 length of caryopsis. Hilum linear, 0.75 length of caryopsis.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** Eremean.

**Austrostipa drummondii** (Steud.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa drummondii* Steud., *Syn. Pl. Glumac.* 1: 128 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Drummond IV 378 [as 578]* see Vickery et al., *Telopea* 3: 47 (1986) for discussion about the type collection misidentification.

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (72, Fig. 33), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 76 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (153), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor of James Drummond (c. 1784–1863) Scots-born Australian botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–60 cm long, compressible. Lateral branches lacking. Leaf-sheaths loose, smooth or antrorsely scabrous. Ligule an eciliate membrane, 2–4 mm long, obtuse. Leaf-blades involute, 1–2 mm wide, stiff. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, 15–30 cm long. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–6 mm long, tip widened.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, dissimilar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9 mm long, 1.2 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume apex entire or dentate, 2–3 -fid, obtuse. Upper glume lanceolate, 7–8 mm long, membranous, much thinner above, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 45–60 mm long overall, with twisted column. Column of lemma awn 13 mm long, pubescent. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** Australia. New South Wales, South Australia, Victoria, Western Australia.

**TDWG4.** Eremean, South-West. Southern. Tablelands, Western Slopes, Western Plains.

**Austrostipa echinata** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa echinata* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 50 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Australia: Hindmarsh I., E of Goolwa, 10 Oct 1945, *F.M. Hilton s.n.* (HT: NSW-117382).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (92, Fig. 54), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. spiny. Plants forming spiny tussocks.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50 cm long, 1.5–2 mm diam., 3–4 -noded. Culm-internodes estriate or ridged. Culm-nodes flush with internodes, pubescent. Lateral branches lacking. Leaf-sheaths tight, ribbed, glabrous on surface, outer margin hairy. Leaf-sheath auricles erect, 1–3.5 mm long. Ligule an eciliate membrane or a ciliate membrane, 1.5–2.5 mm long, pubescent on abaxial surface, truncate or obtuse. Leaf-blades erect, convolute, 7–15 cm long, 1–2 mm wide, stiff. Leaf-blade surface ribbed, scaberulous, rough adaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–20 cm long, 1.5–3 cm wide. Primary panicle branches 1.5–2.5 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flattened, 2–10 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 21–23 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.6–3.2 mm long, pubescent, acute. Floret callus hairs 0.1–1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 21–23 mm long, 1.3–1.5 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface smooth to scabrous. Lower glume apex acute or acuminate. Upper glume lanceolate, 14–18 mm long, membranous, without keels, 5 -veined. Upper glume surface smooth to scabrous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 8–10 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or granulose, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white or yellow, 0.4–0.7 mm long. Lemma apex dentate, 2 -fid, with lobes 0.2–0.7 mm long, surmounted by a ring of hairs, with this appendage 0.6–1.2 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 90–110 mm long overall, with twisted column. Middle segment of lemma awn 15–20 mm long. Column of lemma awn 10–20 mm long, pubescent, with 0.2–0.8 mm long hairs. Palea 1 length of lemma, 2 -veined, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Lodicules 2, 1–1.5 mm long. Anthers 3, 3.2–3.8 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 3 mm long. Embryo 0.15 length of caryopsis. Hilum linear, 0.7 length of caryopsis.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** Australia. South Australia.  
**TDWG4.** Southern.

**Austrostipa elegantissima** (Labill.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa elegantissima* Labill., *Nov. Holl. Pl.* 1: 23, t. 29 (1804 [1805]). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Labillardiere s.n.*, Australia: W. Australia: "Habitat in capite Van-Diemen." (FI-W). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 51 (1986).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (67, Fig. 28), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (173, Pl. 50 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (153), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (186).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. elegans*, elegant; -issima, most. Very attractive in some respect, usually the inflorescence.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms rambling or scandent, 200–300 cm long. Culm-nodes glabrous. Lateral branches ample. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long, lacerate. Leaf-blades involute, 1–2 mm wide.

**Inflorescence.** Inflorescence a panicle, deciduous as a whole. Panicle open, 15–25 cm long. Primary panicle branches whorled at most nodes, branching divaricately. Panicle branches plumose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, plumose.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–10 mm long, 0.75–0.85 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface pubescent. Lower glume apex acuminate. Upper glume lanceolate, 8–10 mm long, membranous, without keels, 3 -veined. Upper glume surface pubescent. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 8 mm long, coriaceous, without keel, more than 3-veined. Lemma surface scabrous, rough above, pubescent, hairy at base. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 30–55 mm long overall, with twisted column. Column of lemma awn 15 mm long, plumose. Palea 2 mm long, 0.25 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, South Australia, Victoria, Western Australia.

**TDWG4.** Ereman, South-West. NW & Lake Eyre, Southern. Coast, Tablelands, Western Slopes, Western Plains.

**Austrostipa eremophila** (Reader) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa eremophila* Reader, *Victoria Naturalist* 17: 154 (190). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F.M. Reader s.n.*, 1898, Australia: Victoria: Sandy Desert. Lowan (MEL-59873).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (98, Fig. 60), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 77 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (153), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *Gk. eremos*, desert; *phileo*, love. Desert species.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Culms erect or geniculately ascending, 60–100 cm long. Culm-nodes pubescent. Leaf-sheaths glabrous on surface or pubescent. Ligule an eciliate membrane or a ciliolate membrane. Leaf-blades convolute, 25–55 cm long, 2–3 mm wide. Leaf-blade surface glabrous or pubescent. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear, 15–30 cm long. Primary panicle branches 4–9 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–8 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 13–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 13–17 mm long, membranous, with hyaline margins, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 10 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma hairs tawny. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 65–70 mm long overall, with twisted column. Column of lemma awn 25–30 mm long, puberulous. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, New South Wales, Victoria.

**TDWG4.** Ereman, South-West. NW & Lake Eyre, Southern. Tablelands, Western Slopes, Western Plains.

**Austrostipa exilis** (Vickery) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa exilis* Vickery, *Telopea* 2(1): 13 (1980). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: South Australia: Northern York Peninsula, Section 155, Hundred of Wiltunga, ca. 140 km NNW of Adelaide, 21 Oct 1966, *Copley 799* (HT: AD-9670326).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (93, Fig. 55), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 77 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. slender. Culms slender.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 40 cm long, 2 -noded. Culm-internodes scaberulous or antrorsely scabrous, distally glabrous. Culm-nodes pubescent. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths tight, wider than blade at the collar, striately veined, antrorsely scabrous, pubescent, outer margin hairy. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane, 0.5 mm long, obtuse. Leaf-blades filiform, convolute, 5–25 cm long, 0.5 mm wide. Leaf-blade surface scabrous, puberulous to hirsute, hairy on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, 5–15 cm long, bearing few spikelets. Primary panicle branches ascending. Panicle axis smooth or scaberulous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 8–11 mm long, 1.1–1.3 length of upper glume, hyaline, without keels, 3 -veined. Lower glume surface scabrous. Lower glume apex acuminate. Upper glume lanceolate, 7–8 mm long, hyaline, without keels, 5 -veined. Upper glume surface scabrous. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 4.5–5.5 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface scaberulous, pubescent. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight or bigeniculate, 38–55 mm



long overall, with twisted column. Palea 1 length of lemma, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, Victoria.

**TDWG4.** South-West. Southern.

**Austrostipa feresetacea** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa feresetacea* Vickery, S.W.L. Jacobs & J. Everett. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Northern Territory: Mount Giles, 23.39S 132.55E, 19 Sep 1976, spreading perennial, rare in skeletal soil, side of gully in shistose [shistose] hill, *P.K. Latz 6605* (HT: NT-5110; IT: NSW).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (154), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. fere*, nearly. Similar to *Stipa setacea*.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–100 cm long, 0.4–1.2 mm diam., compressible, 3 -noded. Culm-internodes striate or ridged, smooth or scaberulous. Culm-nodes swollen, pubescent. Lateral branches lacking. Leaf-sheaths ribbed, smooth or scaberulous, outer margin glabrous. Ligule an eciliate membrane, 3.5–8 mm long, acute or acuminate. Leaf-blades convolute, 15–30 cm long, 0.7–0.9 mm wide. Leaf-blade surface ribbed, scaberulous, rough abaxially, puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 6–12 cm long, 0.5–1 cm wide. Primary panicle branches 0.1–2.5 cm long. Panicle axis scaberulous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–7 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 4–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.7–1.4 mm long, pubescent, acute. Floret callus hairs 0.1–1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 4–7 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface smooth or asperulous. Lower glume apex acute. Upper glume lanceolate, 4–6 mm long, membranous, without keels, 3–5 -veined. Upper glume surface smooth or asperulous. Upper glume apex acute.

**Florets.** Fertile lemma oblanceolate, subterete, 3–4.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or granulose, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs 0.5–1 mm long. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 12–18 mm long overall, with twisted column. Middle segment of lemma awn 3–4 mm long. Column of lemma awn 3.5–6 mm long. Palea 1 length of lemma, 2 -veined, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Lodicules 3, 0.5–0.8 mm long. Anthers 3, 1.4–1.8 mm long, anther tip smooth. Stigmas 2. Caryopsis with adherent pericarp, 2–2.5 mm long. Embryo 0.3–0.4 length of caryopsis. Hilum linear, 0.8–1 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Northern Territory.

**TDWG4.** Central Australia.

**Austrostipa flavescens** (Labill.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 585. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa flavescens* Labill., *Nov. Holl. Pl.* 1: 24. t. 30. (1804). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Labilliere s.n.*, Australia (FI-W; IT: G, K).

**Recent Synonyms:** *Stipa hirsuta* D.K.Hughes, *Kew Bull.* 1921, 22. (1921).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (94, Fig. 56), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig 4), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (154), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): *L. flavescens*, become yellow. Spikelets yellowish.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths grey, pubescent. Culms erect or geniculately ascending, robust, 40–80 cm long, 3–4 -noded. Culm-nodes pubescent. Leaf-sheaths glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.5 mm long, truncate. Leaf-blades convolute, 9–54 cm long, 2–5 mm wide, stiff. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 15–30 cm long, 2 cm wide. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–12 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9.8–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.1–3.5 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 9.8–15 mm long, 1.1–1.2 length of upper glume, hyaline, without keels, 3 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins prominent. Lower glume surface puberulous. Lower glume apex acuminate. Upper glume lanceolate, 8.5–12 mm long, hyaline, without keels, 5 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins prominent. Upper glume surface puberulous. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 7.5–12 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface papillose, rough above, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs red. Lemma apex entire or dentate, 2 -fid, with lobes 0.1–0.6 mm long, surmounted by a ring of hairs, with this appendage 0.5–1.3 mm long, awned, 1 -awned. Principal lemma awn bigeniculate, 50–60 mm long overall, with twisted column. Column of lemma awn 17–30 mm long, puberulous. Palea 4.5–6.5 mm long, 0.8 length of lemma, without keels. Palea surface pubescent.

**Flower and Fruit.** Lodicules 3, 2–2.5 mm long. Anthers 3, 0.8–1.9 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia, New Zealand.** Western Australia, South Australia, New South Wales, Victoria, Tasmania. New Zealand South I.

**TDWG4.** Eremaean, South-West. Southern. Coast.

**Austrostipa geoffreyi** S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa geoffreyi*. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Western Australia: Lake King, 33o05"26S 119o33"37E, 12 Feb 1993, *S.W.L. Jacobs 7030* (HT:NSW-293105. IT:PERTH).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): In honor of Geoffrey Thomas Jacobs (1980-) Australian Information Technologist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 100–180 cm long, 2–4 mm diam., 3 -noded. Culm-internodes terete, distally glabrous. Culm-nodes swollen. Leaf-sheaths loose, ribbed, smooth, puberulous, outer margin glabrous. Ligule an eciliate membrane, 6–12 mm long, acute. Leaf-blades convolute, 50–100 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 30–40 cm long, 3–5 cm wide. Primary panicle branches 6–12 cm long. Panicle axis glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–13 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–3 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 12–15 mm long, membranous, yellow, 1-keeled, 3 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 12–16 mm long, membranous, yellow, 1-keeled, 3 -veined. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 9–12 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma hairs white, 1–1.5 mm long. Lemma apex dentate, 2 -fid, with lobes 2.5 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigenulate, 50–80 mm long overall, with twisted column. Middle segment of lemma awn 5–10 mm long. Column of lemma awn 5–10 mm long. Palea 1 length of lemma, without keels. Palea surface pubescent, hairy on back. Palea apex dentate, 3–4 -fid.

**Flower and Fruit.** Lodicules 2, 1–2 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** South-West.

**Austrostipa gibbosa** (Vickery) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 586. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa gibbosa* Vickery, *Telopea* 2: 14 (1980). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: South Australia: Burnside Distr.: Beaumont Common, ca. 6 km SE of Adelaide, 11 Oct 1942, *Cleland s.n.* (AD-96323216).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (83, Fig. 44), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (392, Fig. 78 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (154), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. gibba*, swelling; -osa, indicating abundance. Spikelets swollen asymmetrically.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 100–150 cm long, 1.5–2.5 mm diam., 2–3 -noded. Culm-internodes smooth or scaberulous. Culm-nodes swollen, pubescent. Lateral branches lacking. Leaf-sheaths ribbed, glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 0.3–0.5 mm long, pubescent on abaxial surface, truncate. Leaf-blades flat or convolute, 15–30 cm long, 2–5 mm wide. Leaf-blade surface ribbed, pubescent, hairy abaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 15–30 cm long, 1.5–2 cm wide. Primary panicle branches 4–9 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flattened, 4–10 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 1–1.5 mm long, pubescent, truncate.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume elliptic, 11–17 mm long, 1.3–1.4 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface scabrous, rough generally or on veins. Lower glume apex acute or acuminate. Upper glume elliptic, 8–13 mm long, membranous, without keels, 5 -veined. Upper glume surface scabrous, rough generally or on veins. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma oblong, subterete, gibbous, 4.5–6 mm long, coriaceous, dark brown to black, without keel, 5 -veined, more than 3-veined. Lemma surface granulose, pilose. Lemma margins convolute, covering most of palea. Lemma hairs white or yellow. Lemma apex surmounted by a ring of hairs, with this appendage 0.8–1.3 mm long, awned, 1 -awned. Principal lemma awn eccentric, bigenulate, 25–35 mm long overall, with twisted column. Middle segment of lemma awn 1–12 mm long. Column of lemma awn 5–8 mm long. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3, 0.5–1.3 mm long. Anthers 3, 2.5–3 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 3.5 mm long. Embryo 0.33 length of caryopsis. Hilum linear, 0.75 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia, New South Wales, Victoria.

**TDWG4.** Southern. Western Slopes, Western Plains.

**Austrostipa hemipogon** (Benth.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 586. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa hemipogon* Benth., *Fl. Austral.* 7: 569 (1878). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Drummond 376*, Australia: Western Australia (K; ILT: MEL). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 63 (1986).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (102, Fig. 64), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (181, Pl. 52 as *Stipa nobilis*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (398, Fig. 79 as *Stipa* & *S. nobilis*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2 & 24, Fig. 3), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): Gk. hemi-, half; pogon, beard. Lemma hairy only towards the apex.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, robust, 40–60 cm long. Leaf-sheaths smooth or scaberulous. Ligule a ciliate membrane. Leaf-blades erect, convolute, 2–3 mm wide. Leaf-blade surface glabrous or hispid.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, oblong, 15–30 cm long. Primary panicle branches appressed, 5–10 cm long. Spikelets solitary. Fertile spikelets sessile or pedicelled. Pedicels absent or present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 12–17 mm long, membranous, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6.5–8.5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 45–67 mm long overall, with twisted column. Column of lemma awn 10–12 mm long, plumose, hairy generally or on lower part. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, Victoria.

**TDWG4.** South-West. Southern.

**Austrostipa jacobsiana** A.R.Williams. *Telopea* 13 (1–2) 186 (2011).

**TYPE** from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Western Australia, Southern River, Perth, 14 Nov.2003, A.R.Williams 881 (holo: Perth 07770111; iso: NSW).

**Derivation** (Clifford & Bostock 2007): Named for Surrey Jacobs (1946–2009), Australian botanist based at NSW.

**Classification.** Subfamily Pooideae.

**Habit, Vegetative Morphology.** Perennial. Culms 80–120 cm long. Leaf-sheaths puberulous. Leaf-sheath auricles erect. Ligule an eciliate membrane, 0.4–1 mm long, obtuse. Leaf-blades erect, filiform, conduplicate, 35–45 cm long, 0.5–0.8 mm wide, stiff. Leaf-blade surface ribbed, grooved adaxially, puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–20 cm long, 1–2 cm wide. Primary panicle branches 4–8 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–13 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.6–2.1 mm long, pubescent, acute. Floret callus hairs 0.6–0.7 mm long (white).

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–12 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 9–12 mm long, membranous, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6–8 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white, 0.4–0.5 mm long. Lemma apex dentate, 2-fid, with lobes 0.4–0.8 mm long, awned, 1-awned. Principal lemma awn bigeniculate, 38–49 mm long overall, with twisted column. Middle segment of lemma awn 4–9 mm long. Column of lemma awn 11–17 mm long, puberulous, with 0.1–0.15 mm long hairs. Palea 1 length of lemma, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Lodicules 3, ovate, 1.1–1.5 mm long. Anthers 3, 3.2–3.3 mm long, anther tip smooth. Caryopsis with adherent pericarp, fusiform, 4.5–5 mm long. Embryo 0.25 length of caryopsis. Hilum linear, 0.66 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Western Australia. South-West.

**Austrostipa juncifolia** (Hughes) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 586. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa juncifolia* Hughes, *Bull. Misc. Inform. Kew* 1921: 11 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Drummond, 4th coll. no. 377*, Australia: Western Australia: Swan River (K(photo, CANB)).

**Illustrations (Books):** C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (175, Pl. 51 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. *junccea*, rush-like; folium, leaf. With rush-like leaf-blades or culms.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Culms erect, reed-like, 60–100 cm long, 2–3-noded. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 5–7 mm long. Leaf-blades erect, acuminate, convolute, 30–60 cm long, 1–2 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 16–20 cm long. Primary panicle branches 2–6 cm long, bearing 6–10 fertile spikelets on each lower branch. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9 mm long, 1 length of upper glume, membranous, light brown, without keels, 3–5-veined. Lower glume apex acute. Upper glume lanceolate, 9 mm long, membranous, light brown, without keels, 3–5-veined. Upper glume apex acute.

**Florets.** Fertile lemma lanceolate, subterete, 7 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma hairs white, 1–2 mm long. Lemma apex dentate, 2-fid, with lobes 1.2–2 mm long, awned, 1-awned. Principal lemma awn geniculate, 50 mm long overall, with twisted column. Column of lemma awn 10 mm long. Palea 1 length of lemma, without keels. Palea surface pilose.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State. Australia.** Western Australia.

**TDWG4.** South-West.

**Austrostipa lanata** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 586. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa lanata* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 68 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Western

Australia: 7 mi [11 km] N of Mundrabilla Homestead, found growing on gently undulating calcareous plain up to height of 45 cm in a herbfield, 31 Jul 1974, *Mitchell 2* (HT: PERTH).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (84, Fig. 45), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig. 8), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. lana*, wool; -ata, possessing. Ribs of lowermost leaf-sheaths woolly.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths pilose or woolly. Culms 45 cm long, 1–2 mm diam., 1–2 -noded. Culm-internodes distally pubescent. Culm-nodes pubescent. Lateral branches lacking. Leaf-sheaths inflated, longer than adjacent culm internode, glabrous on surface to pubescent, outer margin hairy. Leaf-sheath oral hairs woolly. Ligule a ciliolate membrane, 0.4–1.5 mm long. Leaf-blades flat or involute, 20 cm long, 1.5–4 mm wide. Leaf-blade surface pubescent or woolly, densely hairy.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 10–15 cm long, bearing few spikelets. Primary panicle branches 1–4 cm long. Panicle axis pubescent. Panicle branches pubescent or pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 4–15 mm long, pubescent or ciliate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 19–26 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3 mm long, pilose, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 19–26 mm long, 1.4 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface smooth. Lower glume apex acuminate. Upper glume lanceolate, 14–19 mm long, membranous, without keels, 5 -veined. Upper glume surface smooth. Upper glume apex acuminate.

**Florets.** Fertile lemma oblanceolate, subterete, 6.5–8 mm long, coriaceous, dark brown, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma margins convolute, exposing palea. Lemma apex scabrous, surmounted by a ring of hairs, with this appendage 1.5 mm long, awned, 1 -awned. Principal lemma awn bigenulate, 65–80 mm long overall, with twisted column. Middle segment of lemma awn 12–15 mm long. Column of lemma awn 10–15 mm long, pubescent, with 0.3 mm long hairs. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 2 or 3, 0.5–1 mm long. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 4 mm long. Embryo 0.33 length of caryopsis. Hilum linear, 0.85 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia.

**TDWG4.** South-West. Southern.

**Austrostipa macalpinei** (Reader) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa macalpinei* Reader, *Victoria Naturalist* 15: 143 (1899). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Hilly Mallee country and sandy heaths, Lowan, Dimboola Shire, 1892, *F.M. Reader s.n.*

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (87, Fig. 48), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 76 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor of Daniel McAlpine (1849–1932) Scots-born Australian mycologist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Butt sheaths pubescent. Culms erect, robust, 20–40 cm long, 1 -noded. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths striately veined, glabrous on surface or pubescent. Ligule an eciliate membrane, 8–10 mm long. Leaf-blades filiform, convolute, 1–2 mm wide. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, 10–20 cm long. Primary panicle branches 4–8 cm long. Panicle axis scabrous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets lanceolate, subterete, 22 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 22 mm long, 1.6 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 14 mm long, membranous, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs yellow. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 120–150 mm long overall, with twisted column. Column of lemma awn 45 mm long, glabrous. Palea 1 length of lemma, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, Victoria.

**TDWG4.** South-West. Southern.

**Austrostipa metatoris** (J. Everett & S.W.L. Jacobs) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa metatoris* J. Everett & S.W.L. Jacobs, *Telopea* 2(4): 399 (1983). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: J. Everett & S. Jacobs 341, 16 Oct 1981, Australia: New South Wales (US-3267702).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (154), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. metator*, surveyor. Named in allusion to D.W.L. Henderson (-), surveyor in New South Wales, Australia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Culms erect or geniculately ascending, 1.5–2.5 mm diam., 2–3 -noded. Culm-internodes terete, distally glabrous or pubescent. Culm-nodes swollen, pubescent. Leaves basal and cauline. Leaf-sheaths tight, pubescent or hirsute, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1–2.2 mm long, pilose on abaxial surface, lacerate, truncate or obtuse or acute. Leaf-blades involute, 20–40 cm long, 2–4 mm wide. Leaf-blade surface ribbed, grooved adaxially, pubescent or hirsute, hairy on both sides.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, elliptic, 15–25 cm long, 3–6 cm wide. Primary panicle branches spreading, 5–10 cm long. Panicle axis scaberulous, glabrous or puberulous. Panicle branches scaberulous, glabrous or puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–10 mm long, scaberulous, glabrous or puberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 16–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–2.8 mm long, pilose, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 16–20 mm long, 1.3 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume surface smooth or asperulous, rough on veins. Lower glume apex acuminate. Upper glume lanceolate, 10–15 mm long, membranous, much thinner above, without keels, 5 -veined. Upper glume surface smooth or asperulous, rough on veins. Upper glume apex acuminate.

**Florets.** Fertile lemma oblong or oblanceolate, subterete, 7–8.2 mm long, coriaceous, without keel, more than 3-veined. Lemma surface hirsute. Lemma margins convolute, covering most of palea. Lemma apex dentate, 2 -fid, with lobes 0.2–0.5 mm long, surmounted by a ring of hairs, with this appendage 2.5–3.5 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 55–65 mm long overall, with twisted column, limb glabrous or puberulous, with 0.2–0.3 mm long hairs. Middle segment of lemma awn 9–12 mm long. Column of lemma awn 11–13 mm long, puberulous, with 0.2–0.3 mm long hairs. Palea 0.9 length of lemma, without keels. Palea surface puberulous, hairy on back. Palea apex ciliate.

**Flower and Fruit.** Lodicules 3, 1.5–2 mm long. Anthers 3, 1.2–4 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 3.5–4.5 mm long. Embryo 0.3–0.4 length of caryopsis. Hilum linear, 0.75 length of caryopsis.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** Australia. South Australia, New South Wales.

**TDWG4.** Southern. Western Plains.

**Austrostipa mollis** (R. Br.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa mollis* R. Br., *Prodr.* 174 (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6205*, 1802–1805, Australia (BM(photo, CANB); IT: K).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (103, Fig. 65), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (398, Fig. 79 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (155), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L.* soft. Softly hairy usually of leaf-blades.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, short-lived, culms solitary or caespitose. Culms erect, 30–150 cm long, 1–3.5 mm diam., 3–6 -noded. Culm-internodes distally pubescent. Culm-nodes pubescent. Leaf-sheaths loose, pubescent, outer margin glabrous or hairy. Leaf-sheath oral hairs bearded. Ligule a ciliate membrane, 1.2 mm long, pilose on abaxial surface. Leaf-blades involute, 15–45 cm long, 1.5–3 mm wide, coriaceous, stiff. Leaf-blade surface ribbed, pubescent, densely hairy, hairy adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 14–28 cm long, 5 cm wide. Primary panicle branches 3–7 cm long. Panicle axis scaberulous. Panicle branches bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 3–5 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 17.4–23 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.3–3.9 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 17.4–23 mm long, 1.1 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume surface puberulous. Lower glume apex acuminate. Upper glume lanceolate, 18–21 mm long, membranous, much thinner above, without keels, 5–7 -veined. Upper glume surface puberulous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6.6–10.5 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface scaberulous, rough above, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs tawny. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 45–65 mm long overall, with twisted column, limb ciliate. Column of lemma awn 16.5–32 mm long, hirsute, with 1–2 mm long hairs. Palea 5–6 mm long, 0.9 length of lemma, without keels. Palea surface pubescent.

**Flower and Fruit.** Lodicules 2, 1.5 mm long. Anthers 3, 3.2–4.7 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** Western Australia, South Australia, New South Wales, A.C.T., Victoria, Tasmania.

**TDWG4.** South-West. Southern. Coast, Tablelands, Western Slopes, Western Plains.

**Austrostipa muelleri** (Tate) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa muelleri* Tate, *Trans. & Proc. Roy. Soc. South Australia* 7: 70 (1885). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Australia: open parts in the stringy bark forests (*Eucalyptus obliqua*) at Uraidla, Mt. Lofty Range, and scrublands c. Mt. Jagged, towards Encounter Bay, flowering in October, *R. Tate s.n.* (HT: AD).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (88, Fig. 49), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (379, Fig. 74 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig. 8), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): in honor of Ferdinand Jacob Heinrich Mueller (1825–96) German-born Australian botanist.



**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Cataphylls evident. Rhizomes short, knotty. Culms erect or decumbent, 50–100 cm long, 0.7–0.9(–1.2) mm diam., wiry. Lateral branches fastigiate or suffrutescent. Leaves cauline, with blades commonly suppressed, transferring photosynthetic function to sheath and culm. Leaf-sheaths wider than blade at the collar, ribbed (slightly to moderately). Leaf-sheath auricles erect. Ligule a fringe of hairs. Leaf-blades filiform, 0.1 cm long, 0.15 mm wide, stiff.

**Inflorescence.** Inflorescence comprising only a few spikelets, comprising 1–3 fertile spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, terete or flattened (slightly), 6–15 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets subterete, 18–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–3 mm long, pubescent or pilose.

**Glumes.** Glumes two, persistent, similar, thinner than fertile lemma. Lower glume lanceolate, 18–30 mm long, 1 length of upper glume, membranous or herbaceous, much thinner on margins, 3 -veined. Lower glume surface scabrous (upper 20 %). Lower glume apex acute. Upper glume lanceolate, 15–30 mm long, membranous or herbaceous, with scarios margins, without keels, 5 -veined. Upper glume surface scabrous (upper 20 %). Upper glume apex acute.

**Florets.** Fertile lemma linear to lanceolate, subterete, 13–20 mm long, herbaceous to coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent or pilose. Lemma hairs 0.3–0.6 mm long. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn 50–100 mm long overall, with a straight or slightly twisted column, persistent or deciduous, limb puberulous (hairs 0.02–0.2 mm). Column of lemma awn 40–55 mm long. Palea elliptic (narrow), 0.75 length of lemma, coriaceous, 2 -veined, without keels. Palea surface pubescent or pilose, hairy on back (a band).

**Flower and Fruit.** Lodicules 3, oblanceolate, membranous. Anthers 3, 8–13 mm long.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia, Victoria.

**TDWG4.** Southern.

**Austrostipa multispiculis** (J.M. Black) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa multispiculis* J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 65: 333 (1941). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *J.B. Cleland s.n.*, Nov 1926, Australia: South Australia: Port Noarlunga (AD-97421231). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 78 (1986).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (95, Fig. 57), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. multus*, many; *spica*, thorn; -*ula*, diminutive. Inflorescence with many spikelets.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms geniculately ascending, 50–70 cm long. Culm-nodes pubescent. Leaf-sheaths loose, pubescent. Ligule a ciliolate membrane. Leaf-blades filiform, 20–40 cm long, 1–2 mm wide, stiff. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, effuse, 20–30 cm long, 3–6 cm wide. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–2 mm long, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 10–12 mm long, 1.2 length of upper glume, hyaline, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 8–10 mm long, hyaline, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 6–8 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, with twisted column. Column of lemma awn 18–25 mm long. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.  
**Country /Province /State.** Australia. South Australia.  
**TDWG4.** Southern.

**Austrostipa mundula** (J.M. Black) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa mundula* J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 65: 333 (1941). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.B. Cleland s.n.*, 12 Nov 1933, Australia: South Australia: Chaunceys Line (N of Lake Alexandrina) (AD-97423406; IT: AD-96323226, AD-96323235, AD-97422298(in part), ADW-44028, ADW-44191, MEL-59957).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (96, Fig. 58), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 77 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. mundus*, elegant; -ula, diminutive. Attractive in appearance.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms geniculately ascending, 20–30 cm long. Culm-nodes pubescent. Leaves mostly basal. Ligule an eciliate membrane, 2–3 mm long, truncate. Leaf-blades curved, filiform, 6–8 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or elliptic, 5–8 cm long, 1–2 cm wide. Primary panicle branches 3 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 14–26 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.5 mm long, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 14–16 mm long, 1.4 length of upper glume, hyaline, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 10–11 mm long, hyaline, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 7 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 65–70 mm long overall, with twisted column. Column of lemma awn 26–28 mm long. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia, Victoria.

**TDWG4.** Southern.

**Austrostipa nitida** (Summerh. & C.E. Hubb.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa nitida* Summerh. & C.E. Hubb., *Bull. Misc. Inform. Kew* 1927: 60 (1927). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.D. Warren s.n.*, 25 Aug 1926, Australia: South Australia: Finnis Springs (S of Lake Eyre) (K(4 sheets; photo, CANB); IT: AD-9742294, MEL-59959).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (73, Fig. 34), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 76 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (155), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. niteo*, shine; Spikelets or lemmas shiny.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations intravaginal. Culms erect, 75 cm long, 1–3 mm diam., compressible, 2–3 -noded. Culm-nodes swollen. Lateral branches lacking. Leaves mostly

basal. Leaf-sheaths longer than adjacent culm internode, glabrous on surface or puberulous, outer margin glabrous or hairy. Ligule an eciliate membrane or a ciliolate membrane, 0.3–1 mm long, truncate. Collar glabrous. Leaf-blades flat or involute, 20–40 cm long, 1–2 mm wide. Leaf-blade surface ribbed, scaberulous or scabrous. Leaf-blade margins glabrous or ciliate.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear, 25–55 cm long, 0.5–7 cm wide. Primary panicle branches 5–6 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flattened, 2–10 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.2–2.2 mm long, pilose, acute. Floret callus hairs 1.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–13 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume primary vein smooth or scaberulous. Lower glume apex acute or acuminate. Upper glume lanceolate, 8–13 mm long, membranous, without keels, 5 -veined. Upper glume primary vein smooth or scaberulous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex emarginate, awned, 1 -awned. Principal lemma awn bigeniculate, recurved at base of limb, 45–70 mm long overall, with twisted column. Middle segment of lemma awn 4 mm long. Column of lemma awn 6–9 mm long, puberulous, with 0.1–0.3 mm long hairs. Palea 0.9 length of lemma, 2 -veined, without keels. Palea surface puberulous, hairy on back.

**Flower and Fruit.** Lodicules 2, 0.6–1.2 mm long. Anthers 3, 1–3.5 mm long, anther tip smooth or penicillate. Stigmas 2. Caryopsis with adherent pericarp, 2.5–3.5 mm long. Embryo 0.25–0.4 length of caryopsis. Hilum linear, 0.3–0.8 length of caryopsis.

**Distribution (TDWG). Continent.** Europe (\*), Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia, New Zealand.** Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

**TDWG4.** Eremean, South-West. Central Australia. NW & Lake Eyre, Southern. Inland. Western Plains.

**Austrostipa nivicola** (J. H. Willis) S.W.L. Jacobs & J. Everett. *Telopea* 6: 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa nivicola* J. H. Willis, *Victoria Naturalist* 73: 149 (1957). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.H. Willis s.n.*, 2 Feb 1949, Australia: Victoria: Bogong High Plains, 1650 m, grassy slopes of Middle Creek, near Rover Scout Hut, 2 Feb 1949 (MEL; IT: NSW-116164).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (398, Fig. 79 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig. 8), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (155), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. nix*, snow; -cola, dweller. Alpine species.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 25–50 cm long, 1 mm diam., firm, 2–3 -noded. Culm-internodes terete, distally pubescent. Culm-nodes flush with internodes, glabrous or pubescent. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths tight, ribbed, glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 0.4–1.5 mm long, truncate. Leaf-blades convolute, 10–20 cm long, 1.5–3.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough adaxially. Leaf-blade margins smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle, comprising 8–12 fertile spikelets. Panicle contracted, linear, 5–20 cm long, 1–2.5 cm wide, bearing few spikelets. Primary panicle branches 3–4 cm long. Panicle axis scaberulous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 10–30 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 20–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 3.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 20–25 mm long, 1 length of upper glume, membranous, purple, without keels, 4 -veined. Lower glume lateral veins ribbed. Lower glume surface pubescent. Lower glume apex acute or acuminate. Upper glume lanceolate, 15–20 mm long, membranous, purple, without keels, 5 -veined. Upper glume lateral veins ribbed. Upper glume apex acute.

**Florets.** Fertile lemma linear, subterete, 12–15 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs 0.5–1 mm long. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 85–130 mm long overall, with twisted column. Middle segment of lemma awn 10 mm long. Column of lemma awn 45–60 mm long. Palea 1 length of lemma, 2 -veined, without keels. Palea surface glabrous.

**Flower and Fruit.** Lodicules 2, 1–1.7 mm long. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 6–7.5 mm long. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. New South Wales, A.C.T., Victoria.

**TDWG4.** Tablelands.

**Austrostipa nodosa** (S.T. Blake) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa nodosa* S.T. Blake, *Proc. Roy. Soc. Queensland* 62: 89 (1952). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: S.T. Blake 16914, 1 Sep 1946, Australia: South Australia: Flinders Ranges in Parachilna Gorge, between Blinman and Parachilna Spring (BRI-008016, BRI-008017; IT: AD, L).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (74, Fig. 35), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 76 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (155), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. nodus, knot; -osa, abundance. Culms with more nodes than those of related species.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal. Culms erect, 50–100 cm long, 1–2 mm diam., 3–5 -noded. Culm-internodes smooth or scaberulous. Culm-nodes swollen, glabrous. Lateral branches lacking. Leaves basal and cauline. Leaf-sheaths mostly shorter than adjacent culm internode, smooth or scaberulous, outer margin glabrous or hairy. Ligule an eciliate membrane, 0.5–2 mm long, truncate. Collar glabrous. Leaf-blades flat or involute, 15–30 cm long, 1–3 mm wide. Leaf-blade surface ribbed, scaberulous, rough on both sides. Leaf-blade margins glabrous or ciliate.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–50 cm long, 1–2 cm wide. Primary panicle branches 1–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flattened, 2–15 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–2.5 mm long, pilose, acute. Floret callus hairs 0.8 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–15 mm long, 0.75–1 length of upper glume, hyaline, without keels, 3 -veined. Lower glume surface smooth or asperulous. Lower glume apex acute or acuminate. Upper glume lanceolate, 7–19 mm long, hyaline, without keels, 5 -veined. Upper glume surface smooth or asperulous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 4–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs 0.3–0.6 mm long. Lemma apex entire or dentate, 2 -fid, with lobes 0–0.4 mm long, awned, 1 -awned. Principal lemma awn apical or from a sinus, bigeniculate, recurved at base of limb, 45–100 mm long overall, with twisted column. Middle segment of lemma awn 2–5 mm long. Column of lemma awn 5–10 mm long. Palea 1 length of lemma, 2 -veined, without keels. Palea surface puberulous, hairy on back.

**Flower and Fruit.** Lodicules 3, 1–2 mm long. Anthers 3, 2–3 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 3–4 mm long. Embryo 0.2–0.3 length of caryopsis. Hilum linear, 0.5–0.8 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia, New Zealand.** South Australia, Queensland, New South Wales, Victoria, Tasmania. New Zealand North I, New Zealand South I.

**TDWG4.** NW & Lake Eyre, Southern. South East. Coast, Tablelands, Western Slopes, Western Plains.

**Austrostipa nullanulla** (J. Everett & S.W.L. Jacobs) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa nullanulla* J. Everett & S.W.L. Jacobs, *Telopea* 2(4): 398 (1983). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New South Wales: Nulla Nulla, 2 km S of gate at northern end of Bluff paddock, saltbush. mallee, *Myoporum* sp., 25 Nov 1980, J. Everett & S.W.L. Jacobs 133 (HT: NSW; IT: AD).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (85, Fig. 46), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 77 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (156), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig. 8), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): named for "Nulla Nulla" a property in New South Wales, Australia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Culms erect, 40–50 cm long, 1–2 mm diam., 2 -noded. Culm-internodes distally glabrous or pubescent. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths loose, longer than adjacent culm internode, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 1–5 mm long, lacerate. Leaf-blades flat or involute, 15–20 cm long, 2–3 mm wide, stiff. Leaf-blade surface ribbed, scaberulous, rough abaxially, pubescent, hairy adaxially. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, 13–19 cm long. Primary panicle branches spreading, 4–6 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–15 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–2.7 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–11 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 8–10 mm long, membranous, without keels, 5 -veined. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 5–6 mm long, coriaceous, dark brown, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex scabrous, with a short cylindrical neck or surmounted by a ring of hairs, with this appendage 1–1.5 mm long (as to hairs), awned, 1 -awned. Principal lemma awn bigeniculate, 50–70 mm long overall, with twisted column. Middle segment of lemma awn 10–15 mm long. Column of lemma awn 50–60 mm long, puberulous, with 0.2 mm long hairs. Palea 1 length of lemma, 2 -veined, without keels. Palea surface glabrous or pubescent, hairy above.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 2.7–3 mm long. Embryo 0.25–0.33 length of caryopsis. Hilum linear, 0.66–0.75 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** **Australia.** South Australia, New South Wales, Victoria.

**TDWG4.** NW & Lake Eyre, Southern. Western Plains.

**Austrostipa nullarborensis** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa nullarborensis* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 88 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Western Australia: Abrakurrie Cave, 18 mi [29 km] NW of Eucla, open depression near entrance to cave, 23 Sep 1965, A.C. Beauglehole 13395 (NSW; IT: CANB, PERTH).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Nullarbor Plain, Australia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms 50–100 cm long, 1(–3) mm diam., 4–5 -noded. Culm-internodes smooth to antrorsely scabrous. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths smooth to antrorsely scabrous, glabrous on surface to pubescent. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 2–3 mm long, truncate. Leaf-blades 10–25 cm long, 2–5 mm wide. Leaf-blade surface scaberulous, rough on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 15–30 cm long, 1.5–3 cm wide. Primary panicle branches 2–8 cm long. Panicle axis smooth or scaberulous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–7 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 4–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 0.5–0.8 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 4–5.5 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface hispidulous. Lower glume apex obtuse or acute. Upper glume lanceolate, 4–5.5 mm long, membranous, without keels, 5 -veined. Upper glume surface hispidulous. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma linear, subterete, 3–4 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface granulose, pilose. Lemma margins convolute, covering most of palea. Lemma apex entire or dentate, 2 -fid, with lobes 0.1 mm long, awned, 1 -awned. Principal lemma awn apical or from a sinus, bigenulate, 20–30 mm long overall, with twisted column. Middle segment of lemma awn 4–5 mm long. Column of lemma awn 5–8 mm long. Palea 0.8 length of lemma, 2 -veined, without keels. Palea surface pilose.

**Flower and Fruit.** Lodicules 2 or 3. Anthers 3, 1.5–1.7 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** South-West.

**Austrostipa oligostachya** (Hughes) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa oligostachya* Hughes, *Bull. Misc. Inform. Kew* 1921: 12 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Robertson 534*, Australia: Victoria: Wando Vale [as Wndu Vale], growing in tussocks (K).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (89, Fig. 50), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (398, Fig. 79 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig. 8), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): Gk. oligos, few; stachys, ear of corn. Inflorescence with few branches.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths villous. Culms 30–65 cm long, 2 -noded. Culm-nodes pubescent. Leaf-sheaths glabrous on surface or pubescent. Ligule a ciliate membrane. Leaf-blades curved, filiform, convolute, 12–20 cm long, 1–2 mm wide, coriaceous, stiff. Leaf-blade venation with continuous uniform subepidermal sclerenchyma layer on the underside. Leaf-blade surface smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–20 cm long, bearing few spikelets. Primary panicle branches 3–7 cm long, bearing 2–5 fertile spikelets on each lower branch. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 6–10 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile

or the upper sterile. Spikelets lanceolate, subterete, 14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 14 mm long, 1.2 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 12 mm long, membranous, without keels, 5 -veined. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 9 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above, pubescent, hairy below. Lemma margins convolute, covering most of palea. Lemma hairs yellow. Lemma apex dentate, 2 -fid, with lobes 1–2 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 50 mm long overall, with twisted column. Column of lemma awn 20 mm long, glabrous. Palea 1 length of lemma, without keels. Palea surface pilose.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia, Victoria.

**TDWG4.** Southern.

**Austrostipa petraea** (Vickery) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa petraea* Vickery, *Telopea* 2: 15 (1980). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Australia: Flinders Ranges, Brachina Gorge, Oraparinna National Park, western portion, 18 Sep 1971, J.Z. Weber 2577 (HT: AD).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (90, Fig. 52), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. that grows amongst rocks. Growing in rocky places.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 50–100 cm long, 1.5–2 mm diam., 3–5 -noded. Culm-nodes swollen, pubescent. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths glabrous on surface, outer margin glabrous. Ligule a ciliate membrane, 0.1–1 mm long. Collar glabrous. Leaf-blades conduplicate or involute, 25–50 cm long, 1.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough adaxially, glabrous, hairless except near base.

**Inflorescence.** Inflorescence a panicle. Panicle open, 25 cm long. Primary panicle branches 3–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–35 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 11–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pilose (tawny hairs), acute. Floret callus hairs 0.3–0.8 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 11–15 mm long, 1 length of upper glume, membranous, without keels, 6 -veined. Lower glume surface asperulous. Lower glume apex acute or acuminate. Upper glume lanceolate, 11–13 mm long, membranous, without keels, 5 -veined. Upper glume surface asperulous. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 7–9.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or granulose, pilose. Lemma margins convolute, covering most of palea. Lemma hairs tawny, 0.5–1.5 mm long. Lemma apex lobed, 2 -fid, with lobes 1.5–2.5 mm long, surmounted by a ring of hairs, with this appendage 2.5 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 40–55 mm long overall, with twisted column. Middle segment of lemma awn 10 mm long. Column of lemma awn 10–15 mm long. Palea 1 length of lemma, 2 -veined, without keels. Palea surface pilose.

**Flower and Fruit.** Lodicules 3, 1–1.3 mm long. Anthers 3, 4.5–5 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia.

**TDWG4.** Southern.

**Austrostipa pilata** (S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa pilata* S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 92 (1986). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: South Australia: Murray: Monarto City Centre site, lake site area, growing under mallee, 26 Nov 1974, D.E. Simon 9072 (HT: NSW; IT: ADW).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (75, Fig. 36), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 76 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. pilus*, a hair; -ata, possessing. With long hairs on the leaf-blades or spikelets.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths pubescent. Basal innovations extravaginal. Culms erect, 40–85 cm long, 0.8–1 mm diam., firm, 2–3 -noded. Culm-internodes distally pubescent. Culm-nodes swollen, glabrous or pubescent. Lateral branches lacking. Leaf-sheaths tight, mostly shorter than adjacent culm internode, glabrous on surface or pubescent, outer margin hairy. Leaf-sheath oral hairs ciliate, 1–2 mm long. Ligule a ciliate membrane, 1–2 mm long, pubescent on abaxial surface, entire or lacerate, truncate. Leaf-blades involute, 6–12 cm long, 2–6 mm wide. Leaf-blade surface ribbed, scabrous, rough abaxially, pubescent, hairy adaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–20 cm long, 2–3 cm wide. Panicle axis smooth or scaberulous. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flattened, 4–8 mm long, smooth or scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–10 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 7–9 mm long, membranous, without keels, 3 -veined. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 4–5 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface papillose, pubescent. Lemma margins convolute, covering most of palea. Lemma apex surmounted by a ring of hairs (in 1–2 tufts), awned, 1 -awned. Principal lemma awn geniculate, recurved at base of limb, 40–50 mm long overall, with twisted column. Column of lemma awn 7–11 mm long, pubescent, with 0.2–0.5 mm long hairs. Palea 0.75 length of lemma, 2 -veined, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Lodicules 2, 1–1.5 mm long. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 2.7–3 mm long. Embryo 0.33 length of caryopsis. Hilum linear, 0.66 length of caryopsis.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** Australia. South Australia, Victoria.

**TDWG4.** Southern.

**Austrostipa platychaeta** (Hughes) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 587. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa platychaeta* Hughes, *Bull. Misc. Inform. Kew* 1921: 16, f. 17 & 17A (1921). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Koch 1133 pro parte*, Australia: Western Australia: Lake Cowcowing (K).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (71, Fig. 32), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (382, Fig. 75), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (155), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *G. platys*, broad; chaete, bristle. Awns flattened.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, culms solitary. Cataphylls evident. Rhizomes short, woody. Culms erect or geniculately ascending, 60–90 cm long, woody, 5–10 -noded. Culm-internodes glaucous, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 5 mm long, truncate. Leaf-blades 7–15 cm long, 2–5 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.



**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 10–20 cm long. Primary panicle branches appressed or ascending, 4–5 cm long, bearing 3–4 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flexuous, 3–10 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.6 mm long, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 12–15 mm long, 1.2–1.3 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 9–12 mm long, membranous, with hyaline margins, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, recurved at base of limb, flat below (as to limb), 60–80 mm long overall, with twisted column. Column of lemma awn 10 mm long, puberulous. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, New South Wales, Victoria.

**TDWG4.** South-West. NW & Lake Eyre, Southern. Western Slopes, Western Plains.

### **Austrostipa plumigera** (Hughes) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa plumigera* Hughes, *Bull. Misc. Inform. Kew* 1921: 20, f. 25 & 25A (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Helms s.n.*, 29 Jun 1891, Australia: South Australia: Elder Exploring Expedition, Camp 10, 27.16S 130.04E (K; IT(probable): AD-97434003, AD-97424088, MEL-59969, NSW-1513321, NSW-15121, NSW-16019, NSW-16020, NSW-16021).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (99, Fig. 61), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. pluma*, feather; *gero*, bear. With a villous awn.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–55 cm long, 2–3 -noded. Culm-nodes pubescent. Leaf-sheaths puberulous. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane. Leaf-blades 15–35 cm long, 2–3 mm wide. Leaf-blade surface pubescent, densely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, 10–20 cm long. Panicle axis scaberulous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 20 mm long, 1.3 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 15 mm long, membranous, much thinner above, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 8 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pilose. Lemma margins convolute, covering most of palea. Lemma hairs tawny. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 90 mm long overall, with twisted column, limb hirsute, with 1–1.5 mm long hairs. Column of lemma awn hirsute, with 1–1.5 mm long hairs. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia.

**TDWG4.** South-West. NW & Lake Eyre, Southern. Salta.

**Austrostipa puberula** (Steud.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa puberula* Steud., *Syn. Pl. Glumac.* 1: 128 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Drummond IV 379*, Australia (P; IT: K, MEL-59971, MEL-59972, MEL-59973).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (100, Fig. 62), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 77 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (156), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. pubes*, signs of puberty; -ula, diminutive. Plant covered in whole or in part with short hairs.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–50 cm long. Ligule a ciliate membrane. Leaf-blades filiform, involute, 1–2 mm wide. Leaf-blade surface glabrous or puberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, dense, 15–20 cm long. Primary panicle branches ascending. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, recurved at apex. Lower glume ovate, 1 length of upper glume, chartaceous, without keels, 3 -veined. Lower glume apex obtuse or acute. Upper glume ovate, 10 mm long, membranous, firmer above, without keels, 5 -veined. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma lanceolate, subterete, 6 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 30 mm long overall, with twisted column. Column of lemma awn 8 mm long, glabrous. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, New South Wales, Victoria.

**TDWG4.** South-West. Southern. Western Plains.

**Austrostipa pubescens** (R. Br.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa pubescens* R.Br., *Prodr.* 174 (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *R. Brown 6203 (sheet II)*, 1802–1805, Australia: New South Wales: Port Jackson (BM; IT: K). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 97 (1986).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (48, Fig. 7 & 55, Fig. 8), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (157), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. pubesco*, become hairy. Plant whole or in part hairy.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Basal innovations extravaginal. Culms erect, 80–150 cm long, 1–4 mm diam., firm, 2–3 -noded. Culm-internodes terete, distally pubescent. Culm-nodes swollen, pubescent. Lateral branches lacking. Leaf-sheaths tight, glabrous on surface or pubescent, outer margin hairy. Leaf-sheath oral hairs pubescent. Ligule an eciliate membrane or a ciliate membrane, 0.4–1 mm long, scarious, truncate. Leaf-blades flat or convolute, 25–50 cm long, 2–4 mm wide. Leaf-blade surface ribbed, pubescent, hairy adaxially or on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle open, 15–30 cm long, 2–4 cm wide. Primary panicle branches branching laterally, 3–7 cm long. Panicle axis scabrous. Panicle branches angular, scabrous, glabrous or pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 10–30 mm long, scabrous, glabrous to pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 17–24 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 3–4.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 17–24 mm long, 1 length of upper glume, membranous, purple, without keels, 3 -veined. Lower glume lateral veins ribbed. Lower glume surface pubescent, hairy generally or on veins. Lower glume margins ciliate. Lower glume apex truncate. Upper glume linear, 15–20 mm long, membranous, purple, without keels, 5 -veined. Upper glume lateral veins ribbed. Upper glume surface pubescent, hairy generally or on veins. Upper glume margins ciliate. Upper glume apex truncate.

**Florets.** Fertile lemma linear, subterete, 11–15 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface tuberculate, rough above, pilose. Lemma margins convolute, covering most of palea. Lemma hairs tawny. Lemma apex with a short cylindrical neck, awned, 1 -awned. Principal lemma awn bigeniculate, 70–100 mm long overall, with twisted column. Middle segment of lemma awn 10–15 mm long. Column of lemma awn 30–55 mm long, puberulous, with 0.05–0.15 mm long hairs. Palea 0.5–0.9 length of lemma, 2 -veined, without keels. Palea surface glabrous.

**Flower and Fruit.** Lodicules 2 or 3, 1–2 mm long. Anthers 3, 2–6 mm long, anther tip smooth. Stigmas 2. Caryopsis with adherent pericarp, 5–8 mm long. Embryo 0.15–0.2 length of caryopsis. Hilum linear, 0.9 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland, New South Wales.

**TDWG4.** Central, South East, Inland. Coast, Tablelands.

**Austrostipa pubinodis** (Trin. & Rupr.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa pubinodis* Trin. & Rupr., *Sp. Gram. Stipac.* 50 (1842). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Terra Van Diemen" [Tasmania], *Hooker s.n.*

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (89, Fig. 51), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (398, Fig. 79 as *Stipa*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (157), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig. 8), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. pubes, signs of puberty; nodus, knot. Nodes hairy.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, short-lived, culms solitary or caespitose. Culms 60–110 cm long, 3–5 -noded. Leaf-sheaths puberulous, outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1.5–2 mm long, obtuse. Leaf-blades filiform, convolute, 15–50 cm long, 1–2.5 mm wide, stiff, dark green. Leaf-blade surface ribbed, smooth, pubescent, densely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Peduncle pubescent above. Panicle open, 15–26 cm long. Primary panicle branches 6–10 -nate, 3–6 cm long, bearing 3–4 fertile spikelets on each lower branch. Panicle branches pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 3–20 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 20–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3.5–4.6 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 20–25 mm long, 1.2 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume surface puberulous. Lower glume apex acuminate. Upper glume lanceolate, 16–21 mm long, membranous, much thinner above, without keels, 5 -veined. Upper glume surface puberulous. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 11–13 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface scabrous, rough above, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs tawny. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 65–90 mm long overall, with twisted column. Column of lemma awn 35–54 mm long, puberulous. Palea 7.2–8 mm long, 1 length of lemma, coriaceous, without keels. Palea surface glabrous.

**Flower and Fruit.** Lodicules 3, 3 mm long. Anthers 3, 5.3–6.6 mm long, yellow. Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia, New South Wales, Victoria, Tasmania.

**TDWG4.** Southern. Coast.

**Austrostipa pycnostachya** (Benth.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa pycnostachya* Benth, *Fl. Austral.* 7: 568 (1878). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Drummond 121*, 1849, Australia: Western Australia: Int. S.W. Australia (K; IT: CANB-237004, MEL-59978).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): Gk. pyknos, thick; stachys, ear of corn. Inflorescence a contracted panicle.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 15–30 cm long, wiry. Ligule an eciliate membrane. Leaf-blades aciculate, terete, 1–2 mm wide, stiff. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle spiciform, linear, 5–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Sterile Spikelets.** Basal sterile spikelets absent or rudimentary.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10–12 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 10–12 mm long, membranous, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 3 mm long, coriaceous, without keel, more than 3-veined. Lemma surface villous. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 30–40 mm long overall, with twisted column. Palea 1 length of lemma, without keels. Palea apex ciliate.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia.

**TDWG4.** South-West.

**Austrostipa ramosissima** (Trin.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Urachne ramosissima* Trin., *Gram. Unifl. Sesquifl.* 173 (1824). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sieber 82*, (LE; IT: BM, K, L, P). see Hughes, *Kew Bull. Misc. Inf.* (1921); also Vickery et al., *Telopea* 3 : 101 (1986): 28. 1921.

**Recent Synonyms:** *Stipa ramosissima* (Trin.) Nees, *Flora*, 11(119): 301 (1828).

**Illustrations (Books):** S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (157), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (186).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): L. ramus, branch; -osa, abundance; -issima, most. Culms much branched.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Culms erect, 100–250 cm long, 0.5–7 mm diam., 6–9 -noded. Culm-internodes distally glabrous. Culm-nodes swollen. Lateral branches fastigiate. Leaves cauline. Leaf-sheaths glabrous on surface, outer margin glabrous. Ligule an eciliate

membrane, 0.25–0.5 mm long, erose. Leaf-blades deciduous at the ligule, 35–40 cm long, 1–10 mm wide. Leaf-blade surface ribbed, scabrous, rough on both sides. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 8–20 cm long, 2–4 cm wide. Primary panicle branches spreading, 3.5–5.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–10 mm long.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 2.3–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.2 mm long, pilose, acute. Floret callus hairs 0.25–0.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2.3–3 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface scabrous. Lower glume apex erose, acute. Upper glume lanceolate, 2.4–2.8 mm long, membranous, without keels, 3 -veined. Upper glume surface smooth. Upper glume apex erose, acute.

**Florets.** Fertile lemma linear, subterete, 1.8–2.5 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface tuberculate, glabrous. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 17–30 mm long overall, with twisted column. Column of lemma awn 5–7 mm long. Palea 0.33 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 2. Anthers 3, 1–1.3 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp, 1.5–1.6 mm long. Embryo 0.25 length of caryopsis. Hilum linear, 0.33 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Queensland, New South Wales, Lord Howe-Norfolk Is.

**TDWG4.** North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

**Austrostipa rudis** (Spreng.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa rudis* Spreng., 4: Cur. Post. 31 (1827). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Sieber* 66, Australia (?; IT: K, MEL59980, MEL-59982).

**Illustrations (Books):** N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (398, Fig. 79 as *Stipa rudis* subsp. *australis*, subsp. *rudis* & subsp. *neutralis*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (158), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig. 8), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. uncultivated. Species whose relatives are often cultivated.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or short. Basal innovations extravaginal. Culms geniculately ascending, 60–120 cm long, 2–4 mm diam., firm, 2–4 -noded. Culm-internodes terete, smooth or scaberulous, distally pubescent. Culm-nodes swollen, pubescent. Lateral branches lacking. Leaf-sheaths inflated, ribbed, glabrous on surface or puberulous, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.5–2 mm long, scarious, pubescent on abaxial surface, truncate or acute. Collar pilose. Leaf-blades involute, 20–40 cm long, 2–5 mm wide. Leaf-blade surface ribbed, scaberulous, rough abaxially, pubescent, densely hairy, hairy adaxially.

**Inflorescence.** Inflorescence a panicle. Panicle open or contracted, linear, 25–50 cm long, 1.5–5 cm wide. Primary panicle branches 7–15 cm long. Panicle axis smooth or scabrous. Panicle branches terete, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 5–15 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 8–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, curved, 0.8–3.2 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or oblong, 8–15 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume lateral veins ribbed. Lower glume surface asperulous, rough on veins, glabrous to pubescent. Lower glume apex erose, truncate or obtuse. Upper glume linear or oblong, 7–14.5 mm long, membranous, without keels, 3–5 -veined. Upper glume lateral veins ribbed. Upper glume surface asperulous, rough on veins, glabrous or pubescent. Upper glume apex erose, truncate or obtuse.

**Florets.** Fertile lemma linear or lanceolate, subterete, 5–11.5 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface tuberculate, rough above, pubescent, hairy below. Lemma

margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 20–90 mm long overall, with twisted column. Middle segment of lemma awn 4–15 mm long. Column of lemma awn 4.5–30 mm long, glabrous or puberulous, with 0.05–0.3 mm long hairs. Palea 0.9 length of lemma, 2 -veined, without keels. Palea surface glabrous.

**Flower and Fruit.** Lodicules 2 or 3, 1–1.7 mm long. Anthers 3, 2–4 mm long. Stigmas 2. Caryopsis with adherent pericarp, 3–6 mm long. Embryo 0.2–0.25 length of caryopsis. Hilum linear, 0.7–0.8 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. Queensland, New South Wales, A.C.T., Victoria, Tasmania. New Zealand North I, New Zealand South I.

**TDWG4.** South East. Coast, Tablelands, Western Slopes.

### **Austrostipa scabra** (Lindl.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (as *Stipa*).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa scabra* Lindl., *J. Trop. Australia* 31 (1848.). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Mitchell* 125, 1846, Australia: New South Wales: Moora, on the Bogan River (CGE; IT: NSW).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (76, Fig. 37 & 77, Fig. 38 as subspecies *scabra* & *falcata*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (as *Stipa*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 76 as *Stipa scabra* subsp. *scabra* and subsp. *falcata*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (158), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6 & 48, Fig. 7), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), E.Edgar. & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000) (70, Fig. 5).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. rough or gritty to the touch. Plants with rough leaf-blades, spikelets or stems.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Culms 30–60 cm long, compressible. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 2–5 mm long, bilobed. Leaf-blades convolute, 1–2 mm wide. Leaf-blade surface scabrous, glabrous or puberulous, hairy abaxially.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 15–30 cm long. Primary panicle branches appressed, 3–5 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1–1.5 mm long, bearded, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–10 mm long, 1 length of upper glume, hyaline, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 8–10 mm long, hyaline, without keels, 3–5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 4–5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface scabrous, puberulous. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 40–60 mm long overall, with twisted column. Column of lemma awn 10–12 mm long, glabrous. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Europe (\*), Australasia, Pacific.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). Australia, New Zealand. Western Australia, Northern Territory, South Australia, Queensland, New South Wales, A.C.T., Victoria, Tasmania. **South-central Pacific.** Easter Is. Hawaii (\*).

**TDWG4.** Eremean, South-West. Central Australia. NW & Lake Eyre, Southern. Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

**Austrostipa semibarbata** (R. Br.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 588. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa semibarbata* R.Br., *Prodr.* 174 (1810). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6204*, Australia: Tasmania: Port Dalrymple (BM).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (104, Fig. 66), N.Walsh & T.Entwistle, *Flora of Victoria Vol 2* (1994) (398, Fig. 79 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (159), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. semi-, half; barba, beard; -ata, possessing. Awn column hairy but bristle asperous.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–60 cm long, 3–5 -noded. Culm-nodes pubescent. Leaf-sheaths hispid, outer margin hairy. Leaf-sheath oral hairs bearded. Ligule a ciliate membrane, 1–2 mm long. Leaf-blades erect, convolute, 15–35 cm long, 2–4 mm wide. Leaf-blade surface ribbed, glabrous or pubescent. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, oblong, 15–22 cm long. Primary panicle branches appressed, 2–3 -nate, 3–7 cm long. Panicle axis puberulous. Panicle branches puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 17–24 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3.2–4.5 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 1 length of upper glume, membranous, purple, without keels, 3 -veined. Lower glume apex acuminate. Upper glume linear, 17–24 mm long, membranous, purple, without keels, 5 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7–8 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn bigeniculate, 75–85 mm long overall, with twisted column. Column of lemma awn 35 mm long, plumose, hairy generally, with 0.3–1.6 mm long hairs. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Lodicules 3, 3 mm long. Anthers 3, 2.6–6 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, New South Wales, Victoria, Tasmania.

**TDWG4.** South-West. Southern. Coast, Tablelands.

**Austrostipa setacea** (R. Br.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa setacea* R.Br., *Prodr.* 174 (1810). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Brown s.n.*, 1802–1805, Australia: New South Wales: Port Jackson (BM). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 113 (1986).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (80, Fig. 41), N.Walsh & T.Entwistle, *Flora of Victoria Vol 2* (1994) (392, Fig. 78 as *Stipa*), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig 5), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (159), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. seta, bristle; -acea, indicating resemblance. With bristle-like leaf-blades.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 40–80 cm long, 1 mm diam., 2–4 -noded. Culm-internodes ridged, distally glabrous or pubescent. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths tight, ribbed, smooth or scaberulous, outer margin glabrous. Ligule an eciliate membrane, 2–9 mm long, obtuse. Leaf-blades conduplicate or involute, 15–30 cm long, 0.5–1.5 mm wide. Leaf-blade surface ribbed, puberulous, hairy adaxially. Leaf-blade margins smooth or scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 10–20 cm long, 1.5–3 cm wide. Primary panicle branches 1.5–4.5 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–7.5 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.7–2.5 mm long, pubescent, acute. Floret callus hairs 0.1–1 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 9–15 mm long, 1.3–1.5 length of upper glume, hyaline, without keels, 3 -veined. Lower glume surface smooth or asperulous, rough at apex. Lower glume apex acuminate. Upper glume lanceolate, 7–10 mm long, hyaline, without keels, 5 -veined. Upper glume surface smooth or asperulous, rough at apex. Upper glume apex acuminate.

**Florets.** Fertile lemma oblanceolate, subterete, 5.5–7 mm long, coriaceous, black, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, with a median groove, pubescent. Lemma margins involute, interlocking with palea keels. Lemma hairs 0.4–0.8 mm long. Lemma apex with a short cylindrical neck, awned, 1 -awned. Principal lemma awn eccentric, bigenulate, 25–40 mm long overall, with twisted column. Middle segment of lemma awn 5–7 mm long. Column of lemma awn 5–8 mm long, puberulous. Palea 1 length of lemma, 2 -veined. Palea keels contiguous above a sulcus.

**Flower and Fruit.** Lodicules 3, 0.4–1.5 mm long. Anthers 3, 2.1–2.3 mm long, anther tip smooth. Stigmas 2. Caryopsis with adherent pericarp, sulcate on hilar side, 2.5–3 mm long. Embryo 0.2–0.4 length of caryopsis. Hilum linear, 0.7–0.8 length of caryopsis.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. South Australia, Queensland, New South Wales, Victoria.

**TDWG4.** Southern. South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

**Austrostipa stipoides** (Hook. f.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from New Zealand. **Basionym or Replaced Name:** *Dichelachne stipoides* Hook. f., *Fl. Nov.-Zel.* 1: 294, t. 66 (1853). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Hooker s.n.*, New Zealand: Bay of Islands (K). LT designated by Townrow, *Pap. Proc. Roy. Soc. Tasmania* 112: 277–287 (1978).

**Recent Synonyms:** *Stipa stipoides* (Hook. f) Veldkamp, *Blumea*, 22(1):1 1 (1974).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (91, Fig. 53), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (379, Fig. 74 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (37, Fig. 5), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (159), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002); E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000); R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. With spikelets resembling those of *Stipa*.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 30–90 cm long, wiry, 3–4 -noded. Culm-internodes smooth. Culm-nodes flush with internodes. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 7 mm long. Leaf-blades erect, aciculate, involute, 20–70 cm long, 1 mm wide, stiff. Leaf-blade surface ribbed, puberulous, hairy adaxially. Leaf-blade apex pungent.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 11–22 cm long, 2 cm wide, bearing few spikelets. Primary panicle branches 1–4 cm long, bearing 1–5 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 2–8 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15–21 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2–2.6 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume lateral veins



obscure. Lower glume apex attenuate. Upper glume lanceolate, 15–21 mm long, membranous, without keels, 5 -veined. Upper glume apex attenuate.

**Florets.** Fertile lemma lanceolate, subterete, 8.5–12.5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea, ciliate, hairy above. Lemma apex dentate, 2 -fid, with lobes 1.4–3.6 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 20–30 mm long overall, with twisted column. Column of lemma awn 10–14 mm long, puberulous, hairy on the spiral. Palea 1 length of lemma, without keels. Palea surface pubescent.

**Flower and Fruit.** Lodicules 3, 2 mm long. Anthers 3, 7.2–8.2 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. South Australia, New South Wales, Victoria, Tasmania. New Zealand North I, New Zealand South I.

**TDWG4.** Southern. Coast.

### **Austrostipa stuposa** (Hughes) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa stuposa* Bull. Misc. Inform. Kew 1921: 20f, 24 & 24A (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Gunn 1480*, 5 Jan 1840, Australia: Tasmania: New Norfolk (K(photo, CANB)).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (104, Fig. 67), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (386, Fig. 77 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig. 2), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (160), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. tow, that is fibre for rope-making. Leaf-bases breaking into fibres.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, short-lived, caespitose. Butt sheaths pubescent, persistent and investing base of culm, with fibrous dead sheaths. Culms erect or geniculately ascending, 80–140 cm long, 2–3.5 mm diam., 3–5 -noded. Culm-nodes pubescent. Leaf-sheaths pubescent, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 0.3 mm long. Leaf-blades convolute, 19–30 cm long, 2–5 mm wide, stiff. Leaf-blade surface ribbed, pubescent, hairy adaxially. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 17–35 cm long, 7 cm wide. Primary panicle branches 5–10 cm long. Panicle axis puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–8 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 18–24 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 18–24 mm long, 1.2 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 15–20 mm long, membranous, without keels, 5 -veined. Upper glume surface scabrous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 7.6–11.5 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex surmounted by a ring of hairs, with this appendage 1.5–3 mm long, awned, 1 -awned. Principal lemma awn bigeniculate, 50–65 mm long overall, with twisted column. Column of lemma awn 19–36 mm long, hirsute. Palea 1 length of lemma, without keels. Palea surface pubescent.

**Flower and Fruit.** Lodicules 3, 1–3 mm long. Anthers 4–6 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia, New Zealand. South Australia, New South Wales, Victoria, Tasmania. New Zealand South I.

**TDWG4.** Southern. Coast, Western Plains.

### **Austrostipa tenuifolia** (Steud.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa tenuifolia* Steud., *Syn. Pl. Glumac.* 1: 128 (1854). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Drummond IV 391*, Australia (P; IT: K, MEL-59997).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (78, Fig. 39), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. tenuis*, slender; folium, leaf. Leaf-blades narrow.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–60 cm long. Ligule a ciliate membrane. Leaf-blades filiform, involute, 1–2 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, effuse, 15–30 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 15 mm long, 1.2–1.3 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 12 mm long, membranous, without keels, 5 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 8 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 50–70 mm long overall, with twisted column. Column of lemma awn 13 mm long, glabrous. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia.

**TDWG4.** South-West. Southern.

**Austrostipa trichophylla** (Benth.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa trichophylla* Benth., *Fl. Austral.* 7: 570 (1878). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Drummond 122*, Australia: Western Australia (K (photo, CANB); IT: MEL-60010, MEL-60011).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (79, Fig. 40), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (181, Pl. 52 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (24, Fig. 3), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (160), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *Gk. thrix*, hair; phyllon, leaf. Leaf-blades hair-like.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 20–40 cm long. Culm-nodes glabrous or pubescent. Leaf-sheaths smooth or scaberulous, glabrous on surface or hispid. Ligule a ciliate membrane. Leaf-blades filiform, involute, 1–2 mm wide. Leaf-blade surface hispid.

**Inflorescence.** Inflorescence a panicle. Panicle open, oblong, 13–26 cm long. Panicle axis scabrous. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2 mm long, bearded, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex setaceously acuminate. Upper glume linear, 10 mm long, membranous, without keels, 5 -veined. Upper glume apex setaceously acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5–6 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 40–50 mm long overall, with twisted column. Column of lemma awn 12–13 mm long, glabrous. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, Northern Territory, South Australia, New South Wales, Victoria.

**TDWG4.** Eremean, South-West. Central Australia. NW & Lake Eyre, Southern. Western Plains.

**Austrostipa tuckeri** (F. Muell.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa tuckeri* F. Muell., *Fragm.* 9: 128 (1881). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Garard Tucker s.n.*, Australia: between the Lach and Darlington River (MEL; IT: NSW).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (68, Fig. 29), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (173, Pl. 50 as *S. tuckeri*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (382, Fig. 75), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (160), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): in honor of Gerard Tucker (1854–1930) Australian farmer.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial. Culms 20–30 cm long, wiry. Culm-nodes pubescent. Leaf-sheaths pubescent. Ligule a ciliolate membrane, 3 mm long. Leaf-blades flat or involute, 2–4.5 mm wide. Leaf-blade surface pubescent.

**Inflorescence.** Inflorescence a panicle, deciduous as a whole. Panicle open, 8–12 cm long. Primary panicle branches spreading, whorled at most nodes, 4–5 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8 mm long, 1 length of upper glume, membranous, purple, without keels, 3 -veined. Lower glume surface glabrous. Lower glume apex acuminate. Upper glume lanceolate, 8 mm long, membranous, purple, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent, hairy below. Lemma margins convolute, covering most of palea. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 30–35 mm long overall, with twisted column. Column of lemma awn glabrous. Palea 1 mm long, 0.2 length of lemma, without keels.

**Flower and Fruit.** Stigmas 2.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia, New South Wales, Victoria.

**TDWG4.** South-West. Southern. Western Slopes, Western Plains.

**Austrostipa variabilis** (Hughes) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa variabilis* D.K.Hughes, *Kew Bull.* 1921, 15 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Drummond 961*, Australia: Western Australia (K (photo, CANB); IT: MEL-59987).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): *L. varius*, variable; -abilis, indicating capacity. As for *varia*.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–80 cm long, 1–1.5 mm diam., 1–3 -noded. Culm-nodes glabrous or pubescent. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs scanty or lacking. Ligule a ciliolate membrane, 1–2 mm long. Leaf-blades flexuous, convolute, 9–25 cm long, 1–3 mm wide. Leaf-blade surface ribbed, glabrous or puberulous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, 10–20 cm long, 2–3 cm wide. Primary panicle branches appressed, 2–4 -nate, 2–3 cm long. Panicle axis smooth. Panicle branches scaberulous, pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–5 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1–2 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, much thinner above, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 10–15 mm long, membranous, with hyaline margins, without keels, 5 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, subterete, 6–8 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma hairs white or tawny. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, recurved at base of limb, 50–70 mm long overall, with twisted column. Column of lemma awn 11–25 mm long, pubescent. Palea 1 length of lemma, without keels.

**Flower and Fruit.** Anthers 3, 2–2.6 mm long. Stigmas 2.

**Distribution (TDWG). Continent.** Europe (\*), Africa, Australasia.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Southern Africa.** Western Cape. **Australia.** Western Australia, South Australia.

**TDWG4.** South-West. Southern.

**Austrostipa velutina** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa velutina* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 126 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Australia: Nullarbor: Head of Bright, 7 Aug 1973, *Noble s.n.* (HT: NSW-117409).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (97, Fig. 59), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (31, Fig. 4), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. velvety. Plant in whole or in part covered with dense short hairs.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations extravaginal. Culms geniculately ascending, 30–80 cm long, 1.5–2 mm diam. Culm-internodes ridged, retrorsely scabrous. Culm-nodes swollen, pubescent. Lateral branches lacking. Leaf-sheaths tight, ribbed, pubescent, outer margin hairy. Leaf-sheath oral hairs pubescent. Ligule a ciliolate membrane, 0.2–1 mm long, pubescent on abaxial surface, entire or erose, truncate or obtuse. Leaf-blades flat or convolute, 20–40 cm long, 2–3 mm wide, glaucous. Leaf-blade surface ribbed, puberulous, densely hairy, hairy on both sides.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, linear, 15 cm long, 0.5–2 cm wide. Primary panicle branches 1–3.5 cm long. Panicle axis puberulous. Panicle branches puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–5 mm long, puberulous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–2 mm long, pubescent, acute. Floret callus hairs 0.1–0.8 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–12 mm long, 1.2–1.4 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface pubescent. Lower glume apex acuminate. Upper glume lanceolate, 6.5–10 mm long, membranous, without keels, 5 -veined. Upper glume surface pubescent. Upper glume apex acute or acuminate.

**Florets.** Fertile lemma linear, subterete, 5–6.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface granulose, pubescent. Lemma margins convolute, covering most of palea. Lemma hairs 1–1.5 mm long. Lemma apex emarginate or acute, awned, 1 -awned. Principal lemma awn bigeniculate, 30–45 mm long overall, with twisted column. Middle segment of lemma awn 3–16 mm long. Column of lemma awn 7–9 mm long, pubescent, with 0.1–0.3 mm long hairs. Palea 1 length of lemma, 2 -veined, without keels. Palea surface pubescent, hairy on back. Palea apex ciliate.

**Flower and Fruit.** Lodicules 2, 0.8–1.2 mm long. Anthers 3, 1–2 mm long, anther tip smooth. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia.

**TDWG4.** South-West. Southern.

**Austrostipa verticillata** (Nees ex Spreng.) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa verticillata* Nees ex Spreng., *Syst. Veg.* 4(Cur. Post.): 30 (1827). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Sieber 64*, Australia (K; ILT: BM, BRI, L, MEL, P). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 127 (1986).

**Illustrations (Books):** J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (392 as *Stipa*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (44, Fig. 6), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (161), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. whorl; -ata, possessing. Primary inflorescence branches whorled.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short, scaly. Culms erect, 50–100 cm long, woody. Culm-nodes glabrous. Lateral branches sparse. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, truncate. Leaf-blades 2.5 mm wide. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, lanceolate, 20–40 cm long. Primary panicle branches whorled at most nodes, 1–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, subterete, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, pubescent, obtuse.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.5 mm long, 0.8 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume lanceolate, 3 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma elliptic, subterete, 3 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins convolute, covering most of palea. Lemma apex entire, awned, 1 -awned. Principal lemma awn 20–40 mm long overall, limb scabrous. Palea 0.5 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 1.5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Europe (\*), Australasia.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **Australia, New Zealand.** Queensland, New South Wales.

**TDWG4.** North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

**Austrostipa vickeryana** (J. Everett & S.W.L. Jacobs) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa vickeryana* J. Everett & S.W.L. Jacobs. *Telopea* 2(4): 397 (1983). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia: South Australia: Ifoud Lake, Nullarbor Plain Series R502 Barton 5121 74, 30.55S 132.05E, common grass, forming dense clumps, heads open, spreading, 2 Oct 1975, R.J. Chinnock 2729 (HT: AD).

**Illustrations (Books):** J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (86, Fig. 47), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (55, Fig/ 8), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*;

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Joyce Winifred Vickery (1908–1979) Australian botanist.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Annual or perennial, caespitose. Culms 20–45 cm long, 2–2.5 mm diam., 1–2 -noded. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths loose, glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 2.5–8 mm long, lacerate. Leaf-blades flat or conduplicate, 9–18 cm long, 1.5–4 mm wide. Leaf-blade surface ribbed, puberulous, hairy adaxially.

**Inflorescence.** Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, 9–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 14–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 2.5–3 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 14–18 mm long, 1.3–1.5 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface asperulous, rough on veins, glabrous or pubescent, hairy between veins. Lower glume apex acuminate. Upper glume lanceolate, 9–14 mm long, membranous, without keels, 5 -veined. Upper glume surface asperulous, rough on veins, glabrous or pubescent, hairy between veins. Upper glume apex acuminate.

**Florets.** Fertile lemma linear, subterete, 6–7 mm long, coriaceous, dark brown, shiny, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex scabrous, with a short cylindrical neck or surmounted by a ring of hairs, with this appendage 1–1.5 mm long (as to hair), awned, 1 -awned. Principal lemma awn straight or flexuous or bigeniculate, 90–115 mm long overall, without a column or with twisted column. Middle segment of lemma awn 11–14 mm long. Column of lemma awn 15–18 mm long, pubescent, with 0.2–0.3 mm long hairs. Palea 1 length of lemma, 2 -veined, without keels.

**Flower and Fruit.** Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum linear.

**Distribution (TDWG). Continent.** Australasia.

**Country /Province /State.** Australia. Western Australia, South Australia.

**TDWG4.** South-West. Southern.

**Austrostipa wakoolica** (Vickery, S.W.L. Jacobs & J. Everett) S.W.L. Jacobs & J. Everett. *Telopea* 6(4): 589. 1996.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Stipa*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

**TYPE** from Australia. **Basionym or Replaced Name:** *Stipa wakoolica* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 129 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: D.L.W. Henderson 117410, 5 Nov 1947 or 11 May 1947, Australia: New South Wales (US-2980313).

**Illustrations (Books):** A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (18, Fig/ 2), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (161), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Derivation** (Clifford & Bostock 2007): L. -ica, belonging to. From Wakool Shire, New South Wales, Australia.

**Classification.** Subfamily Pooideae. Tribe: Stipeae.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations extravaginal. Culms erect or geniculately ascending, 1.5–3 mm diam. Culm-internodes terete, distally pubescent or hirsute. Culm-nodes swollen, pubescent. Leaf-sheaths tight, ribbed, pubescent or hirsute, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5–0.8 mm long, pilose on abaxial surface, truncate or obtuse. Leaf-blades flat or involute, 20–40 cm long, 1.5–2.5 mm wide. Leaf-blade surface ribbed, grooved adaxially, pubescent, hairy adaxially or on both sides. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 30–36 cm long, 3–5 cm wide. Primary panicle branches spreading, whorled at most nodes, 5–10 cm long. Panicle axis scaberulous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–7 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 11–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1.5–2 mm long, pubescent, acute.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 11–15 mm long, 1.2–1.4 length of upper glume, membranous, much thinner above, purple, without keels, 3 -veined. Lower glume surface asperulous, rough on veins. Lower glume apex acuminate. Upper glume lanceolate, 9–11 mm long, membranous, much thinner above, purple, without keels, 5 -veined. Upper glume surface asperulous, rough on veins. Upper glume apex acute.

**Florets.** Fertile lemma oblanceolate, subterete, 5.5–6.5 mm long, coriaceous, dark brown, without keel, more than 3-veined. Lemma lateral veins with distinct primaries but obscure intermediates. Lemma surface tuberculate, rough above, hirsute. Lemma margins convolute, covering most of palea. Lemma hairs white. Lemma apex dentate, 2 -fid, surmounted by a ring of hairs, with this appendage 2–2.5 mm long, awned, 1 -awned. Principal lemma awn from a sinus, bigeniculate, 35–60 mm long overall, with twisted column, limb scabrous. Middle segment of lemma awn 8–15 mm long. Column of lemma awn 7–10 mm long, scabrous. Palea 1 length of lemma, coriaceous, without keels. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Lodicules 2, 1 mm long. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 3–4 mm long. Embryo 0.33 length of caryopsis. Hilum linear, 0.66–0.75 length of caryopsis.

**Distribution (TDWG).** Continent. Australasia.

**Country /Province /State.** Australia. New South Wales.

**TDWG4.** Western Slopes, Western Plains.

### **Avellinia michelii** (Savi) Parl. *Pl. Nouv.* 59 (1842).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Rostraria festucoides*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**Basionym or Replaced Name:** *Bromus michelii* Savi, *Bot. Etr.* 1: 78 (1808).

**Recent Synonyms:** *Rostraria festucoides* (Link) C.RomeroZarco, *Lagascalia*, 18(2): 310: (1996).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 260), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (204, Fig. 152), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (61, Pl. 16), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (453, Fig. 88), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (155, Fig. 23), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): in honor of Pier Antonio Micheli (1679–1737) Italian botanist.

**Classification.** Subfamily Pooideae. Tribe: Aveneae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 7–30 cm long. Culm-internodes distally pubescent. Leaf-sheaths pubescent. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Leaf-blades 2–5 cm long, 1 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, lanceolate, 2–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 2–4 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or cuneate, laterally compressed, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite, pubescent. Floret callus glabrous.

**Glumes.** Glumes persistent, dissimilar, reaching apex of florets, shiny, gaping. Lower glume linear, 0.7–1.3 mm long, 0.25 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 3–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

**Florets.** Fertile lemma linear, 3–5 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 1–2 mm long overall. Palea gaping, 0.5 length of lemma, hyaline.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 0.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 7$  (1 ref TROPICOS).  $2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Europe, Africa, Temperate Asia, and Australasia.

**Region.** Southwestern Europe and Southeastern Europe.

**Country /Province /State.** : Baleares, Corsica, France, Portugal, Sardinia, Spain. : Greece, Italy, Crete, Sicily. **Northern Africa** and **Macaronesia.** Morocco. Canary Is. **Western Asia.** Cyprus, East Aegean Is, Lebanon-Syria, Turkey. **Australia.** Western Australia (\*), South Australia (\*), Victoria (\*).

Eremean, South-West. Southern.

**Avena abyssinica** Hochst. *Schimper, Iter Abyss. Sect. 3, Unit. Iter*, No. 1877 (1844).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *G.H.W. Schimper 1877*, Ethiopia (K, L).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ica*, belonging to. From Abyssinia, now Ethiopia.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 70–100 cm long, 4-noded. Lateral branches lacking. Ligule an eciliate membrane, 5–10 mm long, erose. Leaf-blades 15–30 cm long, 6–11 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, nodding, 20–40 cm long, 5–15 cm wide. Panicle branches scaberulous. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–4 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 20–25 mm long, persistent on plant. Rhachilla internodes pilose, with 1–2 mm long hairs. Floret callus evident, bearded, obtuse.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 20–25 mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex acuminate. Upper glume elliptic, 20–25 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 15–18 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous, rough above or on veins. Lemma margins eciliate or ciliate. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 36 mm long overall, with twisted column. Column of lemma awn 10–13 mm long. Lateral lemma awns present, arising on apex of lobes, 2–3 mm long, shorter than principal. Palea keels winged, narrowly winged, ciliolate.

**Flower and Fruit.** Anthers 3, 2 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, 7–8 mm long, hairy all over. Hilum linear.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG).** Continent. Africa, Temperate Asia.

**Country /Province /State.** Northeast tropical Africa. Eritrea, Ethiopia (inc. Eritrea). Arabian Peninsula. Saudi Arabia, Yemen.

**Avena aemulans** Nevski. *Acta Univ. As. Med. Ser. 8 b, Bot. Fasc. 17, 5*, in clavi. (1934).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Elets: *Romanovsky-Romanko 580* (WIR holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *aemulor*, come near to. Rather similar to another species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 30–120 cm long. Leaves cauline. Ligule an eciliate membrane. Leaf-blades 10–45 cm long, 4–18 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, effuse, nodding, 10–30 cm long. Primary panicle branches drooping. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–5 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 20–25 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes 1.5 mm long. Floret callus elongated, 2–3.5 mm long, obtuse, disarticulating obliquely, with circular scar.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 0.75–0.9 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex acuminate. Upper glume lanceolate, 1.2–1.4 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 15–20 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma apex dentate, 2 -fid, awned, 1 -awned.



Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 20–30 mm long overall, with twisted column. Column of lemma awn pubescent.

**Flower and Fruit.** Anthers 3, 2–2.5 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, hairy all over. Hilum linear.

**Distribution (TDWG). Continent.** Europe.

**Region.** Eastern Europe.

**Country /Province /State.** Central European Russia, East European Russia.

**TDWG4.**

**Avena barbata** Pott ex Link. *Schrad. Journ.* 2: 315 (1799).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Portugal, Lisbon: *Pott* (L lecto). **Basionym or Replaced Name:** *Avena hirtula* Lag., *Gen. et Sp. Nov.* 4 (1816), *A. wiestii* Syn. Steud. *Pl. Gram.* 231. (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Pott* s. n., Jul 1796, Lusitania, ex cult. mea 1796 (LE). LT designated by ?; cited by Ali Chaudahry, *Grass. Saudi Arabia* 118 (1989).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 249 & 250 as *A. wiestii*), L.Boulos, *Flora of Egypt* 4 (2005) (159, Fig. 44), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (329, Pl. 120, 342, Pl. 128 & 343 Pl. 129 as *A. wiestii*), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (507, Fig. 57), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (207, Fig. 153), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (38, Pl. 9), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (162), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (736), S.A.Renvoize, *Gramineas de Bolivia* (1998) (157, Fig. 37), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (142, Fig. 37), M.N.Correa, *Flora Patagonica* Parte III, *Gramineae* (1978) (211, Fig. 137), B.Rosengurt, *Gramineas Uruguayas I* (1970) (44, Fig. 12), S-L Chen et al, *Flora of China*, *Illustrations, Poaceae* (2007) (Fig. 442), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:23(1980)).

**Illustrations (Journals):** *Ruizia* (13:150, Fig 16 e-g (1993)).

**Images:** D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia*. CD-Rom Version 1.0. (2002);, L.Boulos, *Flora of Egypt* 4 (2005);.

**Derivation** (Clifford & Bostock 2007): L. bearded, barbed. With hairs on the callus, glumes or lemma.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms erect or geniculately ascending, 30–100 cm long. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths pilose. Ligule an eciliate membrane, 1–6 mm long, obtuse. Leaf-blades 6–30 cm long, 2–20 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, effuse, nodding, 15–30(–50) cm long, 6–12 cm wide. Primary panicle branches 9–18 cm long. Panicle branches smooth or scaberulous. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 16–26 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose. Floret callus evident, bearded, obtuse. Floret callus hairs 2–3 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 16–26 mm long, 1 length of upper glume, membranous, without keels, 5(–7) -veined. Lower glume apex acuminate. Upper glume elliptic, 16–26 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 7(–9) -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 12–20 mm long, coriaceous, much thinner above, without keel, 9 -veined, more than 3-veined. Lemma surface scabrous, rough above, pilose, hairy below. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 30–60 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 3–12 mm long, shorter than principal. Palea 10–18 mm long. Palea keels ciliate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

$N = 14$  (3 refs TROPICOS), or 21 (1 ref TROPICOS).  $2n = 14$  (2 refs TROPICOS), or 28 (4 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America.

**Region.** Northern Europe (\*), Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Great Britain. : Austria, Germany. : Balears, Corsica, France, Portugal, Sardinia, Spain, Azores. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym. **Northern Africa, Macaronesia, Southern Africa** (\*). Egypt, Libya. Canary Is, Madeira. Western Cape, Eastern Cape. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China.** Turkmenistan, Tadjikistan. Afghanistan (as subsp. *wiestii*), Cyprus (as subsp. *wiestii*), Iran, Iraq, Lebanon-Syria (as subsp. *wiestii*), Palestine, Israel & Jordan (as subsp. *wiestii*), Sinai (as subsp. *barbata*), Turkey (as subsp. *wiestii*). Kuwait, Oman, Saudi Arabia. **Indian Subcontinent.** Nepal (as subsp. *barbata*), Pakistan, Sri Lanka. **Australia, New Zealand.** Western Australia (\*), South Australia (\*), New South Wales (\*), A.C.T. (\*), Victoria (\*), Tasmania (\*), Lord Howe-Norfolk Is (\*). New Zealand North I. **North-central Pacific.** Hawaii (\*). **Northwest USA, Southwestern USA, Mexico.** Oregon, Washington. Arizona, California. Central Mexico, Pacific Is (Mexico). **Western South America, Brazil, Southern South America.** Bolivia. Brazil South. Argentina Northeast, Argentina South, Chile North, Chile Central, Chile South, Juan Fernandez Is.

**TDWG4.** Utah Pradesh. Kimberley, Ereman. NW & Lake Eyre, Southern. Coast, Tablelands, Western Slopes, Western Plains. Mendoza, Tucuman. Buenos Aires, Cordoba, Distrito Federal, Entre Rios, La Pampa. Neuquén, Río Negro. Antofagasta. Coquimbo, Valparaiso, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos. Puebla.

**Avena beguinotiana** Pamp. *Arch. Bot. (Forli)* 12: 18 1936.

Regarded by K as a synonym (*A. ventricosa*).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Augusto Beguinot (1875–1940) Italian botanist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 10–25 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 3–15 cm long, 2–10 mm wide. Leaf-blade surface glabrous. Leaf-blade margins glabrous or ciliate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, nodding, 3–10 cm long. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 20–30 mm long, persistent on plant. Rhachilla internodes pilose. Floret callus evident, pilose.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 13–20 mm long, 0.66 length of upper glume, membranous, without keels, 3–4 -veined. Lower glume apex acuminate. Upper glume elliptic, 20–30 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 12–20 mm long, coriaceous, much thinner above, pallid, without keel, 9 -veined, more than 3-veined. Lemma surface pilose. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 30–40 mm long overall, with twisted column. Column of lemma awn pubescent. Lateral lemma awns present, arising on apex of lobes, 2–6 mm long, shorter than principal. Palea keels ciliate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northern Africa. Libya.

**Avena brevis** Roth. *Bot. Abh.* 42 1787.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: [*m. Durand*] s. n., Horto Paris (LE).

IT: s. n., 1809, Germany (LE). E xhortulo nostro..

IT: *Unknown s.n.*, unknown (L).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. short. Culms short.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 40–70 cm long, 3–5 -noded. Lateral branches lacking. Ligule an eciliate membrane, 2–3 mm long, truncate or obtuse. Leaf-blades 10–20 cm long, 3–5 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acute.

**Inflorescence.** Inflorescence a panicle. Panicle contracted, elliptic, nodding, 10–20 cm long, 2–5 cm wide. Panicle branches capillary, scaberulous. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 1–3 fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets to of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 11–15 mm long, persistent on plant. Rhachilla internodes glabrous.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 11–15 mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex obtuse or acute. Upper glume elliptic, 11–15 mm long, 1.3–1.6 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex obtuse or acute.

**Florets.** Fertile lemma lanceolate, 8–9 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn subapical or dorsal, arising 0.75–0.9 way up back of lemma, geniculate, 15–28 mm long overall, with twisted column. Column of lemma awn 4–10 mm long. Lateral lemma awns present, arising on apex of lobes, 1–3 mm long, shorter than principal. Palea 7–8 mm long. Palea keels ciliolate, adorned above. Rhachilla extension 2.5 mm long.

**Flower and Fruit.** Anthers 3, 2 mm long. Ovary pubescent on apex. Caryopsis with adherent pericarp, oblong, sulcate on hilar side, 6 mm long, hairy at apex. Hilum linear.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa.

**Region.** Northern Europe, Middle Europe, Southwestern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). : Germany. **Macaronesia.** Azores.

**Avena byzantina** C. Koch. *Linnaea* 21(4): 392 1848.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: (B).

**Illustrations (Books):** K.M.Mathew, *Flora Palni Hills* (1996) (787, Pl. 787), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (162), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (98, Fig. 30), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (454, Fig. 97), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (148, Fig. 39), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (215, Fig. 139), B.Rosengurt, *Gramineas Uruguayas I* (1970) (42, Fig. 11).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): Gk. -ina, belonging to. From Byzantium, now Istanbul, Turkey.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 60–150 cm long. Culm-nodes glabrous. Lateral branches lacking. Ligule an eciliate membrane, 3–7 mm long. Leaf-blades 15–30 cm long, 2–6 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–25 cm long. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 27–30 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Floret callus evident, bearded, obtuse, fracturing irregularly, with elliptic scar. Floret callus hairs 3–5.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 25–30 mm long, 1 length of upper glume, membranous, without keels, 7 -veined. Lower glume apex acuminate. Upper glume elliptic, 28–33 mm long, 1.5–1.8 length of adjacent fertile lemma, membranous, without keels, 9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 15–20 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, with lobes 1.5 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or curved, 25–33 mm long overall, without a column. Palea 12–15 mm long. Palea keels ciliolate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

$N = 21$  (3 refs TROPICOS).  $2n = 40$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Australasia (\*), Tropical Asia, South America.

**Region.** Northern Europe (\*), Southwestern Europe, Southeastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). **Northern Africa, East tropical Africa, Southern Africa** (\*), **Western Indian ocean.** Algeria, Libya. Limpopo, Free State, Kwazulu-Natal, Western Cape. Mauritius (\*). **Middle Asia, Western Asia.** Iran, Turkey. **Indian Subcontinent.** Pakistan. **Australia.** Western Australia (\*), Lord Howe-Norfolk Is (\*). **Western South America, Brazil, Southern South America.** Bolivia. Argentina Northeast, Argentina South.

**TDWG4.** Bihar. Tamilnadu. Himachal Pradesh. South-West. La Rioja, Mendoza, San Luis. Buenos Aires, Cordoba, Distrito Federal, Entre Rios, La Pampa. Neuquén, Río Negro, Tierra del Fuego.

**Avena chinensis** (Fisch. ex Roem. & Schult.) Metzg. *Europ. Cereal.* :53 (1824).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**Basionym or Replaced Name:** *Avena nuda* var. *chinensis* Fisch. ex Roem. & Schult., *Syst Veg.* 2:669 (1817).

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 443).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From China.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 45–90 cm long. Culm-nodes glabrous. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 3–7 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, 15–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 3–6 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 25–35 mm long, persistent on plant. Rhachilla internodes glabrous. Floret callus glabrous.

**Glumes.** Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 15–25 mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex acuminate. Upper glume lanceolate, 15–25 mm long, 0.9–1 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex acuminate.

**Florets.** Fertile florets all alike or with the lowest dissimilar. Lowest fertile lemma muticous or awned (15–20mm). Fertile lemma lanceolate, 18–25 mm long, membranous, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins distinct. Lemma surface glabrous. Lemma apex dentate, 2–4 -fid, muticous.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, 8 mm long, hairy all over. Hilum linear. Dissemimule comprising a caryopsis.

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Middle Europe, Southwestern Europe, Eastern Europe.

**Country /Province /State.** Belarus, Baltic States, Central European Russia, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. Siberia, Russian far east, **Middle Asia, Caucasus, China, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Khabarovsk, Kuril Is, Magadan, Primorye, Sakhalin. Kazakhstan, Tadjikistan, Uzbekistan. China South Central, China North-Central, China Southeast, Xinjiang.

**TDWG4.** Hebei. Henan. Hubei, Yunnan.

**Avena clauda** Dur. *Rev. Bot. Recueil Mens.* 1: 360 1845–1846.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Algeria. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mascara: Durieu (P lecto).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 246), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (332, Pl. 122 & 333, Pl. 123).

**Derivation** (Clifford & Bostock 2007): L. defective. Leaf-blades spirally twisted.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms erect or geniculately ascending, 13–60 cm long. Culm-internodes glaucous. Lateral branches lacking. Leaf-sheaths glabrous on surface or pilose. Ligule an eciliate membrane, 1.8–3 mm long, obtuse. Leaf-blades 3–10 cm long, 2–4 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, nodding, 6–15 cm long, 4–6 cm wide. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 3–5 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 18–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, obtuse, disarticulating obliquely. Floret callus hairs 4–4.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 11–15 mm long, 0.5–0.66 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume elliptic, 20–25 mm long, 1–1.3 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 20 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface glabrous or pilose, hairy above. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 30 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 7 mm long, shorter than principal. Palea keels ciliate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

$2n = 14$  (2 refs TROPICOS).

**Distribution (TDWG), Continent.** Europe, Africa, Temperate Asia.

**Region.** Southeastern Europe.

**Country /Province /State.** : Bulgaria, Greece, Turkey Europe. **Northern Africa.** Algeria, Morocco, Tunisia. **Middle Asia, Caucasus, Western Asia.** Turkmenistan, Tadjikistan. Iran, Iraq.

**TDWG4.**

**Avena eriantha** (Boiss.) Hack., non Dur.(1845). *Rev. Bot. Recueil Mens.* 1: 360 1845.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Algeria. **Basionym or Replaced Name:** *Arrhenatherum erianthum* Boiss. & Reut., *Pugill. Pl. Nov. Afr. Bor. Hisp. Austr.* 121 (1852). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: PT: *Durieu de Maisonneuve s. n.*, 12 Apr 1842, [Africa]: Algeria: Oran (LE).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 247), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 442).

**Derivation** (Clifford & Bostock 2007): Gk. erion, wool; anthos, flower. With wooly glumes, lemmas or awns.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, culms solitary or caespitose. Culms erect or geniculately ascending, 13–60 cm long. Culm-internodes glaucous. Lateral branches lacking. Leaf-sheaths glabrous on surface or pilose. Ligule an eciliate membrane, 1.8–3 mm long, obtuse. Leaf-blades 3–10 cm long, 2–4 mm wide. Leaf-blade surface glabrous or pilose.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, nodding, 6–15 cm long, 4–6 cm wide. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 18–25 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Floret callus evident, bearded, obtuse, disarticulating obliquely. Floret callus hairs 4–4.5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 11–15 mm long, 0.5–0.66 length of upper glume, membranous, without keels, 3–5 -veined.

Lower glume apex acuminate. Upper glume elliptic, 20–25 mm long, 1–1.3 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 20 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface glabrous or pilose, hairy above. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 30 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 7 mm long, shorter than principal. Palea keels ciliate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Greece. Krym. Northern Africa, Macaronesia. Azores. Middle Asia, Caucasus, Western Asia, China. Tadjikistan. Iran, Iraq.

**TDWG4.**

**Avena fatua** Linn. Sp. Pl. 80 (1753).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (& as *A. meridionalis*), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Sweden. **Basionym or Replaced Name:** *Avena meridionalis* (Malzew) Roshev. B. Fedtsch. et al. *Fl. Turkm.* 1: 105 (1932), *A. septentrionalis* Malzew, *Bull. Angewandte Bot.* 6: 915 (1913). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Herb. Linn. 95/9 (LINN lecto).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (238), G.Hegi, *Flora von Mitteleuropa* 1 (1909), N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (309 (213), Pl.3), R.M.Pohill, F.T.E.A., *Gramineae* (1(1970):83, Fig. 28), G.V.Pope et al., *Flora Zambesiaca* 10 (1(1971):75, T. 22), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (80, Fig. 51), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (59, Fig. 25), L.Boulos, *Flora of Egypt* 4 (2005) (159, Fig. 44), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (335, Pl. 124), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (147, Fig. 48), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (258), C-C Hsu, *Taiwan Grasses* (1975), H.J.Noltie, *The Grasses of Bhutan* (2000) (583, Fig. 22), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (208, Fig. 154), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (38, Pl. 9), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (453, Fig. 88), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (162), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (122), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (123, Fig. 19), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (162, Fig. 24), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1501, Pl. 220), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (736 & 738 as *A. hybrida* & *A. occidentalis*), F.W.Gould, *The Grasses of Texas* (1975) (134, Fig. 66), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (69, Fig. 38), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (454, Fig. 97 & 455, Fig. 98), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (96, Fig. 29 & 98, Fig. 30 & as var. *pilosissima*), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (145, Fig. 38 many varieties), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (215, Fig. 140 as var. *pilosissima*), B.Rosengurt, *Gramineas Uruguayas I* (1970), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Figs. 443/444 as *Avena fatua* var. *fatua* & *Avena fatua* var. *glabrata*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:24(1980)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, L.Boulos, *Flora of Egypt* 4 (2005);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

**Derivation** (Clifford & Bostock 2007): L. tasteless. Grain not favored as food.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 30–150 cm long, 3–5 -noded. Leaves cauline. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades 10–45 cm long, 3–15 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, nodding, 10–40 cm long, 5–20 cm wide. Primary panicle branches drooping. Panicle branches scaberulous. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 18–28 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, obtuse, disarticulating obliquely. Floret callus hairs 0.2 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 18–28 mm long, 1 length of upper glume, membranous, without keels, 7–11 -veined. Lower glume apex acuminate. Upper glume lanceolate, 18–28 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, without keels, 7–11 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 14–20 mm long, coriaceous, much thinner above, dark brown, without keel, 7–9 -veined, more than 3-veined. Lemma surface pilose, hairy below. Lemma apex dentate, 2–4 -fid, with irregular lobes, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 25–40 mm long overall, with twisted column. Palea keels ciliate.

**Flower and Fruit.** Anthers 3, 3 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, 6–8 mm long, hairy all over. Hilum linear.

$N = 21$  (7 refs TROPICOS).  $2n = 2$  (1 ref TROPICOS), or 42 (16 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Great Britain, Ireland, Northern Ireland, Norway, Sweden. : Austria, Liechtenstein, Belgium, Luxembourg, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : Balears, Corsica, Channel Islands, France, Monaco, Portugal, Sardinia, Andorra, Gibraltar, Spain, Azores. : Albania, Bulgaria, Italy, San Marino, Vatican, Romania, Malta, Sicily, Turkey Europe, Yugoslavia. Belarus, Estonia, Kaliningrad, Latvia, Lithuania, Baltic States, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. **Northern Africa, Macaronesia, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa** (\*). Algeria, Egypt, Libya, Tunisia. Azores, Canary Is, Madeira. Eritrea, Ethiopia (inc. Eritrea). Kenya. Zimbabwe. Limpopo, Western Cape, Eastern Cape. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita. Amur, Kamchatka, Khabarovsk, Magadan, Primorye, Sakhalin. Kazakhstan, Kirgizistan, Turkmenistan, Tadzhikistan, Uzbekistan. North Caucasus, Transcaucasus. Afghanistan, Iran, Iraq. Gulf States, Oman. China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, China Southeast, Tibet, Xinjiang. Japan, Nansei-Shoto, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Malesia.** Assam, Bangladesh, Eastern Himalaya, Nepal, Pakistan, Sri Lanka, West Himalaya. Java, Philippines. **Australia, New Zealand.** Western Australia (\*), Northern Territory (\*), South Australia (\*), Queensland (\*), New South Wales (\*), A.C.T. (\*), Victoria (\*), Tasmania (\*). Chatham Is, New Zealand North I, New Zealand South I. **North-central Pacific.** Easter Is (\*), Marquesas (\*), Society Is (\*). Hawaii (\*). **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Mexico.** Alaska, Northwest Territories. Alberta, British Columbia, Manitoba, Saskatchewan. New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Iowa, Minnesota, Missouri, North Dakota, South Dakota, Wisconsin. Connecticut, Maine, Massachusetts, Michigan, Ohio, New Hampshire, Pennsylvania, Rhode Island. Arizona, California, Nevada, Utah. New Mexico. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Bermuda, Jamaica. Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Southeast, Brazil South. Argentina Northeast, Argentina South, Argentina Northwest, Chile Central, Chile South. **Subantarctic islands.** Falkland Is (Malvinas).

**TDWG4.** Hebei. Anhui, Fujian, Guangdong, Guangxi, Henan, Hunan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan. Bhutan, Sikkim. Punjab, Rajasthan, Uttah Pradesh, West Bengal. Jammu Kashmir. South-West. Central Australia. NW & Lake Eyre, Southern. South East. Coast, Tablelands, Western Slopes, Western Plains. Jujuy (\*), Mendoza, Salta, Santiago del Estero, San Juan, Tucuman. Buenos Aires, Chaco, Cordoba, Distrito Federal, Entre Rios, La Pampa, Santa Fe. Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Valparaiso, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos. Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo Leon, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Baja California, Sonora. Jalisco, Michoacan, Oaxaca. Chiapas.

**Avena hispanica** Ard. *Sagg Sci. Lett. Accad. Padova* 2: 112 (1789).

Regarded by K as a synonym (*A. strigosa*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Illustrations (Books):** No illustration found (BKS).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Avena longiglumis** Dur. *Rev. Bot.* 1:359 (1845).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Algeria. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Oran: Durieu (P lecto).

**Illustrations (Books):** N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 248).

**Derivation** (Clifford & Bostock 2007): *L. longus*, long; *gluma*, husk. Spikelets with long glumes and or lemmas.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 30–120 cm long. Lateral branches lacking. Ligule an eciliate membrane, obtuse. Leaf-blades 15–25 cm long, 5–10 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear, equilateral or nodding, 10–15 cm long. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 25–40 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Floret callus elongated, 5 mm long, bearded, acute, disarticulating obliquely, with linear scar.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 25–40 mm long, 1 length of upper glume, membranous, without keels, 9–11 -veined. Lower glume apex acuminate. Upper glume elliptic, 25–40 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 9–11 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 20–35 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface pilose. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 40–60 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 10–15 mm long, shorter than principal. Palea keels ciliate. Palea surface smooth or scaberulous.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

$2n = 14$  (4 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia.

**Region.** Southwestern Europe.

**Country /Province /State.** : Portugal, Sardinia, Spain. **Northern Africa.** Algeria, Egypt, Libya, Morocco, Tunisia. **Western Asia.** Palestine, Israel & Jordan.

**Avena maroccana** Gandoger. *Bull. Soc. Bot. France*, 55: 658 (1909).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Morocco. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ceuta: Coll? (LY holo).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. -ana*, indicating location. From Morocco.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 50–100 cm long. Lateral branches lacking. Ligule an eciliate membrane, acute. Leaf-blades 15–30 cm long, 2–5 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 20–30 cm long. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 30–40 mm long, breaking up at maturity, disarticulating above



glumes but not between florets. Floret callus evident, bearded, obtuse, disarticulating transversely or disarticulating obliquely, with circular scar or elliptic scar.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 30–40 mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex acuminate. Upper glume elliptic, 30–40 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 20–30 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface villous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 20–30 mm long overall, with twisted column. Palea keels ciliolate. Palea surface pubescent, hairy on back.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northern Africa. Morocco.

**Avena murphyi** Ladizinsky. *Israel J. Bot.*, 20(1): 24 (1971).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**TYPE** from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Algeciras to Cadiz: Ladizinsky & Zohary (HUJ holo, K).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of H.C. Murphy (fl. 1968) United States plant breeder.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 50–100 cm long. Lateral branches lacking. Ligule an eciliate membrane, acute. Leaf-blades 15–30 cm long, 5–8 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 20 cm long. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–4 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 30–40 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Floret callus evident, bearded, obtuse, disarticulating transversely or disarticulating obliquely, with circular scar or elliptic scar.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 30–40 mm long, 1 length of upper glume, membranous, without keels, 9–11 -veined. Lower glume apex acuminate. Upper glume elliptic, 30–40 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 9–11 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 20–30 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 40–60 mm long overall, with twisted column. Palea keels ciliolate. Palea surface scaberulous.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

**Distribution (TDWG). Continent.** Europe.

**Region.** Southwestern Europe.

**Country /Province /State.** : Spain.

**Avena nuda** Linn. *Demonstr. Pl.* 3 1753.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: (LINN-95.8). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 247 (2000); the earlier lectotypification by Baum (1974, 1978) is ineffective because it was based on an ineligible S specimen [see Cafferty et al., *Taxon* 49(2): 247 (2000)].

**Illustrations (Books):** S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 445).

**Derivation** (Clifford & Bostock 2007): L. bare. Lemmas glabrous.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 45–90 cm long. Culm-internodes distally pruinose. Leaves cauline. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades 10–20 cm long, 3–7 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, linear or lanceolate, 15–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–4 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 20–25 mm long, persistent on plant. Floret callus glabrous.

**Glumes.** Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 20–30(–35) mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex acuminate. Upper glume lanceolate, 15–20 mm long, 0.8–1 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 15–20 mm long, coriaceous, much thinner above, without keel, 7–9 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex dentate, 2 -fid, with lobes 1–3(–4) mm long, lobes acuminate, awned, 1 -awned. Principal lemma awn dorsal, curved, 15–20 mm long overall. Palea 0.5 length of lemma.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, hairy all over. Hilum linear.

$2n = 42$  (5 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Temperate Asia.

**Region.** Northern Europe (\*), Middle Europe, Eastern Europe.

**Country /Province /State.** : GB Aliens (Ryves et al). Belarus, Ukraine. Siberia, **China, Russia.** China South Central.

**TDWG4.** Hubei, Yunnan (+).

### **Avena occidentalis** Durieu.

Regarded by K as a synonym (*A. fatua*).

**Accepted by:** U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (738).

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Distribution (TDWG). Continent.** Africa, Temperate Asia, North America.

**Country /Province /State.** **Macaronesia.** Canary Is. **Arabian Peninsula.** Saudi Arabia. **Southwestern USA.** California.

### **Avena prostrata** Ladizinsky. *Israel J. Bot.* 20(4): 297 1971.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. prosterno, throw to the ground. Culms creeping or wiry so as to fall on the ground.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms prostrate, 15–50 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 2–4 mm wide.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, nodding, 10–20 cm long. Primary panicle branches spreading. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, disarticulating obliquely.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 12–15 mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex acuminate. Upper glume lanceolate, 12–15 mm long, 1–1.1 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 11–15 mm long, coriaceous, much thinner above, yellow or grey, without keel, 7 -veined, more than 3-veined. Lemma surface pilose. Lemma apex dentate, 2–4 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 20–35 mm long overall, with

twisted column. Lateral lemma awns present, arising on apex of lobes, 2–4 mm long, shorter than principal. Palea keels ciliate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, hairy all over. Hilum linear.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe.

**Region.** Southwestern Europe.

**Country /Province /State.** : Spain.

### **Avena sativa** Linn. *Sp. Pl.* 1: 79 1753.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**Basionym or Replaced Name:** *Avena macrantha* (Hack.) Nevski, *Acta Univ. As. Med. Ser.* 8 b, *Bot. Fasc.* 17, 6, (1934), *A. persarum* Nevski, nom nud, *Acta Univ. As. Med. Ser.* 8 b, *Bot. Fasc.* 17, 6, in clavi. (1934). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Herb. Clifford.* 25, *Avena* 1, (BM). LT designated by Baum, *Taxon* 23: 579–583 (1974).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (16&18), L.Boulos, *Flora of Egypt* 4 (2005), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (341, Pl. 127), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (147, Fig. 48), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (260), C-C Hsu, *Taiwan Grasses* (1975), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (208, Fig. 155), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (38, Pl. 9), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (738), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (454, Fig. 97, 455, Fig. 98 & 457, Fig. 99), W.Burger, *Flora Costaricensis* 15, *Gramineae: Fieldiana Botany New Series* 4 (1980) (72, Fig. 18), M.N.Correa, *Flora Patagonica* Parte III, *Gramineae* (1978) (211, Fig. 136), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (42, Fig. 11), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 443).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): L. cultivated. Crop species.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect, 40–180 cm long. Leaves cauline. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades 14–40 cm long, 5–15 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, effuse, nodding, 20–40 cm long, 5–15 cm wide. Primary panicle branches drooping. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 22–27 mm long, persistent on plant. Floret callus glabrous, disarticulating obliquely.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 22–27 mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex acuminate. Upper glume lanceolate, 22–27 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 15–17 mm long, coriaceous, much thinner above, without keel, 7–9 -veined, more than 3-veined. Lemma surface scabrous, rough above, glabrous. Lemma apex dentate, 2 -fid, muticous or awned, 0–1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 25–35 mm long overall, with twisted column. Palea keels ciliate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, hairy all over. Hilum linear.

$N = 5$  (5 refs TROPICOS).  $2n = 40$  (1 ref TROPICOS), or 41 (1 ref TROPICOS), or 42 (8 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America.

**Region. Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.**

**Country /Province /State.** : Great Britain. Belarus, Estonia, Latvia, Lithuania, Baltic States, Krym, Central European Russia, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. **Northern Africa, Macaronesia, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa** (\*), **Middle Atlantic ocean.** Algeria, Egypt, Libya. Canary Is. Ethiopia (inc. Eritrea). Kenya, Tanzania. Limpopo, North-West, Gauteng, Mpumalanga, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. St Helena. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China** (+), **Mongolia, Eastern Asia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Khabarovsk, Kuril Is, Magadan, Primorye, Sakhalin. Kazakhstan, Turkmenistan, Tadzhikistan, Uzbekistan. North Caucasus, Transcaucasus. Iran, Iraq. Kuwait, Oman. China North-Central. Japan, Nansei-Shoto, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China, Malesia.** Assam, Bangladesh, Sri Lanka. Java, Lesser Sunda Is, Philippines. **Australia, New Zealand.** Western Australia (\*), South Australia (\*), Queensland (\*), New South Wales (\*), A.C.T. (\*), Victoria (\*), Tasmania (\*), Lord Howe-Norfolk Is (\*). New Zealand North I, New Zealand South I, Stewart Is, Campbell Is. **Northwestern Pacific, North-central Pacific.** Fiji (\*), New Caledonia. Marquesas (\*), Marianas (\*), Marshall Is (\*). Hawaii (\*). **Subarctic America, Western Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Mexico.** Alaska, Yukon, Northwest Territories. Alberta, Manitoba, Saskatchewan. Central Mexico, Northeast Mexico, Gulf (Mexico), Pacific Is (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Bermuda, Cuba, Jamaica. Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Southeast. Argentina Northeast, Argentina South, Chile Central, Chile South.

**TDWG4.** Shandong, Shanxi. Bhutan. Assam. Jammu Kashmir. South-West. Southern. Central, South East, Inland. Coast, Tablelands, Western Slopes. Santiago del Estero, San Luis. Buenos Aires, Cordoba, Distrito Federal, Entre Rios, La Pampa. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Maule, Biobio, La Araucania. Los Lagos, Magallanes. Distrito Federal, Mexico State, Morelos, Puebla. Aguascalientes, Coahuila, Chihuahua, Durango, Hidalgo, Neuvo Leon, Zacatecas. Veracruz. Baja California, Sonora. Jalisco, Michoacan, Oaxaca. Chiapas.

**Avena saxatilis** (Lojac.) M.L. da Rocha Afonso. *Bot. J. Linn. Soc.*, 76(4): 359 (1978).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980).

**Basionym or Replaced Name:** *Avena barbata* var. *saxatilis* Lojac., *Fl. Sic.* 3:302 (1909).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. saxum*, rock; -*atilis*, place of growth. Dwelling among rocks.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose, clumped densely. Culms erect or geniculately ascending, 7–25 cm long. Culm-nodes glabrous. Lateral branches lacking. Ligule an eciliate membrane, 0.3–1 mm long. Leaf-blades 3–6 cm long, 0.5–1.5 mm wide. Leaf-blade surface scabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 5–10 cm long. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 15–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose. Floret callus evident, bearded, obtuse.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 15–18 mm long, 1 length of upper glume, membranous, without keels, 5–7 -veined. Lower glume apex acuminate. Upper glume elliptic, 15–18 mm long, 1.7–1.8 length of adjacent fertile lemma, membranous, without keels, 5–7 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 9–10 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous, rough above, pilose, hairy below. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 15–30 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 3–4 mm long, shorter than principal. Palea keels ciliolate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

**Distribution (TDWG).** Continent. Europe.

**Region.** Southeastern Europe.

**Country /Province /State.** : Sicily.

**Avena sterilis** L. *Sp. Pl.* ed. 2 :118 (1762).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Spain. **Basionym or Replaced Name:** *Avena ludoviciana* Dur., *Bull. Soc. Linn. Bord.* 20 (1) 41 (1855).

**Recent Synonyms:** *Avena trichophylla* K.Koch, *Linnaea* 21: 393 (1848).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (240, as *A. ludoviciana*), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (P. 251 as ssp. *sterilis*), L.Boulos, *Flora of Egypt* 4 (2005) (159, Fig. 44), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (337 & 339, Pl. 125 & 126 as *A. ludoviciana*), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (209, Fig. 156 as subsp. *ludoviciana*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (163 & as *A. ludoviciana*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (109, Fig 16), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (738), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (241, Fig. 75), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (96 & 98, Fig. 29 & 30 as *A. ludoviciana*), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (148, Fig. 39 & as *A. ludoviciana*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (44, Fig. 12 & as *A. ludoviciana* var. *glabrescens* & *A. ludoviciana* var. *ludoviciana*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 442 as *Avena sterilis* ssp. *ludoviciana*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:25(1980)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. sterile. The spikelets fall soon after attaining maturity.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending or decumbent, 30–180 cm long, 2–5 -noded. Leaves cauline. Ligule an eciliate membrane, 3–8 mm long. Leaf-blades 10–60 cm long, 4–18 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, pyramidal, effuse, nodding, 10–45 cm long, 5–25 cm wide. Primary panicle branches drooping. Panicle branches scaberulous. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 5–35 mm long.

**Fertile Spikelets.** Spikelets comprising 2–5 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 23–50 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Floret callus evident, bearded, obtuse, disarticulating obliquely. Floret callus hairs 0.15 length of lemma.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 23–50 mm long, 1 length of upper glume, membranous, without keels, 7–11 -veined. Lower glume apex acuminate. Upper glume lanceolate, 23–50 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, without keels, 7–11 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 15–40 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous, rough above, pilose, hairy below. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 30–80 mm long overall, with twisted column. Column of lemma awn hispidulous to pubescent. Palea keels ciliate.

**Flower and Fruit.** Anthers 3, 2.5–4 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, 11–12 mm long, hairy all over. Hilum linear.

$N = 21$  (1 ref TROPICOS).  $2n = 42$  (5 refs TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (\*), North America, South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Great Britain. : Belgium, Czechoslovakia, Hungary. : Baleares, Corsica, France, Portugal, Sardinia, Spain, Azores. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym, East European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa, Macaronesia, Northeast tropical Africa, East tropical Africa, Southern Africa** (\*). Algeria, Egypt, Libya, Morocco, Tunisia. Canary Is, Madeira. Eritrea, Ethiopia (inc. Eritrea). Kenya. Western Cape. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China.** Kazakhstan, Turkmenistan, Uzbekistan. North Caucasus, Transcaucasus. Iran, Iraq. Gulf States. China South Central. **Indian Subcontinent.** Pakistan, Sri Lanka, West Himalaya. **Australia, New Zealand.** Western Australia (\*), South

Australia (\*), Queensland (\*), New South Wales (\*), A.C.T. (\*), Victoria (\*), Tasmania (\*). New Zealand North I, New Zealand South I. **Eastern Canada, Southwestern USA.** Ontario. California. **Western South America, Brazil, Southern South America.** Bolivia, Colombia. Brazil Southeast, Brazil South. Argentina Northwest, Argentina Northeast, Chile Central.

**TDWG4.** Yunnan. South-West. Southern. North, Central, South East. Coast, Tablelands, Western Plains. San Luis. Buenos Aires, Cordoba, Distrito Federal, Entre Rios, La Pampa, Santa Fe. Santiago.

**Avena strigosa** Schreb. *Spic. Fl. Lips.* 52 1771.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (236), G.Hegi, *Flora von Mitteleuropa* 1 (1909), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (163), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (211, Fig. 138 as var. *glabrescens*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (42, Fig. 11), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:26(1980)).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

**Derivation** (Clifford & Bostock 2007): L. covered with short, bristle-like hairs. One or more organs covered with bristle-like hairs.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 60–120 cm long, 3–5 -noded. Leaves cauline. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 8–25 cm long, 5–10 mm wide. Leaf-blade surface scaberulous.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, nodding, 8–30 cm long, 3–10 cm wide. Primary panicle branches drooping. Panicle branches scaberulous. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 17–26 mm long, persistent on plant. Floret callus glabrous, disarticulating obliquely.

**Glumes.** Glumes similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 17–26 mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume apex acuminate. Upper glume lanceolate, 17–26 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 10–17 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous, rough above, glabrous or pilose, hairy all along or above (when hairy). Lemma apex dentate, 2–4 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 20–35 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 3–9 mm long, shorter than principal. Palea keels ciliolate.

**Flower and Fruit.** Anthers 3, 2.5–4 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, hairy all over. Hilum linear.

$N = 8$  (1 ref TROPICOS).  $2n = 14$  (8 refs TROPICOS).

**Distribution (TDWG). Continent.** Europe, Africa, Australasia (\*), South America.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Finland, Great Britain, GB Aliens (Ryves et al), Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : France, Portugal, Spain, Azores. : Greece, Italy, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, North European Russia, Northwest European Russia, Ukraine. **Macaronesia.** Azores. **Australia, New Zealand.** Victoria (\*), Tasmania (\*). New Zealand North I, New Zealand South I. **Brazil, Southern South America.** Brazil Southeast, Brazil South. Argentina Northeast, Argentina South, Chile Central, Chile South.

**TDWG4.** Coast. Entre Rios, La Pampa. Neuquén, Río Negro. Maule. Los Lagos.

**Avena vaviloviana** (Malzev) Mordv. *Fl. Cult. Pl. USSR* 2: 422 1936.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Ethiopia. **Basionym or Replaced Name:** *Avena strigosa* subsp. *vaviloviana* Malzev, *Bull. Appl. Bot. Pl. Breed. Suppl.* 38:278 (1930). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Asmara: Vavilov 1027 (WIR lecto).

**Illustrations (Books):** S. Phillips, *Poaceae* (Gramineae) in I. Hedberg & S. Edwards, *Flora of Ethiopia and Eritrea* (1995).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Nikolai Ivanovich Vavilov (1887–1942) Russian plant geneticist.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 80–110 cm long, 3–5-noded. Lateral branches lacking. Leaf-sheaths glabrous on surface or puberulous. Ligule an eciliate membrane, 4–7 mm long, erose. Leaf-blades 15–30 cm long, 5–10 mm wide. Leaf-blade surface scaberulous, glabrous or puberulous. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, nodding, 20–40 cm long, 5–15 cm wide. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 18–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose, with 2–3 mm long hairs. Floret callus evident, bearded, obtuse, disarticulating transversely, with circular scar. Floret callus hairs 1–5 mm long.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 18–25 mm long, 1 length of upper glume, membranous, without keels, 7–9-veined. Lower glume apex acuminate. Upper glume elliptic, 18–25 mm long, 1.5 length of adjacent fertile lemma, membranous, without keels, 7–9-veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 12–15 mm long, coriaceous, much thinner above, without keel, 7-veined, more than 3-veined. Lemma surface scaberulous, rough above or on veins, glabrous or pilose. Lemma apex dentate, 2-fid, awned, 3-awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 20–30 mm long overall, with twisted column. Column of lemma awn 8–12 mm long. Lateral lemma awns present, arising on apex of lobes, 1–2 mm long, shorter than principal. Palea keels winged, narrowly winged, ciliolate.

**Flower and Fruit.** Anthers 3, 1–2 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, 6 mm long, hairy all over. Hilum linear.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** Northeast tropical Africa. Eritrea, Ethiopia (inc. Eritrea).

***Avena ventricosa*** Balansa. *Bulletin de la Sociiiti Botanique de France* 1: 14 1854.

**Accepted by:** W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006), N. Tsvelev, *Grasses of the Soviet Union* (1983).

**TYPE** from Algeria. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Balansa* 557, 5 Apr 1852, Algeria: Oran Batterie Espagnole Champs (P; ILT: FI, G, K, W). LT designated by ?; cited by Ali Chaudahry, *Grass. Saudi Arabia* 120 (1989).

**Illustrations (Books):** N.L. Bor, *Gramineae in Flora of Iraq* (1968) (331, Pl. 121).

**Derivation** (Clifford & Bostock 2007): L. venter, belly; -osa, abundance. Spikelets inflated.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms erect or geniculately ascending, 30–60 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 4–8 cm long, 2–3 mm wide. Leaf-blade surface pilose.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, nodding, 10–20 cm long. Primary panicle branches indistinct the panicle almost racemose, bearing 1 fertile spikelets on each lower branch. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 25–30 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Floret callus elongated, 6–7 mm long, pubescent, pungent.

**Glumes.** Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 25–30 mm long, 1 length of upper glume, membranous, without keels, 7–9-veined. Lower glume apex acuminate. Upper glume elliptic, 25–30 mm long, 2–2.5 length of adjacent fertile lemma, membranous, without keels, 7–9-veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 10–15 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 30–35 mm long overall, with twisted column. Column of lemma awn puberulous. Lateral lemma awns present, arising on apex of lobes, 7 mm long, shorter than principal. Palea keels ciliolate.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear.

$2n = 14$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Africa, Temperate Asia.

**Country /Province /State.** Northern Africa. Algeria, Libya. Caucasus, Western Asia, Arabian Peninsula. Iran, Iraq.

TDWG4.

**Avena volgensis** (Vavilov) Nevski. *Trudy Sredne-Aziatskogo Gosudarstvennogo Universiteta. Seriya 8b, Botanika* 17: 5 1934.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983).

**Basionym or Replaced Name:** *Avena sativa* var. *kazanensis* Vav., *Tr. Prikl. Bot. Gen. Sel.* 16:92,210 (1926).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From the Volga River, former Soviet Union.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 60–150 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 15–30 cm long, 2–6 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence a panicle. Panicle open, elliptic, 15–25 cm long. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

**Fertile Spikelets.** Spikelets comprising 3–4 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 20–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5 mm long. Floret callus evident, 1 mm long, obtuse, fracturing irregularly.

**Glumes.** Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 20–25 mm long, 1 length of upper glume, membranous, without keels, 7 -veined. Lower glume apex acuminate. Upper glume elliptic, 20–25 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, without keels, 9 -veined. Upper glume apex acuminate.

**Florets.** Fertile lemma lanceolate, 14–18 mm long, coriaceous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins absent or obscure below. Lemma apex dentate, 2–4 -fid, muticous.

**Flower and Fruit.** Anthers 3. Ovary pubescent all over. Caryopsis with adherent pericarp, sulcate on hilar side, hairy all over. Hilum linear. Disseminule comprising a floret.

**Distribution (TDWG). Continent.** Europe.

**Region.** Eastern Europe.

**Country /Province /State.** Central European Russia, East European Russia, South European Russia.

TDWG4.

**Avenella flexuosa** (L.) Drejer. *Fl. Excurs. Hafn.* 32 (1838).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Lerchenfeldia*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

**TYPE** from Europe. **Basionym or Replaced Name:** *Aira flexuosa* L. *Sp. Pl.* 1: 65 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Anon.*, Europe (LINN-85.11).

**Recent Synonyms:** *Deschampsia flexuosa* (L.) Trin., *Bull. Sc. Acad. Petersb.* 1: 66 (1836).

**Illustrations (Books):** C.E.Hubbard, *Grasses* (1968) (250 as *Deschampsia flexuosa*), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (34, Fig 16), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (266), C-C



Hsu, *Taiwan Grasses* (1975) (412, Pl. 1380 as *Deschampsia*), M.E. Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (632 as *Deschampsia*), M.N. Correa, *Flora Patagonica* Parte III, Gramineae (1978) (*Fl. Pat.* 3: 230, Fig. 146(1978)), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 450), E. Hafliker & E. Schultz, *Grass Weeds*, CIBA-GEIGY (2:58(1980)).

**Images:** R. Darke, *Ornamental Grasses* (2004);, R. Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

**Derivation** (Clifford & Bostock 2007): awn flexuous.

**Classification.** Subfamily Pooideae. Tribe: Poeae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or elongated. Culms erect, 20–200 cm long, wiry, 1–3 -noded. Leaves mostly basal. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 0.5–3 mm long, obtuse. Leaf-blades filiform, involute, 5–20 cm long, 0.3–0.8 mm wide, stiff. Leaf-blade apex abruptly acute or acute.

**Inflorescence.** Inflorescence a panicle. Panicle open, ovate, effuse, 4–15 cm long, 3–20 cm wide. Panicle branches capillary, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 3–10 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 2 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or cuneate, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes definite, pilose. Floret callus pilose.

**Glumes.** Glumes persistent, similar, reaching apex of florets, similar to fertile lemma in texture, shiny. Lower glume ovate, 3–5 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acute. Upper glume elliptic, 4–6 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume surface smooth or asperulous. Upper glume apex acute.

**Florets.** Fertile lemma oblong, 3.5–5.5 mm long, membranous, shiny, without keel, 4 -veined, more than 3-veined. Lemma apex erose, truncate or obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 4–7 mm long overall, with twisted column. Palea keels scaberulous. Rhachilla extension 0.3–0.4 length of fertile floret, pilose.

**Flower and Fruit.** Lodicules 2, membranous. Anthers 3, 2–3 mm long. Ovary glabrous. Caryopsis with adherent pericarp, 2–2.5 mm long. Hilum punctiform.

$2n = 28$  (1 ref TROPICOS).

**Distribution (TDWG).** **Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, South America, Antarctica.

**Region.** Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe.

**Country /Province /State.** : Denmark, Great Britain. Belarus, Estonia, Latvia, Lithuania, North European Russia, South European Russia, Northwest European Russia, Moldova, Ukraine. **Northern Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, Southern Africa** (\*). Algeria, Morocco, Tunisia. Rwanda, DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Western Cape. Siberia, Russian far east, **Caucasus, Western Asia, China, Eastern Asia.** Krasnoyarsk. Kamchatka, Khabarovsk, Kuril Is, Magadan. Japan, Taiwan. Japan Hokkaido, or Honshu. **Indian Subcontinent, Malesia.** Philippines. **New Zealand.** New Zealand North I, New Zealand South I, Stewart Is. **Subarctic America, Western Canada, Eastern Canada, North-central USA, Northeast USA, Southeastern USA, Mexico.** Greenland. Manitoba. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Minnesota, Wisconsin. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Kentucky, Maryland, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Central Mexico, Northeast Mexico. **Mesoamerica, Southern South America.** Argentina South, Chile Central, Chile South. **Subantarctic islands.** Falkland Is (Malvinas).

**TDWG4.** Chubut, Santa Cruz, Tierra del Fuego. Biobio. Los Lagos, Aisen, Magellanes. Mexico State. Neuvo Leon.

**Axonopus amapaensis** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 104 (1963).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: G. A. Black & R. L. Froes 51–12400, 27 Jul 1951, Brazil: Amapa: A beira da estrada de Rodagem, Macapá-Clevelandia entre os Km. 106 e 110 (IAN; IT: US-2237019).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Amapa, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms erect, robust, 75–150 cm long. Culm-nodes pubescent. Lateral branches ample. Leaves cauline. Leaf-sheaths 4–30 cm long, keeled, outer margin hairy. Ligule a ciliolate membrane, 0.7 mm long. Collar pubescent. Leaf-blades persistent or deciduous at the ligule, 5–20 cm long, 5–8 mm wide, firm. Leaf-blade surface glabrous. Leaf-blade margins glabrous or ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, with 1–4 peduncles per sheath. Peduncle 30–70 cm long. Racemes 5–9, digitate, ascending or spreading, unilateral, 4–10 cm long. Central inflorescence axis 3–6 cm long. Rhachis angular, 0.3 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5–7 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, acute, 1.9 mm long, 0.6–0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 7 -veined. Upper glume surface puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 5 -veined, prominently veined, pubescent, hairy at apex or at base. Fertile lemma 1.9 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast, Brazil North.

Para, Amapa, Maranhao, Piaui.

**Axonopus anceps** (Mez) Hitchcock. *U. S. Dept. Agric., Misc. Publ. No. 243* : 190 (1936).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum anceps* Mez, Fedde, *Repert.* 15 : 61 (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Spruce 1259*, Jan 1851, Brazil: Amazonas: in vicinibus Barra, Prov. Rio Negro (K; IT: B, BM, M, NY, P, US-2941974 (fragm. ex B, M, W), US-1298238 (fragm. ex P), US-1647894, W). Equals *Paspalum* no. 28.

**Recent Synonyms:** *Axonopus aturensis* Lucas, *Bol. Soc. Venez. Cienc. Nat.* 15: 23 (1953).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (56, Fig. 25), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (86, Fig 12).

**Derivation** (Clifford & Bostock 2007): L. two-edged. Culms laterally compressed.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 60–200 cm long, 1–2 -noded. Culm-nodes pubescent. Leaves without demarcation between sheath and blade. Leaf-sheaths 13–30 cm long, hirsute. Ligule a ciliolate membrane, 1 mm long. Leaf-blades erect or ascending, persistent or deciduous at the ligule, conduplicate, 20–50 cm long, 5–10 mm wide, stiff. Leaf-blade surface scabrous, glabrous or hirsute. Leaf-blade apex obtuse, soon splitting or simple.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 15–75 cm long. Racemes numerous, 30–60, borne along a central axis, ascending, unilateral, 4–18 cm long. Central inflorescence axis 15–30 cm long. Rhachis angular, 0.3–0.5 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5.5–9 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile or pedicelled. Pedicels absent or present, reduced to a stump, 0–0.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, acute, 1.7–2 mm long, 0.7–0.9 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 5 -veined, pubescent, hairy between veins. Fertile

lemma 1.5–2 mm long, indurate, yellow or light brown, without keel. Lemma margins involute. Lemma apex obtuse or acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

*N* = 30 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Northern South America, Western South America, Brazil. Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Colombia. Brazil West Central, Brazil North. Para, Amapa, Amazonas, Acre, Rondonia, Goias.

**Axonopus andinus** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 111 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O. Buchtien* 5328, Feb? 1920, Bolivia: La Paz: Hacienda Simaco sobre el camino a Tipuani, alt. 1400 m (US-1164712; IT: MO-941455, US-1099092).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (504, Fig 112).

**Derivation** (Clifford & Bostock 2007): L. -inus, belonging to. From the Andes.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms geniculately ascending, slender, 65–100 cm long. Culm-nodes glabrous. Leaf-sheaths 1–9 cm long, keeled. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades flat or conduplicate, 3–18 cm long, 10–15 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 20–45 cm long. Racemes 5–7, digitate, spreading, unilateral, 3–10 cm long. Rhachis angular, 0.4 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5 spikelets per cm. Raceme-bases brief, glabrous or pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.2–0.4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, acute, 2.5–2.6 mm long, 0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, pallid, 2–4 -veined. Upper glume primary vein absent. Upper glume surface puberulous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2 length of fertile lemma, 1 length of spikelet, pallid, 2–4 -veined, without midvein, puberulous. Fertile lemma 2–2.1 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

**Axonopus appendiculatus** (Presl.) Hitchcock & Chase. *Contrib. US. Nat. Herb.* 18: 300 (1917).

Regarded by K as a synonym (*A. chrysoblepharis*).

**TYPE** from Panama. **Basionym or Replaced Name:** *Paspalum appendiculatum* J. & C. Presl, *Rel. Haenk.* 1 : 211. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, no date, Panama (PR; IT: US-2855284 (fragm)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. appendix, appendage; -ulus, diminutive. -ata, possessing. Lemma of the terminal spikelet drawn out into an appendage.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Annual. Culms 20–90 cm long. Culm-nodes glabrous. Ligule a fringe of hairs. Leaf-blades conduplicate or involute, 7–26 cm long, 4–10 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–12, digitate, unilateral, 2–5.5 cm long. Rhachis broadly winged, forming pockets, 1 mm wide, tuberculate on margins, setose on margins. Rhachis hairs yellow. Spikelet packing adaxial, regular, 2 -rowed. Spikelets sunken, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 1–1.5 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, membranous, without keels, 2 -veined. Upper glume primary vein absent. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of spikelet, 2 -veined, without midvein, obtuse. Fertile lemma elliptic, 1–1.5 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Caribbean, Northern South America, Brazil. Panama. Trinidad-Tobago. Venezuela. Brazil West Central, Brazil Northeast, Brazil South.

**TDWG4.** Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

**Axonopus apricus** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 43 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A. Chase 9215*, 30 Mar 1925, Brazil: Minas Gerais: Chapeo do Sol, Serra do Cipo (110 km NE of Belo Horizonte), 1000–1100 m, erect small tufts, rocky open sope (US-1256063).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. growing in the sunshine. Savanna or grassland species.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 30–40 cm long, 1–2 -noded. Culm-nodes glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths 3–10 cm long, wider than blade at the collar, without keel. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades curved, filiform, 5–10 cm long, 1 mm wide, stiff. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 15–20 cm long. Racemes 2–3, paired or digitate, ascending, unilateral, 3–7 cm long. Central inflorescence axis 0–1 cm long. Rhachis angular, 0.6 mm wide, glabrous on surface, glabrous on margins. Spikelet packing adaxial, 4–5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.2–0.3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, subacute, 2.5 mm long, 0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 4–5 -veined. Upper glume primary vein absent or distinct. Upper glume surface pilose, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1–1.1 length of fertile lemma, 1 length of spikelet, 4–5 -veined, without midvein or with evident midvein, pilose, hairy between veins. Fertile lemma 2.3–2.5 mm long, indurate, dark brown, without keel. Lemma margins involute. Lemma apex acute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Southeast. Minas Gerais, Rio de Janeiro, Espirito Santo.

**Axonopus arcuatus** (Mez) Dedecca. *Bragantia* 15: 288, 289 (1956).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum arcuatum* Mez, Fedde, *Repert.* 15: 60 (1917). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziou 17933*, 1888–1889, Brazil: Guanabara: Rio de Janeiro (B; IT: US-2941983 (fragm. ex B, G-Delessert)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. arcus, curve; -ata, possessing. Inflorescence branches curved.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms slender, 45 cm long, 1-noded. Culm-nodes glabrous. Leaf-sheaths 5–8 cm long. Ligule a ciliolate membrane, 0.4 mm long. Leaf-blades curled, conduplicate, 6–8 cm long, 1 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 24 cm long. Racemes 4, digitate, ascending, unilateral, 7–9 cm long. Rhachis angular, 0.3 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 6 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present, reduced to a stump, ciliate, hairy at base, with 0.5–1 mm long hairs.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, obtuse, 1.7–1.8 mm long, 0.6–0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume 0.9 length of spikelet, hyaline, 2-veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 0.9 length of fertile lemma, 0.9 length of spikelet, hyaline, 2-veined, without midvein. Fertile lemma 1.7–1.8 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

**Axonopus argentinus** L. Parodi. *Not. Mus. La Plata, Bot.*, 3:15 (1938).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.R. Parodi 4649*, 22 Jan 1922, Argentina: Entre Rios: Concordia, hab. campo cerca de la Estacion Agronomica (BAA; IT: IAN, US-1723532 (photo, SI)).

**Illustrations (Books):** E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (479, Fig. 172 as var. *glabriflorus*), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (417, Fig. 175), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (30, Fig. 6), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (282, Fig. 121 as ssp. *argentinus* & *glabripes*).

**Derivation** (Clifford & Bostock 2007): from Argentina.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Stolons absent or present. Culms slender, 50–120 cm long, 1–3-noded. Culm-nodes glabrous. Leaf-sheaths 5–30 cm long, keeled. Ligule a ciliolate membrane, 0.4–0.6 mm long. Leaf-blades 10–30 cm long, 3–5 mm wide. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute or acute, hooded.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 30–50 cm long. Racemes 3–10, digitate, ascending, unilateral, 10–18 cm long. Central inflorescence axis 2–4 cm long. Rhachis angular, 0.5–0.7 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5.5–7 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present, reduced to a stump, glabrous or ciliate, hairy at base, with 0.5–1.5 mm long hairs.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, subacute or acute, 2–2.8 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2-veined. Upper glume primary vein absent. Upper glume surface glabrous or puberulous, hairy on veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2-veined, without midvein, glabrous or puberulous, hairy on veins. Fertile lemma 2–2.8 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil, Southern South America.** Brazil West Central, Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Mato Grosso, Sao Paulo Parana, Catarina, Rio Grande do Sul. Chaco, Corrientes, Entre Rios, Misiones, Santa Fe.

**Axonopus arsenei** Swallen. *Journ. Wash. Acad. Sc.* 23: 459 (1933).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Bro. Arshne* 6952, 17 Sep 1910, Mexico: Michoacan: Loma Santa Maria, vicinity of Morelia, 2050 m (US-1000427).

**Recent Synonyms:** *Axonopus elongatus* Swallen, *Contrib. U. S. Nat. Herb.* 29: 414 (1950).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Gustav Joseph Brouard Arshne (1867–1938) cleric and botanist who collected in New Mexico, USA.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect or geniculately ascending, 15–75 cm long, 1–2 mm diam., 1–2 -noded. Culm-internodes elliptical in section. Culm-nodes pubescent. Leaves mostly basal. Leaf-sheaths 4–20 cm long. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades ascending, 3–15 cm long, 5–8 mm wide. Leaf-blade surface pilose, densely hairy, hairy adaxially. Leaf-blade apex obtuse, soon splitting.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle straight or nodding, 30–60 cm long. Racemes 2–4, paired or digitate, ascending, unilateral, 4–12 cm long. Central inflorescence axis 0–3 cm long. Rhachis angular, 0.5–0.7 mm wide, glabrous on surface, smooth on margins or scabrous on margins, glabrous on margins. Spikelet packing adaxial, 3–4 spikelets per cm. Raceme-bases brief, pubescent or pilose. Spikelets appressed, solitary. Fertile spikelets sessile or pedicelled. Pedicels absent or present, 0–0.3 mm long, tip cupuliform.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, acute, 3–3.1 mm long, 1–1.1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, mid-green or purple, 3–5 -veined. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, pallid, 3–5 -veined, pubescent, hairy between veins. Fertile lemma ovate, 2.6–2.7 mm long, indurate, yellow, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Southwest Mexico. **Mesoamerica, Caribbean.** Guatemala.

**TDWG4.** Mexico State. Jalisco, Michoacan.

**Axonopus aureus** Beauv. *Agrost.* 12 (1812).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from French Guiana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *G. Cremers* 9571, 27 Dec 1986, French Guiana: Savanne Corossony, PK 111 de la route Cayenne-St. Laurent (US-3131005; IT: B, BR, CAY, INPA, MG, MO, NY, P, PORT, U, VEN). NT designated by Garsfalo-Spalding, Fl. Guianas, Ser. A: Phan., Fasc. 8: 88 (1990).

**Recent Synonyms:** *Axonopus burchellii* G. A. Black, *Advanc. Front. Pl. Sci.* 5: 165 (1963). *Axonopus carinatovaginatatus* (Mez) H. Scholz, *Willdenowia* 8(1): 95 (1977).

*Axonopus minutus* Lucas, *Bol. Soc. Venez. Cienc. Nat.* 15: 22 (1953).

*Axonopus holochrysus* (Trin.) Henrard, *Blumea* 4: 509 (1941).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (193, Fig. 73), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (57, Fig. 26), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (76, Fig 20), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (92, Fig. 13).

**Derivation** (Clifford & Bostock 2007): L. golden-yellow. With spikelets or pedicels or other parts invested in golden-yellow hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short. Culms erect or geniculately ascending, 30–110 cm long. Ligule a fringe of hairs. Leaf-blades (4–)6–26 cm long, 2–5 mm wide. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–14, digitate, unilateral, (2.5–)3.5–13 cm long. Rhachis angular, 1 mm wide, setose on margins. Rhachis hairs yellow. Spikelet packing adaxial, regular, 2-rowed. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, setose.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse, 1.2–2.2 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume oblong, 1 length of spikelet, membranous, without keels, 2 -veined. Upper glume surface glabrous or puberulous, hairy in lines. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, 2 -veined, glabrous or puberulous, hairy in lines, obtuse. Fertile lemma oblong, 1–2 mm long, indurate, dark brown, without keel. Lemma surface striate. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Flower and Fruit.**  $2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Southeast Mexico. Mesoamerica, Caribbean, Northern South America, Western South America, Brazil. Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

**TDWG4.** Roraima, Para, Amapa, Amazonas, Acre, Rondonia, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana. Chiapas, Tabasco.

**Axonopus barbigerus** (Kunth) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 433 (1927).

Regarded by K as a synonym (*A. siccus*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum barbigerum* Kunth, *Rev. Gram.* 1: 24. (1829). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n. [de Schlechtendal 1827]*, Brazil: Brasilia meridionalis (LE-TRIN-0419.04 (& fig.)). IT?: *F. Sellow 1174*, no date, Brazil (US-2942150 (fragm. ex LE)). OM?: *L. Riedel 2156*, 18-- , Brazil (US-929041).

**Recent Synonyms:** *Axonopus siccus* (Nees) Kuhl., *Comm. Linh. Telegr. Matto Grosso, Amaz. Anexo 5, Bot.* 11: 87 (1922).

**Illustrations (Books):** S.A. Renvoize, *Gramineas de Bolivia* (1998) (504, Fig. 112), S.A. Renvoize, *The Grasses of Bahia*, 1984 (196, Fig. 74), B. Rosengurtt, *Gramineas Uruguayas I* (1970) (290, Fig. 120).

**Derivation** (Clifford & Bostock 2007): L. barba, beard; gero, carry. Spikelets each subtended by a fine rough bristle.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms slender, 50–90 cm long, 1–4 -noded. Culm-internodes terete. Leaf-sheaths without keel. Ligule a ciliate membrane, 0.2–0.3 mm long. Leaf-blades erect, curved, conduplicate or involute, 5–40 cm long, 2–7 mm wide, stiff. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 25–50 cm long. Racemes 4–30, borne along a central axis, ascending or spreading, unilateral, 5–15 cm long. Central inflorescence axis 3–15 cm long. Rhachis angular, 0.3–0.4 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 6–10 spikelets per cm. Raceme-bases brief, glabrous or pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.2–0.4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, obtuse or subacute, 1.6–2.1 mm long, 0.6–0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume lateral veins ribbed. Upper glume surface glabrous or puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 5 -veined, ribbed, glabrous or puberulous, hairy

between veins. Fertile lemma 1.6–2.1 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil, Southern South America. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Paraguay.

**TDWG4.** Mato Grosso, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

**Axonopus boliviensis** S.A. Renvoize. *Gramineas de Bolivia*: 496 (1998).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Beni, Espmritu, *Beck 5211* (HT: LPB)

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (497, Fig. 109).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Bolivia.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Annual. Culms erect or geniculately ascending, 20–45 cm long. Culm-nodes glabrous. Leaves basal and cauline. Leaf-sheaths keeled, glabrous on surface or pilose. Ligule a ciliate membrane, 0.3 mm long. Leaf-blade base truncate or broadly rounded. Leaf-blades linear or lanceolate, 5–14 cm long, 4–9 mm wide. Leaf-blade surface pilose. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1–3 peduncles per sheath. Racemes 2–6, digitate, unilateral, 3–6 cm long. Spikelet packing adaxial, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, 1.3–1.7 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of adjacent fertile lemma, 1 length of spikelet, membranous, without keels, 2–4 -veined. Upper glume primary vein absent. Upper glume margins ciliate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, 1 length of spikelet, membranous, 2–4 -veined, without midvein. Fertile lemma elliptic, 1.3–1.7 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Bolivia.

**Axonopus brasiliensis** (Spreng.) Kuhl. *Comm. Linh. Congr. Matto Grosso Amaz. Anexo 5*, Bot. 11: 47 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Eriochloa brasiliensis* Spreng., *Syst.* 1: 249 (1825). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Otto s.n.*, Brazil (US).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (492, Fig. 108), S.A.Renvoize, *The Grasses of Bahia*, 1984 (193, Fig. 73), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1105, Fig. 218), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (33, Fig. 7).

**Derivation** (Clifford & Bostock 2007): L. -ense, denoting origin. From Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 20–60 cm long. Lateral branches lacking. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–23 cm long, 1–2 mm wide. Leaf-blade surface pilose, hairy adaxially. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex obtuse or acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–3, paired or digitate, unilateral, 3–11 cm long. Rhachis angular, 0.3 mm wide, ciliate on margins. Rhachis hairs white. Spikelet packing adaxial, lax, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, ciliate.



**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, acute, 2.5–4 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume lateral veins thickened. Upper glume surface villous, with tubercle-based hairs. Upper glume hairs white. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 5 -veined, with thickened veins, villous, with tubercle-based hairs, bearing white hairs, bearing hairs 1–4 mm long, acute. Fertile lemma ovate, 2–3 mm long, coriaceous, dark brown, without keel. Lemma margins involute. Lemma apex acute. Palea involute, coriaceous.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Paraguay.

**TDWG4.** Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

**Axonopus camargoanus** Bastos. *Bol. Mus. Paraense Emilio Goeldi, N.S., Bot.* 6(1): 137. 1990[1991].

Regarded by K as a synonym (*A. comans*).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Para: Maraba, Serra dos Carajas, n1, 25 km NW of camp at Serra Norte, aprox. 5.54S 50.27W, marshy area and nearby scrub on outcrop of ferrous rock, 13 Dec. 1981, *Daly, Callejas et al.* 1990 (HT: MG).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Felisberto C. Camargo (c. 1887) Brazilian agriculturalist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Cataphylls evident. Culms 20–35 cm long, 1 -noded. Culm-nodes pubescent. Leaves mostly basal. Leaf-sheaths 3–8 cm long, outer margin hairy. Ligule a ciliolate membrane, 0.2–0.3 mm long. Leaf-blades filiform or linear, involute, 5–15 cm long, 1 mm wide, firm. Leaf-blade surface glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acuminate, pungent.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 5–8 cm long. Racemes 2–4, paired or digitate, erect or ascending, unilateral, 8–12 cm long. Central inflorescence axis 1–3 cm long. Rhachis angular, 0.4–0.5 mm wide, drab, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 3.5 spikelets per cm. Raceme-bases brief or linear, 0–15 mm long, pilose. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.3–0.4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, acute, 3.1–3.2 mm long, 1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume surface puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2 length of fertile lemma, 1 length of spikelet, 7 -veined, pubescent, hairy between veins, with conspicuous apical hairs, bearing hairs 0.5 mm long. Fertile lemma 2.5–2.6 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil North.

Para, Amapa.

**Axonopus canescens** (Nees) Pilger. *Engl. & Prantl, Nat. Pflanzenfam. Aufl.* 2, 14 e. 55 (1940).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum canescens* Nees ex Trin., Trin., *Gram. Pan.* :89 (1826). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.H. von Langsdorff s.n.*, Dec, Brazil (LE; IT: K, US-2942166 (fragm. ex B, LE)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (492, Fig. 108).

**Derivation** (Clifford & Bostock 2007): *L. canesco*, grow white. Leaf-blades or leaf-sheaths densely invested with white or grey hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or short. Culms 30–100 cm long. Culm-internodes distally glabrous. Leaves cauline, without demarcation between sheath and blade. Leaf-sheaths outer margin glabrous or hairy. Ligule a ciliolate membrane, 0.2–0.7 mm long. Leaf-blades ascending, flat or conduplicate, 10–31 cm long, 2–8 mm wide. Leaf-blade surface glabrous or pilose, densely hairy, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes, with 1–3 peduncles per sheath. Peduncle 6–20 cm long, glabrous. Racemes 3–14(–22), digitate, unilateral, 6–14 cm long. Central inflorescence axis 1–4(–6) cm long. Rhachis angular, 0.7–0.8 mm wide, tuberculate on margins, ciliate on margins. Rhachis hairs yellow, 2–3 mm long. Spikelet packing adaxial, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or obovate, dorsally compressed, 1.3–1.7 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of adjacent fertile lemma, 1 length of spikelet, membranous, yellow or light brown, without keels, 2–3 -veined. Upper glume primary vein absent or distinct. Upper glume surface glabrous or pubescent, hairy on veins. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, 1 length of spikelet, membranous, yellow or light brown, 2–3 -veined, without midvein or with evident midvein, glabrous or pubescent, hairy on veins, obtuse. Fertile lemma elliptic, 1.3–1.7 mm long, indurate, dark brown, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Distribution (TDWG), Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia. Brazil North.

**TDWG4.**

**Axonopus capillaris** (Lam.) Chase. *Proc. Biol. Soc. Washington* 24: 133 (1911).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from French Guiana. **Basionym or Replaced Name:** *Paspalum capillare* Lam., *Illustr.* 1: 176. (1791). T:<Type of Basionym>; *fide* TROPICOS and Kew Synonymy Database: HT: *L.C.M. Richard s.n.*, no date, French Guiana: Cayenne (P-LA; IT: US-2942169 (fragm.)).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (196, Fig. 74), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (58, Fig. 29).

**Derivation** (Clifford & Bostock 2007): *L. capillis*, a hair; -are, pertaining to. Inflorescence with filiform branches.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Annual, caespitose. Culms geniculately ascending or decumbent, weak, 20–40 cm long, 0.5–0.7 mm diam. Culm-internodes thin-walled. Culm-nodes glabrous or pubescent. Lateral branches ample. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades linear or lanceolate, 1.5–7 cm long, 3–7 mm wide. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 7–15 cm long. Racemes 2, paired, unilateral, 2–3.5 cm long. Rhachis angular, 0.3–0.5 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets obovate, dorsally compressed, 1.2–1.6 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels, 4 -veined. Upper glume primary vein absent. Upper glume surface puberulous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 2 -veined, without midvein, puberulous. Fertile lemma elliptic, 1.2–1.6

mm long, indurate, light brown, without keel. Lemma surface striate. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 0.4 mm long, purple. Caryopsis with adherent pericarp, ellipsoid, 1.1 mm long.

$2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Caribbean, Northern South America, Western South America, Brazil. Costa Rica, El Salvador, Guatemala, Honduras, Panama. Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

**TDWG4.** Roraima, Para, Amapa, Goias, Bahia, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Penambuco, Alagoas, Sergipe, Minas Gerais, Rio de Janeiro, Espirito Santo.

**Axonopus carajasensis** M.N.C. Bastos. *Bol. Mus. Paraense Emilio Goeldi, Bot.*, 6(1): 137 (1990 publ. 1991); et in *Bol. Mus. Paraense Emilio Goeldi, Bot.*, 7(2): 476 (1991).

Regarded by K as a synonym (*A. siccus*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Pará: Maraba, Serra dos Carajas, n1, 25 km NW of camp at Serra Norte, aprox. 5.54S 50.27W, marshy area and nearby scrub on outcrop of ferrous rock, 13 Dec. 1981.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Serra dos Carajas, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil North.

**Axonopus casiquiarensis** G. Davidse. *Ann. Missouri Bot. Gard.* 74(2): 419 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: G. Davidse, O. Huber & S. S. Tillett 16907A, 30 Apr 1979–1 May 1979, Venezuela: Amazonas: Depto. Atabapo: Cucurital de Caname, S bank of the middle part of Caño de Caname, 3.40:N 67.22:W, ca. 100 m elev., 30 A (MO-2769197; IT: K, MO-3475958, US-3260351, VEN).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Casiquiare Department, Venezuela.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, mat forming. Stolons present, with alternating elongated and bunched internodes. Culms 24–90 cm long, 1 mm diam., 1–2 -noded. Culm-internodes elliptical in section, thin-walled, distally glabrous. Culm-nodes glabrous or pubescent. Leaves without demarcation between sheath and blade. Leaf-sheaths 3–12 cm long, without keel, glabrous on surface. Leaf-sheath oral hairs ciliate, 1–3 mm long. Ligule a ciliolate membrane, 0.1–0.2 mm long. Leaf-blades flat or convolute, 7–60 cm long, 1–3 mm wide. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Racemes 2–3(–5), paired or digitate, erect or ascending or spreading, unilateral, 4–14.5 cm long. Central inflorescence axis 0.2–3 cm long. Rhachis angular, 0.3–0.5 mm wide, scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 4–6 spikelets per cm, regular, 2 -rowed. Raceme-bases pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, obtuse, 2.7–3.7 mm long, 0.8–1.3 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, exceeding apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume lateral veins prominent. Upper glume surface glabrous to pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of spikelet, 5–7 -veined, prominently veined, glabrous to pubescent, hairy

between veins. Fertile lemma elliptic, 2.5–3.5 mm long, indurate, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Lodicules 2, fleshy, veined. Anthers 3, 1.5–2.2 mm long, purple. Caryopsis with adherent pericarp, ellipsoid or obovoid. Embryo 0.5 length of caryopsis. Hilum punctiform.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Colombia.

**Axonopus caulescens** (Mez) Henrard. *Blumea* 4: 510 (1941).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guyana. **Basionym or Replaced Name:** *Paspalum caulescens* Mez, *Engl. Jahrb.* 56 *Beibl.* 125, 10 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Ule* 8533, Dec 1903, Guyana: Mazaruni-Potaro: Amazonas Expedition, am Ufer eines Baches beim Dorfe Roraima, 1200 m (B; IT: IAN, K, L, MG, U, US-2942172 (fragm. ex B & photo), US-91016 (fragm. ex K)).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (59, Fig. 30).

**Derivation** (Clifford & Bostock 2007): *L. caulesco*, develop a stem. Culms stout and leafy.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Stolons present. Basal innovations flabellate. Culms 30–60 cm long. Culm-internodes terete. Culm-nodes glabrous or pubescent. Lateral branches ample. Leaf-sheaths 3–5 cm long. Ligule a ciliolate membrane, 1 mm long. Leaf-blades straight or curved, persistent or deciduous at the ligule (lower leaves), flat or conduplicate, 3–5 cm long, 2.5–3 mm wide, firm. Leaf-blade surface pilose, hairy on both sides. Leaf-blade margins tuberculate-ciliate, hairy at base. Leaf-blade apex abruptly acute, soon splitting or simple.

**Inflorescence.** Inflorescence composed of racemes, with 1–3 peduncles per sheath. Peduncle 10–35 cm long. Racemes 2–4, paired or digitate, ascending, unilateral, 3–9 cm long. Central inflorescence axis 0–1 cm long. Rhachis angular, 0.3 mm wide, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 5–5.5 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, obtuse, 2.3–2.7 mm long, 0.6–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, dark brown, 7 -veined. Upper glume surface pubescent, hairy between veins, with an apical beard. Upper glume hairs 0.5 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, dark brown, 5–7 -veined, puberulous, hairy between veins. Fertile lemma 2.3–2.7 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Brazil. Guyana, Venezuela. Brazil North. Roraima.

**Axonopus centralis** Chase. *Journ. Wash. Acad. Sc.* 17: 143 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Panama. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.S. Hitchcock* 7928, 28 Aug 1911, Panama: Canal Zone: Culebra to Pedro Miguel, along railway, no runners, among grass, open grassland (US-928831; IT: MO-3701230).

**Recent Synonyms:** *Axonopus rivularis* G. Black, *Mem. N. Y. Bot. Gard.* 9: 250 (1957).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (85, Fig. 24).

**Derivation** (Clifford & Bostock 2007): *L. centrum*, centre of a circle; -ale, pertaining to. From Central America.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, 35–80 cm long, 1.5–3 mm diam. Culm-internodes solid. Culm-nodes glabrous or pubescent. Lateral branches lacking.

Leaf-sheaths longer than adjacent culm internode, keeled, outer margin hairy. Ligule a ciliolate membrane, 0.2–0.8 mm long. Collar pubescent. Leaf-blades 8–50 cm long, 8–13 mm wide. Leaf-blade surface pubescent, sparsely hairy, hairy adaxially.

**Inflorescence.** Inflorescence composed of racemes. Peduncle nodding, 10–27 cm long, pubescent above. Racemes 2–3, paired or borne along a central axis, unilateral, 7–13 cm long. Central inflorescence axis 3–6 cm long. Rhachis angular, 0.7 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, compressed strongly, 3.4–3.6 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels, 3 -veined. Upper glume lateral veins excurrent. Upper glume margins pubescent. Upper glume apex dentate, 3 -fid.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 3 -veined, pubescent on margins, acute. Fertile lemma elliptic, 1.9–2.2 mm long, indurate, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 0.6 mm long. Caryopsis with adherent pericarp, ellipsoid, 1.4–1.6 mm long.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America, Brazil.** Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Venezuela. Colombia, Ecuador. Brazil Northeast, Brazil North.

Para, Amapa. Colima, Guerrero, Jalisco, Nayarit. Chiapas.

**Axonopus chaseae** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 157 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Chase* 11232, Mar 1930, Brazil: Minas Gerais: Uberlandia (Uberabinha), sandy clay campo, alt. 850–870 m, erect small tufts (US-1448612; IT: MO-3326812).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Mary Agnes Merrill Chase (1869–1963) United States agrostologist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short, scaly. Culms erect, 45–50 cm long, 1 -noded. Culm-internodes elliptical in section. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 2–15 cm long, keeled. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades ascending, straight or curved, conduplicate, 2–30 cm long, 1–2 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 5–7 cm long. Racemes 3–5, digitate, ascending, unilateral, 3–9 cm long. Central inflorescence axis 0.4–2 cm long. Rhachis angular, 0.4 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 3.5–4 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.3–0.4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, acute, 2.2–2.5 mm long, 0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma, gaping. Upper glume 1 length of spikelet, membranous, 3–5 -veined. Upper glume margins tuberculate, ciliate.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 3–5 -veined, tuberculate on margins, ciliate on margins. Fertile lemma 2.2–2.5 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

**Axonopus chimantensis** G. Davidse. *Ann. Missouri Bot. Gard.* 74(2): 418 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolmvar: Distrito Piar: Macizo del Chimanta, sector centro-noreste del Chimanta-tepui, cabeceras orientales del Caño Chimanta, vegetación Litsfita y ribereña alrededor del comienzo E del Caño recto del Rmo Chimanta superior, ca. 5.18N 62.09W, ca. 2000 m, 26–29 Jan 1983, O. Huber & J. A. Steyermark 6931 (HT: MO; IT: K, NY, US, VEN).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Maizo del Chimanta District, Venezuela.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms 25–60 cm long, 1–2 mm diam., 1(–2) -noded. Culm-internodes elliptical in section, thin-walled, distally glabrous or pubescent (in lines). Culm-nodes pubescent. Lateral branches lacking. Leaf-sheaths 3–9 cm long, with winged keel, outer margin hairy. Ligule a ciliate membrane, 0.2–0.4 mm long. Collar pubescent. Leaf-blades conduplicate, 6–18 cm long, 3.5–5 mm wide. Leaf-blade surface scabrous, glabrous or pubescent, sparsely hairy, hairy adaxially. Leaf-blade margins ciliate. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Racemes 2–4, digitate, spreading, unilateral, 2.5–10 cm long. Central inflorescence axis 0.5–1.8 cm long. Rhachis angular, 0.5–0.8 mm wide, scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 4–5 spikelets per cm, regular, 2 -rowed. Raceme-bases pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, obtuse, 3–3.4 mm long, 0.9–1.1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, exceeding apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume surface puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of spikelet, 5 -veined, puberulous, hairy between veins. Fertile lemma elliptic, 2.7–3 mm long, indurate, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Lodicules 2, fleshy. Anthers 3, 1.2–1.5 mm long, purple.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Axonopus chrysolepharis** (Lag.) Chase. *Proc. Biol. Soc. Washington* 24 :134 (1911).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**Basionym or Replaced Name:** *Cabrera chrysolepharis* Lag., *Gen. et Sp. Nov.* 5 (1816). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ad Panamidem et Africam Portum, ubi legit cel D. Lud. Nee., *Nee s.n.* (HT: MA?).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (492, Fig. 108), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (57, Fig. 27 as *A. excavatus*), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (20, Fig 20), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (35, Fig. 8), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (92, Fig. 13), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (54, Fig. 29).

**Illustrations (Journals):** *Ruizia* (13:379 Fig 50g-i (1993)).

**Derivation** (Clifford & Bostock 2007): Gk. chrysos, yellow; blepharon, eye-lash. Pedicels invested with golden-yellow hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Annual or perennial, caespitose. Culms erect, 70–100 cm long, 1–2 mm diam. Culm-internodes distally glabrous. Culm-nodes glabrous or pubescent. Lateral branches ample. Leaves cauline. Leaf-sheaths glabrous on surface or hispid, with simple hairs or tubercle-based hairs. Ligule a ciliate membrane, 0.3–1.2 mm long. Collar glabrous or pubescent. Leaf-blades 5–30 cm long, 5–15 mm wide. Leaf-blade surface hispid, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, with 1–2 peduncles per sheath. Racemes 4–10, digitate, unilateral, 4–13 cm long. Central inflorescence axis 1–2 cm long. Rhachis flattened, 1–

1.5 mm wide, pilose on surface (on midnerve), ciliate on margins, terminating in a barren extension. Rhachis hairs tawny. Spikelet packing adaxial. Spikelets sunken, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 1.2–1.6 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 2 -veined, without midvein. Fertile lemma oblong, 1.2–1.6 mm long, indurate, dark brown, without keel. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 0.5–0.6 mm long. Caryopsis with adherent pericarp.

$2n = 20$  (2 refs TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Costa Rica, Guatemala, Panama. Trinidad-Tobago. French Guiana, Guyana, Venezuela. Bolivia, Colombia, Peru. Brazil Southeast, Brazil North. Paraguay.

**TDWG4.** Chiapas.

**Axonopus chrysostachyus** (Schrad.) Pilger. Engl. & Prantl, *Nat. Pflanzenfam. Aufl.* 2, 14 e. 54 (1940).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum chrysostachyum* Schrad., *Schult. Mant.* 2: 176. (1824). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M.A.P. zu Wied Neuwied s.n.*, no date, Brazil: Bahia: Comechativa, in campis ad Vals (B; IT: BAA-220 (fragm. ex B), NY, US-2942174 (fragm. ex B & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): Gk. chrysos, yellow; stachys, ear of corn. Panicle branches invested in golden-yellow hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 50–85 cm long. Leaves mostly basal, without demarcation between sheath and blade. Leaf-sheaths glabrous on surface or pilose. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades 10–17 cm long, 5–7 mm wide, stiff. Leaf-blade surface glabrous or pubescent.

**Inflorescence.** Inflorescence composed of racemes, with 1–4 peduncles per sheath. Peduncle 10–35 cm long. Racemes 3–14, digitate, unilateral, 5–8 cm long. Central inflorescence axis 0.5–2.5 cm long. Rhachis angular, 0.5–0.9 mm wide, setose on margins. Rhachis hairs yellow, 2–3.5 mm long. Spikelet packing adaxial, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, setose.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or obovate, dorsally compressed, 1.1–1.5 mm long, 0.6–0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, membranous, yellow or light brown, without keels, 2 -veined. Upper glume primary vein absent. Upper glume surface glabrous or puberulous, hairy on veins. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of spikelet, yellow or light brown, 2 -veined, without midvein, glabrous or puberulous, hairy on veins, obtuse. Fertile lemma elliptic, 1.1–1.5 mm long, indurate, dark brown, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America, Brazil.** Surinam. Brazil Northeast.

**Axonopus ciliatifolius** Swallen. *Journ. Wash. Acad. Sc.* 23: 458 (1933).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Belize. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.H. Bartlett 11746*, 25 Feb 1931, Belize: Cayo: Mountain Pine Ridge (US-1503594; IT: MO-3701229).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. cilium*, eyelid; -ata, possessing; folium, leaf. Leaf-blades hairy.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes elongated, scaly. Culms erect, slender, 50–65 cm long. Culm-internodes terete. Culm-nodes glabrous. Lateral branches lacking. Leaves without demarcation between sheath and blade. Leaf-sheaths 2–6 cm long, outer margin hairy. Ligule a ciliolate membrane, 0.1–0.3 mm long. Leaf-blades ascending or spreading, 5–25 cm long, 1–2 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 15–30 cm long. Racemes 2–6, digitate, ascending or spreading, flexuous, unilateral, 5–11 cm long. Central inflorescence axis 2–4 cm long. Rhachis angular, 0.2–0.3 mm wide, drab, glabrous on surface, scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 3.5–4.5 spikelets per cm. Raceme-bases brief, glabrous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse, 2.1–2.2 mm long, 0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, hyaline, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein. Fertile lemma 2.1–2.2 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica. Belize.

**Axonopus comans** (Doell) Kuhlm. *Com. Linha Telegr. Bot.* 11:87 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum comans* Trin. ex Doell, *Mart. Fl. Bras.* 2(2) 109. (1877). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *F. Sellow s.n.*, Brazil (LE, US-2942141 (fragm. ex B, LE)). 1836 [by pencil].

IT: *Sellow s.n.*, 1818, Brazil: Ribeirao d'Arca (US-2942141).

**Illustrations (Books):** F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (65, Fig. 17).

**Derivation** (Clifford & Bostock 2007): *L. como*, comb the hair and by transfer of meaning the hair itself. Sterile lemma with a terminal tuft of hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, slender, 50–70 cm long, 1–3 -noded. Culm-nodes glabrous or pubescent. Leaves mostly basal. Leaf-sheaths 6–12 cm long, outer margin hairy. Ligule a ciliolate membrane, 0.2–0.3 mm long. Leaf-blades involute, 15–35 cm long, 0.5–1 mm wide. Leaf-blade apex acuminate, muticous or pungent, hardened.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 20–50 cm long. Racemes 2–5, digitate, ascending, unilateral, 3–8 cm long. Central inflorescence axis 0.5(–4) cm long. Rhachis angular, 0.2–0.3 mm wide, drab, glabrous on surface, smooth on margins or scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 3–4.5 spikelets per cm. Raceme-bases brief, glabrous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.2–0.3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, acuminate, 4–4.5 mm long, 0.9–1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume surface glabrous or puberulous, hairy between veins, without hair tufts or with an apical beard.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2 length of fertile lemma, 1 length of spikelet, 5–7 -veined, glabrous or puberulous, hairy



between veins, without hair tufts or with conspicuous apical hairs. Fertile lemma 3.3 mm long, indurate, yellow or light brown, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil, Southern South America.** Brazil West Central, Brazil Southeast. Paraguay.

**TDWG4.** Goias, Sao Paulo Parana.

**Axonopus comatus** (Mez) Swallen. *Fieldiana, Bot.*, 28 No. 1, 21 (1951).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum comatum* Mez, Fedde, *Repert.* 15: 67 (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.F.M. Glaziou 15700, no date, Brazil: Rio de Janeiro (B; IT: BAA-2065 (fragm. ex B), US-2942140 (fragm. ex B & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. coma, hair of the head; -ata, possessing. With long hairs imparting a silky appearance to the spikelets.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 50–100 cm long, 1–3 -noded. Culm-nodes pubescent. Leaf-sheaths hirsute. Ligule a ciliolate membrane. Leaf-blades 20–40 cm long, 6 mm wide, stiff. Leaf-blade surface hirsute. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Racemes 17, digitate, ascending, unilateral, 10–15 cm long. Rhachis angular, 0.5 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4.5 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.6–1 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, subacute or acute, 3.5–3.7 mm long, 1.2–1.4 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 9 -veined. Upper glume surface pubescent, hairy at apex or between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 9 -veined, pubescent, hairy at apex, hairy also on veins. Fertile lemma 1.5–2 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

**Axonopus complanatus** (Nees ex Trin.) Dedecca. *Bragantia* 15: 265 (1956).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum complanatum* Nees ex Trin, *Gram. Panic.* 96 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Martius s.n.*, Brazil: Bahia: ad Altmada (M; IT: US-2766194 (fragm. ex M)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. complano, level. Culms flattened.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Annual. Culms geniculately ascending, 10–75 cm long, 1–2 -noded. Culm-internodes terete. Culm-nodes purple, pubescent. Leaf-sheaths 3–15 cm long, without keel or keeled. Ligule a ciliate membrane, 0.3–0.4 mm long. Leaf-blades 3–20 cm long, 4–10 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 20–45 cm long. Racemes 2–9, paired or digitate, spreading, unilateral, 1.7–2 cm long. Central inflorescence axis 0–3.5 cm

long. Rhachis angular, 0.8–1 mm wide, drab, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 5 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, obtuse, 1.7–2 mm long, 0.8–1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, dark green or purple, 2–4 -veined. Upper glume primary vein absent. Upper glume surface puberulous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, dark green or purple, 2–4 -veined, without midvein, puberulous. Fertile lemma 1.7–2 mm long, indurate, light brown or dark brown, shiny, without keel. Lemma margins involute. Lemma apex without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil. Brazil Northeast.

Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe.

### **Axonopus compressus** (Sw.) Beauv. *Agrost.* 12 (1812).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), T.Koyama, *Grasses of Japan and its neighboring regions* (1987), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Jamaica. **Basionym or Replaced Name:** *Milium compressum* Sw., *Nova Genera et Species Plantarum seu Prodromus* 24 (1788). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Jamaica:, Shakespear s.n. (HT: S?; IT: BM).

**Illustrations (Books):** W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi, I. Maydees et Andropogonees and II. Panicees*. Bruxelles, Goemaere (121, Pl 30.), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (391, Fig. 332), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (343, Fig. 128), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (370, Fig. 145), C-C Hsu, *Flora of Taiwan, Vol 5* (1978) (484), C-C Hsu, *Taiwan Grasses* (1975) (529, Pl. 1421), K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 814 & 814), H.J.Noltie, *The Grasses of Bhutan* (2000) (707, Fig. 40), H.B.Gilliland, *Grasses of Malaya* (1971) (188, Fig. 39), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (35, Fig. 22), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (35, Pl. 7), C.A.Gardner, *Flora of Western Australia, Vol 1, Part 1, Gramineae* (1952) (239, Pl. 70), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales, 4th edn* (2008) (164), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (124), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (219, Fig. 35), D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae, part 2* (2003) (567), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (189, Fig. 120), S.A.Renvoize, *Gramineas de Bolivia* (1998) (497, Fig. 109), S.A.Renvoize, *The Grasses of Bahia*, 1984 (191, Fig. 72), J.A.Steyermark et al, *Flora of the Venezuelan Guayana Vol. 8* (2004) (60, Fig. 32), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1105, Fig. 218 & 1111, Fig. 219), A.Burkat, *Flora Illustrada de Entre Rios (Argentina), Pt II, Gramineas* (1969) (413, Fig. 173), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (79, Fig. 21), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (39, Fig. 9), B.Rosengurt, *Gramineas Uruguayas I* (1970), G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 112, Fig. 5 (2006)), S-L Chen et al, *Flora of China, Illustrations, Poaceae* (2007) (Fig. 740), E.Hafliger & E.Schultz, *Grass Weeds, CIBA-GEIGY* (1:10(1980)).

**Illustrations (Journals):** *Ruizia* (13:379 Fig 50j-k (1993)).

**Images:** D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002);, H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005);, H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);.

**Derivation** (Clifford & Bostock 2007): L. comprimo, squeeze together. Culms flattened.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, mat forming. Stolons present. Basal innovations flabellate. Culms decumbent, 15–60 cm long. Culm-nodes pubescent. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades linear or lanceolate, flat or conduplicate, 3–20 cm long, 3–12 mm wide. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–5, paired or digitate, unilateral, 3–10 cm long. Rhachis angular, glabrous on surface, glabrous on margins. Spikelet packing adaxial, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, obtuse, 2–2.5 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1.2–1.3 length of adjacent fertile lemma, 1 length of spikelet, membranous, without keels, 4–5 -veined. Upper glume surface glabrous or pubescent, hairy between veins. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1.2–1.3 length of fertile lemma, 1 length of spikelet, 4–5 -veined, pubescent, hairy between veins, acute. Fertile lemma obovate, 1.5–2 mm long, indurate, pallid, without keel, 4 -veined, more than 3-veined. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.**  $N = 20$  (2 refs TROPICOS).  $2n = 40$  (2 refs TROPICOS), or 60 (2 refs TROPICOS).

**Distribution (TDWG).** Continent. Europe (\*), Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America.

**Region.** Northern Europe (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **West tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa, Southern Africa (\*), Western Indian ocean.** Ghana, Guinea, Liberia, Nigeria, Sierre Leone. Cameroon, DRC. Tanzania, Uganda. Zimbabwe. Limpopo, Mpumalanga, Swaziland, Kwazulu-Natal, Eastern Cape. Mauritius (\*), Madagascar (\*), Seychelles (\*). **China, Eastern Asia.** China South Central, Hainan, China Southeast. Nansei-Shoto, Ogosawara-shoto, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Assam, Bangladesh, Eastern Himalaya, India, Sri Lanka. Andaman Is, Laos, Myanmar, Thailand. Borneo, Java, Malaya, Singapore, Philippines, Sulawesi, Sumatra, Christmas I. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is (\*). **Australia.** Western Australia (\*), Queensland (\*), New South Wales (\*), Lord Howe-Norfolk Is (\*). **Southwestern Pacific, South-central Pacific, Northwestern Pacific.** Fiji (\*), Niue (\*), New Caledonia (\*), Samoa (\*), Tonga (\*), Wallis-Futuna Is (\*). Cook Is (\*), Marquesas, Society Is (\*). Caroline Is (\*), Marianas (\*). Hawaii (\*). **Southeastern USA, Mexico.** Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, South Carolina. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Bahamas, Bermuda, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Galapagos, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Argentina Northeast, Argentina Northwest, Paraguay, Uruguay.

**TDWG4.** Fujian, Guangdong, Guangxi. Guizhou, Yunnan. Bhutan, Sikkim. Assam, Meghalaya. Kerala. Tamilnadu, West Bengal. South-West. North, Central, South East. Jujuy, Salta, Tucuman. Buenos Aires, Cordoba, Chaco, Corrientes, Distrito Federal, Entre Rios, Misiones, Santa Fe. Distrito Federal, Mexico State, Puebla. Durango, Guanajuato, Hidalgo, Neuvo Leon, Tamaulipas. Veracruz. Sinaloa, Sonora. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

**Axonopus conduplicatus** G. A. Black. *Advanc. Front. Pl. Sci.* 5 (*Grasses Gen. Axon.*) 115 (1963).

Regarded by K as a synonym (*A. laxiflorus*).

**TYPE** from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A. Chase 10431*, 30 Dec 1929, Brazil: Minas Gerais: 5–10 km W of Diamantina, Serra de San Antonio, alt. 1300–1500 m, sand between boulders, campo (US-1500409).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (193, Fig. 73).

**Derivation** (Clifford & Bostock 2007): *L. conduplico*, fold. Leaf-sheaths strongly keeled.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Cataphylls evident. Rhizomes elongated. Culms robust, 70–100 cm long, 1–2 -noded. Culm-nodes pubescent or bearded. Leaves mostly basal, without demarcation between sheath and blade. Leaf-sheaths 6–40 cm long, keeled, pubescent, outer margin hairy. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades persistent or deciduous at the ligule, 40–80 cm long, 4–6 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex obtuse, asymmetrical.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 10–50 cm long. Racemes 10–20, borne along a central axis, ascending or spreading, unilateral, 5–20 cm long. Central inflorescence axis 6–10 cm long. Rhachis angular, 0.3 mm wide, with scattered hairs or glabrous on surface,

smooth on margins or scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4–5.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.3–1 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, obtuse, 2.8–3.3 mm long, 1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume lateral veins prominent. Upper glume surface glabrous or puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 5–7 -veined, prominently veined, glabrous or puberulous, hairy between veins. Fertile lemma 2.6–2.9 mm long, indurate, yellow or light brown, without keel. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil Northeast, Brazil Southeast.

**TDWG4.** Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo.

### **Axonopus cuatrecasasii** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 147 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Cuatrecasas* 3882, 19 Oct 1938–20 Oct 1938, Colombia: Arauca: Los Llanos, Rmo Casanare, Esmeralada, alt. 130 m, woods and sabana (US-1797918).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Josie Cuatrecasas (1903-) who collected in Colombia.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons absent or present. Culms erect, slender, 80–120 cm long, 2–3 -noded. Culm-internodes elliptical in section. Culm-nodes pubescent. Leaf-sheaths keeled. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades conduplicate, 15–30 cm long, 2–3 mm wide, stiff. Leaf-blade apex obtuse, hooded.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 50 cm long. Racemes 6, digitate, erect or ascending, unilateral, 10–16 cm long. Central inflorescence axis 3 cm long. Rhachis angular, 0.7–0.8 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 7 spikelets per cm. Raceme-bases brief, glabrous. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, acute, 1.7–1.8 mm long, 0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein. Fertile lemma 1.7–1.8 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Bolivia, Colombia.

### **Axonopus debilis** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 86 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.S. Hitchcock* 23302, 26 Nov 1926, Cuba: Pinar del Rmo, first range of hiles NW. of Pinar del Rio, pine woods along path were trodden upon (US-1297891).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. weak. Culms decumbent often much branched at the base.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, slender, 25–30 cm long, 1-noded. Culm-nodes pubescent. Leaves without demarcation between sheath and blade. Leaf-sheaths 2–7 cm long. Leaf-sheath oral hairs scanty. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades spreading, straight or curved, filiform or linear, flat or involute, 3–7 cm long, 0.7–1.4 mm wide. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1–3 peduncles per sheath. Peduncle 5–15 cm long. Racemes 2, paired, ascending, unilateral, 1.7–4 cm long. Central inflorescence axis 0–0.5 cm long. Rhachis angular, 0.3 mm wide, drab, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 4–6 spikelets per cm. Raceme-bases brief, glabrous. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acute, 1.8 mm long, 0.5 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, purple, 2–4 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 2–4 -veined, without midvein. Fertile lemma 1.6 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Caribbean.** Cuba.

**Axonopus deludens** Chase. *Proc. Biol. Soc. Washington* 24: 134 (1911).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: C.G. Pringle 8761, 20 Oct 1903, Mexico: Jalisco: barranca near Guadalajara (US-460803; IT: CM, MO-2875297).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. deludo, deceive. Not closely related to any other species.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes short, scaly. Culms 100–180 cm long. Leaf-sheaths keeled, glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 15–60 cm long, 8–15 mm wide. Leaf-blade surface hirsute, hairy on both sides. Leaf-blade margins ciliate, hairy at base.

**Inflorescence.** Inflorescence composed of racemes. Racemes 12–15, digitate, unilateral, 8–15 cm long. Central inflorescence axis 10 cm long. Rhachis angular, glabrous on surface, scaberulous on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 2.2–2.9 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 0.9–1 length of spikelet, membranous, without keels. Upper glume primary vein absent or distinct. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet. Fertile lemma elliptic, 2.2–2.9 mm long, indurate, light brown, shiny, without keel. Lemma margins involute. Lemma apex acute. Palea involute, indurate.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State. Mexico.** Southwest Mexico. Jalisco, Nayarit.

**Axonopus elegantulus** (Presl) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 433 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Paspalum elegantulum* J. Presl, *Rel. Haenk.* 1: 211. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, no date, Peru (PR; IT: BAA-310 (fragm. ex B), US-2854680 (fragm. ex B, PR & photo)).

**Recent Synonyms:** *Axonopus attenuatus* (Presl) Hitchcock, *Contrib. U. S. Nat. Herb.* 22: 471 (1922).

**Illustrations (Journals):** *Ruizia* (13:384 Fig 51a-b (1993)).

**Derivation** (Clifford & Bostock 2007): *L. elegans*, elegant; -ulus, diminutive. Of attractive appearance.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, culms solitary or caespitose. Stolons present. Culms 25–75 cm long. Culm-nodes glabrous. Leaves without demarcation between sheath and blade. Leaf-sheaths 2–25 cm long, outer margin hairy. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades 5–25 cm long, 3–5 mm wide, stiff. Leaf-blade surface glabrous or pilose. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 30–60 cm long. Racemes 2–12, digitate, ascending or spreading, unilateral, 3–10 cm long. Central inflorescence axis 0–3 cm long. Rhachis angular, 0.4–0.6 mm wide, dark-coloured (green or purple), glabrous on surface, scabrous on margins, ciliate on margins. Rhachis hairs 0.3–1.5 mm long. Spikelet packing adaxial, 5.5–7.5 spikelets per cm. Raceme-bases brief, hirsute. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.2–0.5 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse or subacute, 1.8–2.5 mm long, 0.6–0.9 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, mid-green or purple, 2–3 -veined. Upper glume primary vein absent or obscure.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, mid-green or purple, 2–3 -veined, without midvein or with obscure midvein. Fertile lemma 1.8–2.5 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. Bolivia, Ecuador, Peru. Brazil North.

**Axonopus eminens** (Nees) G. A. Black. *Advanc. Front. Pl. Sci.* 5: 92 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum eminens* Nees, *Agrost. Bras.* 30 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K.F.P. von Martius s.n.*, Brazil (M; IT: LE-TRIN-0449.01 (fragm.), US-2854685 (fragm. ex M & photo)). 581. *Paspal. eminens* N. Es! Brasil.

**Illustrations (Books):** S.A.Renouze, *The Grasses of Bahia*, 1984 (196, Fig. 74).

**Derivation** (Clifford & Bostock 2007): *L. emineo*, stand out. Conspicuous with respect to inflorescence.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes absent or short. Butt sheaths withering or persistent and investing base of culm, with fibrous dead sheaths. Culms robust, 100–200 cm long, 3–8 -noded. Culm-nodes glabrous or pubescent or bearded. Leaves cauline. Leaf-sheaths 15–40 cm long, without keel. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.4–0.5 mm long. Leaf-blade base tapering to the midrib. Leaf-blades conduplicate, 10–100 cm long, 4–15 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface glabrous. Leaf-blade apex acuminate, hardened.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 40–70 cm long. Racemes numerous, 20–50, borne along a central axis, ascending, unilateral, 9–12 cm long. Central inflorescence axis 10–30 cm long. Rhachis angular, 0.3–0.4 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5–9 spikelets per cm. Raceme-bases brief. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, subacute, 1.7–2.1 mm long, 0.5–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume lateral veins ribbed. Upper glume surface glabrous or puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1–1.1 length of fertile lemma, 1 length of spikelet, 5 -veined, ribbed, glabrous or puberulous, hairy between veins. Fertile lemma linear, 1.7–2 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. Surinam, Venezuela. Bolivia. Brazil West Central, Brazil Northeast.

**TDWG4.** Mato Grosso, Goias, Bahia.

**Axonopus equitans** Hitchcock & Chase. *Contrib. US. Nat. Herb.* 18: 301 (1917).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Trinidad. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 9988, 27 Nov 1912, Trinidad and Tobago: Trinidad: Fort George Road, Port of Spain, grassland (US-865560).

**Recent Synonyms:** *Axonopus oteroi* G. A. Black, *Advanc. Front. Pl. Sci.* 5: 126 (1963).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. equito, ride. Leaves distinctly equitant.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 45 cm long, 2 -noded. Culm-nodes pubescent. Leaf-sheaths 5–40 cm long, keeled, pilose. Ligule a ciliate membrane, 0.5–0.6 mm long. Leaf-blades 5–20 cm long, 4–10 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface smooth, pilose. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 15–30 cm long. Racemes 4, digitate, ascending, unilateral, 8–15 cm long. Central inflorescence axis 4–5 cm long. Rhachis angular, 0.4 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, compressed slightly, obtuse, 2.3–2.4 mm long, 1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, purple, 5 -veined. Upper glume lateral veins obscure or distinct. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, purple, 5 -veined, obscurely veined or distinctly veined, pubescent, hairy between veins. Fertile lemma 2.1–2.2 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Northern South America, Brazil. Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Brazil North.

**TDWG4.**

**Axonopus fastigiatus** (Nees) Kuhl. *Comm. Lih. Congr. Matto Grosso, Amaz. Anexo 5*, Bot. 11: 87 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum fastigiatum* Nees ex Trin., *Gram. Panic.* 100. (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *l. am Nees ab Esenb.*, Brazil: Minas Gerais (LE-TRIN-0455.01; IT: US-929070 (fragm. ex LE), US-2855332 (fragm. ex M)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003), S.A.Rennoize, *The Grasses of Bahia*, 1984 (193, Fig. 73).

**Derivation** (Clifford & Bostock 2007): *L. fastigio*, sharpen to a point. Panicle branches or culms held erect.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or elongated. Butt sheaths thickened and forming a bulb, persistent and investing base of culm, with fibrous dead sheaths. Culms 25–75 cm long. Culm-nodes glabrous. Lateral branches sparse, arising from lower culm. Leaf-sheaths 1–5 cm long, pubescent. Ligule a ciliolate membrane, 0.2 mm long. Leaf-blades flat or conduplicate, 3–8 cm long, 1–2 mm wide. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade margins ciliate. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, with 1 peduncles per sheath. Peduncle 10–20 cm long. Racemes 1–2, single or paired, erect or ascending, straight, unilateral, 3–8 cm long. Central inflorescence axis 0 cm long. Rhachis angular, 0.5–1 mm wide, dark-coloured (grey), glabrous on surface, smooth on margins or scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 4–6 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acuminate, 3.2–4.5 mm long, 0.5–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2–4 -veined. Upper glume primary vein absent. Upper glume margins ciliate. Upper glume hairs 0.5–2 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1–1.5 length of fertile lemma, 1 length of spikelet, 2–4 -veined, without midvein. Fertile lemma 3 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex acuminate, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central, Brazil Northeast, Brazil Southeast.

**TDWG4.** Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo.

**Axonopus fissifolius** (Raddi) Kuhlm. *Comm. Linh. Telegr. Matto Grosso Amaz., Anexo 5, Bot.*, 11: 87 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *A. affinis*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum fissifolium* Raddi, *Agrost. Bras.* 26. (1823). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *G. Raddi s.n.*, no date, Brazil: Guanabara: prope Rio de Janeiro (PI; IT: BM, FI, G-Delessert, US-2766195 (fragm. ex FI), US (fragm. ex FI)).

**Recent Synonyms:** *Axonopus affinis* Chase, *Journ. Wash. Acad. Sc.* 28:180 (1938).

**Illustrations (Books):** G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (60, Fig. 26 as *A. affinis*), H.J.Noltie, *The Grasses of Bhutan* (2000) (707, Fig. 40 as *A. affinis*), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (35, Fig. 23), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (34, Pl. 6 as *A. affinis*), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (426, Fig 356), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (598, Fig. 121 as *A. affinis*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (164), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1501, Pl. 220), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (567), F.W.Gould, *The Grasses of Texas* (1975) (429, Fig. 230 as *A. affinis*), S.A.Renvoize, *Gramineas de Bolivia* (1998) (497, Fig. 109), S.A.Renvoize, *The Grasses of Bahia*, 1984 (191, Fig. 72), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (60, Fig. 33), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1105, Fig. 218 as var. *fissifolius*), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (413, Fig. 173 & as *A. affinis*), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (502, Fig. 130 as *A. affinis*), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (39, Fig. 9), B.Rosengurt, *Gramineas Uruguayas I* (1970) (294, Fig. 122 as *A. affinis*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:9(1980) as *A. affinis*).

**Images:** D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

**Derivation** (Clifford & Bostock 2007): *L. fissum*, cleft; folium leaf. Apex of leaf-blade sometimes bifid.



**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, mat forming. Rhizomes short. Stolons absent or present. Basal innovations flabellate. Culms 10–60 cm long. Culm-nodes glabrous. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 4.5–22 cm long, 1.5–7 mm wide. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4, paired or digitate, unilateral, 1.5–7 cm long. Rhachis angular, glabrous on surface or pubescent on surface, glabrous on margins. Spikelet packing adaxial, regular, 2-rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, obtuse or subacute, 1.6–2.1 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of adjacent fertile lemma, 1 length of spikelet, membranous, without keels, 2–5 -veined. Upper glume surface puberulous. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, 1 length of spikelet, 2–5 -veined, puberulous, acute. Fertile lemma obovate, 1.5–2 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex obtuse, without ornament (or few obscure hairs). Palea involute, indurate.

**Flower and Fruit.**  $2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** Europe (\*), Africa, Temperate Asia, Tropical Asia, Australasia (\*), Pacific, North America, South America.

**Region. Northern Europe** (\*).

**Country /Province /State.** : GB Aliens (Ryves et al). **West tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean.** Liberia, Sierre Leone. Zimbabwe. Limpopo, Gauteng, Mpumalanga, Kwazulu-Natal, Northern Cape, Western Cape, Eastern Cape. Mauritius. **China, Eastern Asia.** Tibet. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Eastern Himalaya, Sri Lanka. Andaman Is, Myanmar, Nicobar Is. Java, Malaya, Philippines, Sumatra, Singapore. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is (\*). **Australia, New Zealand.** Western Australia (\*), South Australia (\*), Queensland (\*), New South Wales (\*), A.C.T. (\*), Victoria (\*), Lord Howe-Norfolk Is (\*). Kermadec Is, New Zealand North I, New Zealand South I. **Southwestern Pacific, South-central Pacific, North-central Pacific.** Fiji (\*), Niue (\*), New Caledonia (\*), Samoa (\*), Wallis-Futuna Is (\*). Marquesas (\*), Tuamotu Is (\*). Hawaii (\*). **South-central USA, Southeastern USA, Mexico.** Texas. Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Puerto Rico. Guyana, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Argentina Northeast, Argentina Northwest, Paraguay, Uruguay.

**TDWG4.** Bhutan. South-West. Darwin & Gulf. Southern. North. Central, South East. Para, Amapa, Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Jujuy, Salta, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe. Puebla. Hidalgo, Queretaro. Veracruz. Jalisco, Michoacan. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

**Axonopus flabelliformis** Swallen. *Bull. Torr. Bot. Cl.* 75: 82 (1948).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guyana. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 17275, 30 Dec 1919, Guyana: Half-way station between Wismar and Rockstone on the Demerara River, 6:N, sandy soil, bunches 1–2 ft in diameter (US-1038571).

**Recent Synonyms:** *Axonopus purpurellus* Swallen, *Bull. Torr. Bot. Cl.* 75: 82 (1948).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (59, Fig. 30), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (86, Fig. 12).

**Derivation** (Clifford & Bostock 2007): L. flabella, fan; forma, appearance. The crowded equitant basal leaves resemble a fan.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms erect, slender, 50–100 cm long. Culm-internodes elliptical in section. Culm-nodes pubescent. Leaf-sheaths 5–30 cm long. Ligule a ciliolate membrane, 0.2–0.3 mm long. Leaf-blades conduplicate, 5–35 cm long, 4–16 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 12–15 cm long. Racemes 10–20, digitate, ascending, unilateral, 5–10 cm long. Central inflorescence axis 2.5–4 cm long. Rhachis angular, 0.3–0.4 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 6.5–8 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse, 1.3–1.8 mm long, 0.6 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2–5 -veined. Upper glume primary vein absent or distinct.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2–5 -veined, without midvein or with obscure midvein. Fertile lemma 1.3–1.8 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex obtuse or acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. French Guiana, Guyana, Surinam, Venezuela. Brazil North. Amazonas, Acre, Rondonia.

**Axonopus flexuosus** (Peter) Troupin. *Fl. Spermat. Parc Nat. Garamba 1. Gymnosp. & Monocot.*, 18 (1956).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Tanzania. **Basionym or Replaced Name:** *Digitaria flexuosa* Peter, Fedde, *Repert. Beih.* 40 : 1 *Anhang*, 60 (1930). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Deutsch-Ostafrika: Uha, zwischen Kassulo und Kivumba, an einem starken Bach, HT: *Peter 37538*, Tanzania (B+).

**Illustrations (Books):** H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (246, Fig. 175), R.M.Phill, F.T.E.A., *Gramineae* (3(1982):614, Fig. 143), G.V.Pope et al., *Flora Zambesiaca* 10.

**Derivation** (Clifford & Bostock 2007): L. *flecto*, bend; -osa, abundance. Stolons arching.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, mat forming. Stolons present. Basal innovations flabellate. Culms 25–112 cm long. Culm-nodes glabrous. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades linear or lanceolate, flat or conduplicate, 3–30 cm long, 5–22 mm wide. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 3–5(–8), paired or digitate, unilateral, 4–15 cm long. Rhachis angular, glabrous on surface, glabrous on margins. Spikelet packing adaxial, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, obtuse, 2.7–4 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1.5 length of adjacent fertile lemma, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume surface glabrous or pubescent. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1.5 length of fertile lemma, 1 length of spikelet, 5 -veined, glabrous or pubescent, acute. Fertile lemma elliptic, 1.7–2.5 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Distribution (TDWG). Continent.** Africa.

**Country /Province /State.** West tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa. Benin, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierre Leone. Gabon, Annobon, Principe & Sao Tome, Bioko, Rwanda, DRC. Kenya, Tanzania, Uganda. Angola, Zambia.

**Axonopus furcatus** (Fluegge) Hitchcock. *Rhodora* 8: 205 (1906).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from USA. **Basionym or Replaced Name:** *Paspalum furcatum* Fluegge, *Gram. Monog.* 114 (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Bosc s.n.*, USA: Carolinas (?; IT: US).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (567), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (190, Fig. 121).

**Derivation** (Clifford & Bostock 2007): *L. furca*, fork; -atus, possessing. Inflorescence branches arising in pairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms 20–80 cm long, wiry, 1–5 -noded. Culm-internodes terete or elliptical in section. Culm-nodes glabrous or pubescent. Lateral branches lacking. Leaves cauline. Leaf-sheaths 1–25 cm long, without keel or keeled. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades linear or lanceolate, 3–25 cm long, 2–15 mm wide. Leaf-blade surface glabrous to pilose, densely hairy. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, terminal or terminal and axillary, with 1–2 peduncles per sheath. Peduncle 10–60 cm long. Racemes 2, paired, spreading, unilateral, 7–10 cm long. Rhachis narrowly winged, flattened, drab, glabrous on surface, scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 1.8–6 spikelets per cm. Raceme-bases brief or linear, 0–5 mm long, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, acuminate, 3.5–5 mm long, 1.5 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume surface glabrous or pubescent, hairy on veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.3–1.6 length of fertile lemma, 1 length of spikelet, 5–7 -veined, glabrous or pubescent, hairy on veins. Fertile lemma 2.7–3.2 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. South-central USA, Southeastern USA.** Texas. Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina. **Caribbean, Brazil.** Cuba.

**Axonopus grandifolius** S.A. Renvoize. *Kew Bull.* 39(1): 183 (1984).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.M. Harley, S.A. Renvoize, C.M. Erskine, C.A. Brighton & R. Pinheiro 16012*, 5 Feb 1974, Brazil: Bahia: Serra do Sincora, by Rio Cumbuca, ca. 3 km N of Mucugj on Andarai road, on conglomerate sandstone rock with partly burnt-over vegetation among rocks by river and neighbouring hillside, 41:23'W, 13:00'S, 850 m (CEPEC; IT: K, MO-3426092, U, US-3260298).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (191, Fig. 72).

**Derivation** (Clifford & Bostock 2007): *L. grandis*, large; folium, leaf. Leaf-blades large.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Annual or perennial, short-lived. Butt sheaths pubescent. Culms robust, 90–120 cm long. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 15–32 cm long, 7–15 mm wide. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes. Racemes 7–22, digitate, ascending, unilateral, 12–24 cm long. Central inflorescence axis 4–10 cm long. Rhachis angular, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, subacute, 2–2.2 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein. Fertile lemma 2 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex acute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast.

**TDWG4.** Bahia.

**Axonopus herzogii** (Hack.) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 431 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. **Basionym or Replaced Name:** *Paspalum herzogii* Hack., Fedde, *Repert. Nov. Sp.* 7: 50 (1909). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Herzog* 866, May 1905, Bolivia: Santa Cruz: Santiago de Chiquitos: Cerro San Miserate (W; IT: US-2855300 (fragm. ex W)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (492, Fig. 108).

**Derivation** (Clifford & Bostock 2007): in honor of Theodor Herzog (1880–1961) German botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms 40–60 cm long, 1–2 -noded. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 5–30 cm long. Ligule a ciliate membrane, 0.3 mm long. Leaf-blades curved or tortuous, conduplicate, 11–15 cm long, 2–3 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 15–30 cm long, glabrous. Racemes 2–7, digitate, ascending, unilateral, 5–10 cm long. Central inflorescence axis 1–1.5 cm long, pilose. Rhachis angular, 0.3–0.5 mm wide, glabrous on surface, scabrous on margins, ciliate on margins. Rhachis hairs white, 1–3 mm long. Spikelet packing adaxial, 8–9 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or ovate, dorsally compressed, acute, 2.5 mm long, 0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, mid-green or purple, 5 -veined. Upper glume margins tuberculate, villous. Upper glume hairs 2–3 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, mid-green or purple, 5 -veined, tuberculate on margins, villous on margins, bearing hairs 2–3 mm long. Fertile lemma 2.5 mm long, indurate, dark brown, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America, Brazil.** Bolivia.

**Axonopus hirsutus** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 55 (1963).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Santa Cruz: Portachuelo, *Steinbach in Hb. Osten 14598* (HT: US; IT: IAN, R).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. hairy. Plant hairy in respect to all or some parts.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms 25–40 cm long. Culm-nodes bearded. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 3–20 cm long, 2–4 mm wide. Leaf-blade apex obtuse to acute.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Racemes 3–5, digitate, unilateral, 5–8 cm long. Rhachis scabrous on margins. Spikelet packing adaxial, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic to ovate, dorsally compressed, 1.5–2 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of adjacent fertile lemma, 1 length of spikelet, membranous, without keels, 2–4 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, 1 length of spikelet, membranous, 2–4 -veined, without midvein. Fertile lemma elliptic, 1.5–2 mm long, indurate, yellow, shiny, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil. Bolivia.

**Axonopus iridifolius** (Poepp.) G. A. Black. *Advanc. Front. Pl. Sci.* 5: 125 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru. **Basionym or Replaced Name:** *Paspalum iridifolium* Poepp., *Reise*, 2: 324. (1836). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.F. Poeppig* 24, 1828, Peru: in collibus sylvaticis ad Cochero (W; IT: LE, US-2855290, US-2855290 (fragm. ex LE)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. folium*, leaf. Leaf-blades rather wide and flat, the plants thereby resembling *Iris* species.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect or geniculately ascending, 55–100 cm long. Culm-internodes elliptical in section. Culm-nodes pubescent. Leaves basal and cauline. Leaf-sheaths 5–40 cm long, keeled, pilose. Ligule a ciliolate membrane, 1 mm long. Leaf-blades flat or conduplicate, 6–25 cm long, 2–19 mm wide. Leaf-blade surface scabrous. Leaf-blade apex obtuse, soon splitting or simple.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 30 cm long. Racemes 6–20, digitate or borne along a central axis, ascending, unilateral, 8–18 cm long. Central inflorescence axis 6–15 cm long. Rhachis angular, 0.3 mm wide, dark-coloured (purple), glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, obtuse, 2.1–3 mm long, 0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, purple, 5 -veined. Upper glume surface puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2–1.4 length of fertile lemma, 1 length of spikelet, purple, 4–5 -veined, without midvein or with obscure midvein, pubescent, hairy between veins. Fertile lemma 1.8–2.1 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Bolivia, Colombia, Peru.

**Axonopus jeanyae** G. Davidse. *Ann. Missouri Bot. Gard.*, 74(2): 421 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Panama. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Davidse & C.W. Hamilton* 23570, 3 Feb 1983, Panama: Cocli: area between Caño Blanco del norte, Caño Sucio and Chorro de Rmo Tife, 8:42'19"-8:43'06"N, 80:36'30"-80:38"W, evergreen forest, 200–400 m, spray basin of waterfall (MO-3475959; IT: ISC, PMA, US-3260346).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Jeany Vander Neut Davidse (1945-) United States research assistant at Missouri Botanical Garden.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 50–75 cm long, 2–3 mm diam. Culm-internodes distally glabrous. Culm-nodes swollen, pubescent. Lateral branches sparse. Leaves mostly basal,

without demarcation between sheath and blade. Leaf-sheaths outer margin hairy. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades flat or conduplicate, 10–25 cm long, 2–3 mm wide. Leaf-blade margins tuberculate-ciliate, hairy at base. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, with 2 peduncles per sheath. Racemes 2–5, digitate, unilateral, 4–11 cm long. Central inflorescence axis 2–2.5 cm long. Rhachis angular, 0.3–0.4 mm wide, scabrous on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 1.9–2.5 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels, 4–5 -veined. Upper glume primary vein absent or distinct. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 4–5 -veined, without midvein or with evident midvein, pubescent, hairy between veins. Fertile lemma oblong, 1.8–2.1 mm long, indurate, dark brown, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 1–1.1 mm long. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Mesoamerica.** Panama.

### **Axonopus jesuiticus** (Araujo) Valls. *Fl. Fan. Est. Sao Paulo* 1:136 (2001).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Axonopus compressus* var. *jesuiticus* Araujo, *Bol. Secr. Agr. Ind. Com.* 100:36 (1943).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -icum, belonging to. In honor of the Jesuit Order.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, mat forming. Stolons present. Culms decumbent, 20–40 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane, 0.2–0.3 mm long. Leaf-blades linear, conduplicate, 7–29 cm long, 0.5–6 mm wide. Leaf-blade surface glabrous. Leaf-blade margins glabrous or ciliate, hairy at base. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary. Racemes (2–)3–5(–6), digitate, erect, unilateral, 5–9.5 cm long. Rhachis angular, glabrous on surface, glabrous on margins. Spikelet packing adaxial, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, 1.9–2 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1.1–1.2 length of adjacent fertile lemma, 1 length of spikelet, membranous, without keels, 2(–4) -veined. Upper glume primary vein absent. Upper glume lateral veins obscure. Upper glume surface glabrous. Upper glume apex acute.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1.1–1.2 length of fertile lemma, 1 length of spikelet, 2(–4) -veined, without midvein, glabrous, acute. Fertile lemma elliptic, 1.6–1.8 mm long, indurate, yellow, without keel. Lemma surface papillose. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, red.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

### **Axonopus junciformis** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 48 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Chase 11868*, 7 Apr 1930, Brazil: Matto Grosso: W of Santa Rita do Araguaia (Goias), ca. 10 km s of Santa Rita, sandy campo, summit leaning, colony (US-1501338).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. junceus*, rush-like; forma, shape. In habit resembling certain *Juncus* species.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 120 cm long, wiry, 2–3 -noded. Leaves basal and cauline. Leaf-sheaths 7–15 cm long, without keel. Ligule a ciliolate membrane, 0.2–0.3 mm long. Leaf-blades involute, 10–50 cm long, 1–2 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 30–40 cm long. Racemes 2–4, digitate, erect or ascending, flexuous, unilateral, 10–25 cm long. Central inflorescence axis 3–6 cm long. Rhachis angular, 0.6–0.7 mm wide, glabrous on surface, smooth on margins or scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, obtuse, 3.2 mm long, 1.4 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, membranous, 4 -veined. Upper glume primary vein absent. Upper glume surface puberulous. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, 1 length of spikelet, 4 -veined, without midvein, puberulous, acute. Fertile lemma 3.2 mm long, indurate, yellow or light brown, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central. Mato Grosso.

**Axonopus kleinii** L.B. Smith & D.C. Wasshausen. *Bradea* 2(35): 244 (1978).

Regarded by K as a synonym (*A. marginatus*).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.B. Smith & R. Klein 7432*, 8 Nov 1956, Brazil: Santa Catarina: Mun. Campo Alegre, Morro Iquererim, alt. 1300–1500 m (US-2237569).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1102, Fig. 217).

**Derivation** (Clifford & Bostock 2007): in honor of Roberto Miguel Klein (1923–1992) Brazilian botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 23–43 cm long. Leaves mostly basal. Leaf-sheaths 4 cm long, without keel, glabrous on surface or pilose, outer margin hairy. Ligule a ciliolate membrane, 0.2 mm long. Leaf-blades erect, conduplicate, 10 cm long, 2.5 mm wide, stiff. Leaf-blade surface glabrous or pilose, sparsely hairy. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Racemes 3–4, digitate, erect, flexuous, unilateral, 3–5 cm long. Central inflorescence axis 1–2 cm long. Rhachis angular, 0.5–0.7 mm wide, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 1–1.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, acute, 4 mm long, 1.5 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume surface pilose. Upper glume hairs white.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 5 -veined, pilose, bearing white hairs. Fertile lemma 4 mm long, indurate, pallid, shiny, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil South.  
Catarina, Rio Grande do Sul.

**Axonopus kuhlmannii** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 156 (1963).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.G. Kuhlmann 1730*, Jan 1919, Brazil: Mato Grosso: Campo dos Urupas (IAN-62429: IT: US-2236060 (fragm. ex IAN & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Kuhlmann (fl. 1918) who collected in Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Stolons present. Culms erect, 50–100 cm long, 7–8 -noded. Culm-nodes glabrous or pubescent. Lateral branches ample. Leaf-sheaths 2–10 cm long, narrower than blade at the collar, glabrous on surface or pubescent. Ligule a ciliolate membrane, 0.2 mm long. Leaf-blades 15–40 cm long, 1.5–3 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface scabrous, glabrous. Leaf-blade apex attenuate, simple or filiform.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, with 1–2 peduncles per sheath. Peduncle 15–30 cm long. Racemes 3–10, digitate, spreading, flexuous, unilateral, 5–12 cm long. Central inflorescence axis 1.5–3 cm long. Rhachis angular, 0.6–0.7 mm wide, glabrous on surface, smooth on margins or scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 7–11 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, acute, 2 mm long, 0.5–0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 3–5 -veined. Upper glume primary vein absent or distinct. Upper glume margins ciliate. Upper glume hairs 0.5–1 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.3 length of fertile lemma, 1 length of spikelet, 3–5 -veined, without midvein or with obscure midvein. Fertile lemma 1.5 mm long, indurate, dark brown, without keel. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central.

**Axonopus laxiflorus** (Trin.) Chase. *Proc. Biol. Soc. Wash.* 24: 133 1911.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum laxiflorum* Trin., *Mem. Acad. Petersb. Ser. 6* (3) 2 : 148. (1835). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.H. von Langsdorff s.n.*, Nov. 1824, Brazil: Minas Gerais: Serra da Lapa: in saxosis pratisque humidis (LE-TRIN-0481.01; IT: US-80071).

**Recent Synonyms:** *Axonopus schultesii* G. A. Black, *Advanc. Front. Pl. Sci.* 123 (1963).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. laxus*, loose; flos, flower. Inflorescence an open panicle.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Cataphylls evident. Rhizomes elongated. Culms robust, 70–100 cm long, 1–2 -noded. Culm-nodes pubescent or bearded. Leaves mostly basal, without demarcation between sheath and blade. Leaf-sheaths 6–40 cm long, keeled, pubescent, outer margin hairy. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades persistent or deciduous at the ligule, 40–80 cm long, 4–6 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex obtuse, asymmetrical.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 10–50 cm long. Racemes 10–20, borne along a central axis, ascending or spreading, unilateral, 5–20 cm long. Central inflorescence axis 6–10 cm long. Rhachis angular, 0.3 mm wide, with scattered hairs or glabrous on surface, smooth on margins or scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4–5.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.3–1 mm long.



**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, obtuse, 2.8–3.3 mm long, 1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume lateral veins prominent. Upper glume surface glabrous or puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 5–7 -veined, prominently veined, glabrous or puberulous, hairy between veins. Fertile lemma 2.6–2.9 mm long, indurate, yellow or light brown, without keel. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil. Colombia. Brazil Southeast.

**Axonopus laxus** Lucas. *Bol. Soc. Venez. Cienc. Nat.* 15: 20 (1953).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Z. *Lucas* 299, 25 Sep 1947, Venezuela: Aragua: Maracay, sabanas del valle de Limsn (VEN; IT: US-2236522 (photo ex VEN)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. loose. Inflorescence much branched either as a single panicle or from branching of the culms.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms geniculately ascending, slender, 30–50 cm long, 4 -noded. Culm-internodes elliptical in section. Culm-nodes pubescent. Leaf-sheaths 7.5 cm long, narrower than blade at the collar, hirsute, with tubercle-based hairs, outer margin glabrous. Ligule a ciliate membrane, 0.3 mm long. Leaf-blades 10–21 cm long, 5–9 mm wide. Leaf-blade surface hirsute, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, with 1–2 peduncles per sheath. Peduncle 7–14 cm long. Racemes 2–3, paired or digitate, spreading, flexuous, unilateral, 5–6 cm long. Rhachis angular, 0.4 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 7 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acute, 1.5–1.7 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, pallid, 4 -veined. Upper glume primary vein absent. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, pallid, 4 -veined, without midvein, pubescent, hairy between veins. Fertile lemma 1.5–1.7 mm long, indurate, pallid, shiny, without keel. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Axonopus leptostachyus** (Fluegge) Hitchcock. *Contrib. U. S. Nat. Herb.* 22: 471 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Paspalum leptostachyum* Fluegge, *Gram. Monog.* 123. (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.W.H.A. von Humboldt & A.J.A. Bonpland s.n.*, no date, Venezuela (B-W; IT: US-80079 (fragm. ex B-W)).

**Recent Synonyms:** *Axonopus paranaensis* L. Parodi, *Rev. Arg. Agron.* 28:111 (1962).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (497, Fig. 109), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (61, Fig. 34), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (49, Fig. 11 & as *A. paranaensis*).

**Derivation** (Clifford & Bostock 2007): Gk. leptos, narrow; stachys, ear of corn. Spikelets long and narrow.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms robust, 50–150 cm long, 2–5 -noded. Culm-internodes terete or elliptical in section. Culm-nodes swollen, glabrous or pubescent. Lateral branches lacking. Leaves cauline, without demarcation between sheath and blade. Leaf-sheaths 10–30 cm long, longer than adjacent culm internode, keeled, glabrous on surface. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades conduplicate, 1–50 cm long, 3–5 mm wide, stiff. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 30–75 cm long. Racemes 5–15, digitate, spreading, unilateral, 5–25 cm long. Central inflorescence axis 3–15 cm long. Rhachis angular, 0.3–0.5 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5.5–11 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acute, 2.3–2.5 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume primary vein absent or obscure. Upper glume surface glabrous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2–1.4 length of fertile lemma, 1 length of spikelet, 5–7 -veined, without midvein or with evident midvein, glabrous. Fertile lemma 1.6–2 mm long, indurate, light brown, shiny, without keel. Lemma margins involute. Lemma apex without ornament or pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Caribbean, Northern South America, Western South America, Brazil, Southern South America. Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia. Brazil West Central, Brazil Southeast, Brazil North. Paraguay.

**TDWG4.** Para, Amapa, Mato Grosso, Goias, Sao Paulo Parana. Corrientes, Entre Rios, Formosa, Misiones.

**Axonopus longispicus** (Doell) Kuhl. *Comm. Linh. Congr. Matto Grosso, Amaz. Anexo 5*, Bot. 11: 87 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum longispicum* Doell, *Mart. Fl. Bras.* 2 (2) 105. (1877). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Spruce (Paspalum 33) 1382*, Jan 1851, Brazil: Amazonas: Manaus, among wet rocks (K; IT: BR, FREI, GH, M, P, US-2855821 (fragm. ex B, FR, M, P-Pittier & Durandt hb.), US-1127316 (fragm. ex W), W).

**Illustrations (Books):** E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (86, Fig. 12).

**Derivation** (Clifford & Bostock 2007): L. longus, long; spica, thorn. With long spikelets or inflorescence branches.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 30–60 cm long, 1–3 -noded. Culm-nodes glabrous. Leaf-sheaths 3–10 cm long, wider than blade at the collar. Ligule a ciliolate membrane, 0.3–0.7 mm long. Leaf-blades spreading, 10–20 cm long, 4–10 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface pubescent, sparsely hairy. Leaf-blade apex obtuse or abruptly acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–4 peduncles per sheath. Peduncle 25 cm long. Racemes 2–3, paired or digitate, erect or ascending, unilateral, 5–15 cm long. Central inflorescence axis 0–3 cm long. Rhachis angular, 0.3 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4.5–6 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.2–0.3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse or subacute, 3–3.9 mm long, 0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume lateral veins obscure. Upper glume surface pubescent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 2 length of fertile lemma, 1 length of spikelet, 5 -veined, obscurely veined, pubescent. Fertile lemma 1.6–2 mm long, indurate, light brown, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Northern South America, Brazil. French Guiana, Guyana, Venezuela. Colombia. Brazil North. Amazonas, Acre, Rondonia.

**Axonopus magallanesiae** D.Giraldo-Canas. *Caldasia* 22(2): 237 (2000).

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolívar: Distrito Cedeño: meseta de Jaua, sector centro-merdional, bosques ribereños, arbustales y herbazales tepeyanos ubicados en altiplanicie meridional, cabeceras del río Marajano, afluente del río Cácaro, 4°48'N, 64°32' O, 1750–1800 m, 20 Nov 1989, O. Huber 12995, HT: COL; IT: MO, MYF, SI, VEN.

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Aurim Megallanes Nessi, Venezuelan botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Rhizomes short. Basal innovations flabellate. Culms erect, 25–50 cm long, 1–2 -noded. Culm-internodes 3–5 cm long, striate, distally glabrous. Culm-nodes brown, bearded. Lateral branches lacking. Leaf-sheaths 0.6–11.5 cm long, keeled, outer margin glabrous or hairy. Ligule a ciliate membrane, 0.25 mm long. Leaf-blades 3–10 cm long, 2–7 mm wide. Leaf-blade margins tuberculate-ciliate, hairy at base.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 24–30 cm long, glabrous. Racemes 3–5, digitate, unilateral, 4–8 cm long. Central inflorescence axis 0.8–1.4 cm long. Rhachis angular, with scattered hairs, scaberulous on margins. Spikelet packing adaxial, regular, 2 -rowed. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 2.2–2.5 mm long, 0.8–0.9 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of adjacent fertile lemma, 1 length of spikelet, membranous, without keels, 4–5 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins distinct.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, 1 length of spikelet, 4–5 -veined. Fertile lemma elliptic, 2.2–2.5 mm long, indurate, dark brown, shiny, without keel. Lemma surface papillose. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Lodicules 2, 0.4 mm long. Anthers 3, 0.6–0.8 mm long.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Axonopus maguirei** G. Black. Mem. N. Y. Bot. Gard. 9: 252 (1957).

Regarded by K as a synonym (*A. pubivaginitus*).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: B. Maguire & C.K. Maguire 40108, 29 Nov 1954, Brazil: Rio Branco: Serra Tepequem, coarse bunch grass, occasional in valley woodland south of airstrip, elev. 700 m (US-2182169).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Basset Maguire (1904–1991) United States botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths pubescent. Culms erect, 160 cm long, 5 mm diam., 8 -noded. Culm-internodes elliptical in section, yellow. Culm-nodes pubescent. Leaf-sheaths 3–30 cm long, keeled, pubescent. Ligule a ciliate membrane, 0.4–0.5 mm long. Leaf-blades lanceolate, 7–40 cm long, 15–20

mm wide. Leaf-blade surface pilose, densely hairy, hairy on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, with 1–2 peduncles per sheath. Peduncle 15–45 cm long. Racemes 10–14, borne along a central axis, ascending, unilateral, 8–15 cm long. Central inflorescence axis 5–10 cm long. Rhachis angular, 0.6–0.8 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.3 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, obtuse, 2–2.4 mm long, 0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, purple, 5–7 -veined. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, purple, 5–7 -veined, pubescent, hairy between veins. Fertile lemma 2.1–2.2 mm long, indurate, light brown, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Brazil. Guyana, Venezuela. Brazil North. Roraima.

**Axonopus marginatus** (Trin.) Chase ex Hitchcock. *Contrib. US. Nat. Herb.* 17: 226 (1913).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum marginatum* Trin., *Gram. Panic.* 90. (1826). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.H. von Langsdorff*, Nov. 1824, Brazil: Minas Gerais: S[erra] da Lapa: in pratis siccis glareosis (LE-TRIN-0490.01 (& fig.); IT: US-2855812 (fragm. ex LE-TRIN)).

**Illustrations (Books):** S.A.Renvoize, *Gramineas de Bolivia* (1998) (199, Fig. 110), S.A.Renvoize, *The Grasses of Bahia*, 1984 (196, Fig. 74), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (47, Fig. 10).

**Derivation** (Clifford & Bostock 2007): L. margo, border; -ata, possessing. Leaf-blades or lemma with hairs in their margins or the margins otherwise conspicuous.

**Classification.** Subfamily Panicoideae. Tribe: Paspalinae.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes absent or short. Stolons present. Butt sheaths withering or persistent and investing base of culm, with fibrous dead sheaths. Culms 30–85 cm long, 1–3 -noded. Culm-nodes pubescent or bearded. Leaves mostly basal. Leaf-sheaths 3–13 cm long, as wide as blade at the collar, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades flat or conduplicate, 4–30 cm long, 2–4 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, without bracts or bracteate at branch bases (lowest raceme), with 1–2 peduncles per sheath. Peduncle 10–25 cm long. Racemes 2–13, digitate, ascending, unilateral, 4–15 cm long. Central inflorescence axis 2–4 cm long. Rhachis angular, 0.5–0.7 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 3–5.5 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.1–0.3 mm long, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic to ovate, dorsally compressed, acute, 2.5–3 mm long, 0.7–0.8 mm wide, with hairs extending 0.5–1 mm beyond apex, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2–4 -veined. Upper glume primary vein absent. Upper glume surface pilose, hairy between veins. Upper glume hairs white or purple, 0.5–1 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2–4 -veined, without midvein, pilose, hairy between veins, bearing white hairs or purple hairs, bearing hairs 0.5–1 mm long. Fertile lemma 2.5–3 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex without ornament or pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast. Argentina Northeast, Paraguay.

**TDWG4.** Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana. Misiones.

**Axonopus mathewsii** (Mez) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 432 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Peru, Ecuador. **Basionym or Replaced Name:** *Paspalum mathewsii* Mez, Fedde, *Repert* 15: 62 (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *W. Mathews 3239*, no date, Peru (B, GH, K, US-80091 (fragm. ex B, G)).

ST: *Andre 4322*, Ecuador: in jugo centrali Andinum, alt. 2200 m.

**Illustrations (Journals):** *Ruizia* (13:384 Fig 51c-d (1993)).

**Derivation** (Clifford & Bostock 2007): in honor of Andrew Mathews (- 1841) who collected in Peru.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect or geniculately ascending, 35–50 cm long, 1–2 -noded. Culm-internodes elliptical in section. Culm-nodes glabrous. Leaf-sheaths 6–15 cm long, outer margin hairy. Ligule a ciliolate membrane, 0.4–0.7 mm long. Leaf-blades 7–15 cm long, 5–10 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 10–30 cm long. Racemes 2–8, digitate, spreading or deflexed, unilateral, 4–10 cm long. Central inflorescence axis 4–5 cm long. Rhachis angular, 0.3–0.4 mm wide, dark-coloured (purple), glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.6–0.9 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, acuminate, 2.5–2.6 mm long, 0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 4–5 -veined. Upper glume lateral veins absent or distinct. Upper glume surface glabrous.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2 length of fertile lemma, 1 length of spikelet, 4 -veined, without midvein, glabrous. Fertile lemma 2.2–2.3 mm long, indurate, light brown, without keel. Lemma margins involute. Lemma apex acute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Ecuador, Peru.

**Axonopus mexicanus** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 144 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico: Sinaloa: About 47 miles east of Villa Union (1 mile east of Santa Lucia) on the road from Villa Union to Durango, growing in scattered clumps, not common, alt. 1280 m, 27 Sep 1953, *J.R. Reeder & C.G. Reeder 2445* (HT: IAN).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ana, indicating origin. From Mexico.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms 60 cm long, 1 -noded. Culm-internodes elliptical in section. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 6–10 cm long, longer than adjacent culm internode. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades 15–25 cm long, 10–15 mm wide. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 25 cm long. Racemes 14, digitate, ascending, unilateral, 10–14 cm long. Central inflorescence axis 9 cm long. Rhachis angular, 0.3 mm wide, glabrous on surface, smooth on margins or scaberulous on margins, glabrous on margins.

Spikelet packing adaxial, 5.6 spikelets per cm. Raceme-bases brief, glabrous or pilose. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 2–2.1 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, hyaline, pallid, 2–3 -veined. Upper glume primary vein absent or obscure. Upper glume apex obtuse.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, 1 length of spikelet, 2–3 -veined, without midvein or with obscure midvein, acute. Fertile lemma 2–2.1 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Northwest Mexico.

Durango. Sinaloa.

### **Axonopus micay** Garc.-Barr. *Caldasia* 8: 432 (1960).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: W.A. Archer 99, 11 Jun 1930, Colombia: Antioquia: Medellmn, alt. ca. 1500 m, "Yerba micay," forms loose prostrate stolls and roots from the nodes (COL-1919; IT: MO-3326811 (fragm.), US-1541930).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): vernacular name for the species in Colombia.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Stolons present. Culms erect or decumbent, 75–150 cm long, 4–8 mm diam., without nodal roots or rooting from lower nodes. Culm-internodes distally glabrous. Culm-nodes glabrous. Lateral branches sparse. Leaves cauline. Leaf-sheaths glabrous on surface or pubescent, outer margin glabrous or hairy. Ligule a ciliolate membrane, 0.5–0.9 mm long. Collar glabrous or pubescent. Leaf-blades 15–38 cm long, 12–18 mm wide. Leaf-blade surface glabrous to pubescent, sparsely hairy, hairy adaxially. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, terminal and axillary, with 1–2 peduncles per sheath. Racemes 3–24, digitate or borne along a central axis, ascending, unilateral, 6–16 cm long, simple or with branchlets at base of longer racemes. Central inflorescence axis 4–5 cm long. Rhachis angular, 0.4–0.7 mm wide, with scattered hairs or glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 2.2–2.8 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels, 4 -veined. Upper glume primary vein absent. Upper glume margins pubescent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 4 -veined, without midvein, pubescent on margins. Fertile lemma oblong, 2.2–2.8 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 1–1.5 mm long. Caryopsis with adherent pericarp.

$2n = 40$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica, Northern South America, Western South America. Costa Rica, El Salvador, Panama. Venezuela. Colombia, Ecuador.

### **Axonopus monticola** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 107 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Chase 9859, 20–22 May 1925, Brazil: São Paulo: campos do Jordão, serra Mantiqueira, moist campo, alt. 1600 m (US-1257120).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. mons, mountain; -cola, dweller. Growing on mountains.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms erect, robust, 100–150 cm long, 2–3-noded. Culm-internodes elliptical in section. Culm-nodes glabrous or pubescent. Leaves without demarcation between sheath and blade. Leaf-sheaths 10–40 cm long, outer margin glabrous or hairy. Ligule a ciliate membrane, 0.3–0.4 mm long. Leaf-blades conduplicate, 15–40 cm long, 6–8 mm wide, stiff. Leaf-blade surface smooth. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 20–50 cm long. Racemes 15–20, borne along a central axis, ascending, unilateral, 5–25 cm long, simple or with branchlets at base of longer racemes. Central inflorescence axis 10–15 cm long. Rhachis angular, 0.3–0.4 mm wide, drab or dark-coloured (purple), glabrous on surface, scabrous on margins, glabrous on margins or ciliate on margins. Rhachis hairs 0.3–0.8 mm long. Spikelet packing adaxial, 3.5–6 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.3–0.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, obtuse or subacute, 1.7–2.3 mm long, 0.6–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, purple, 4–5 -veined. Upper glume primary vein absent or obscure. Upper glume surface puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, purple, 4–5 -veined, with obscure midvein, puberulous, hairy between veins. Fertile lemma 1.7–2.3 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espírito Santo, São Paulo Paraná.

**Axonopus moronei** Giraldo-Cañas. *Caldasia* 20(2): 88, f. 1–2. 1998.

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Guaviare: Mun. San José del Guaviare, inspección de La Fuga, sabanas naturales de La Fuga, 200 m, Mar 1996, D. Giraldo-Cañas & R. López 2624 (HT: COAH; IT: COL, HUA, MO, SI).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Osvaldo Morrone (fl. 1993) Argentinian botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations flabellate. Culms slender, 6–20 cm long. Culm-internodes 2–3.8 cm long. Culm-nodes black, glabrous. Lateral branches lacking. Leaf-sheaths 1–4.4 cm long, keeled, glabrous on surface, outer margin hairy. Ligule a ciliate membrane, 0.1–0.3 mm long. Leaf-blades lanceolate, flat or conduplicate, 1.2–5.8 cm long, 3–6 mm wide. Leaf-blade surface scaberulous, pilose. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 2.4–11.7 cm long, glabrous. Racemes 3, digitate, ascending, unilateral, 2–3.5 cm long. Central inflorescence axis 0.4–0.9 cm long. Rhachis angular, with scattered hairs, scaberulous on margins. Spikelet packing adaxial, regular, 2-rowed. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 1.2–1.4 mm long, 0.5–0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of adjacent fertile lemma, 1 length of spikelet, membranous, without keels, 0–2 -veined. Upper glume primary vein absent. Upper glume lateral veins absent or obscure.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of fertile lemma, 1 length of spikelet, 0–2 -veined, without midvein, without lateral veins or obscurely veined. Fertile lemma elliptic, 1.2–1.4 mm long, indurate, yellow, shiny, without keel. Lemma surface papillose. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Lodicules 2, 0.3 mm long. Anthers 3, 1–1.2 mm long, purple.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Western South America. Colombia.

**Axonopus multipes** Swallen. *Journ. Wash. Acad. Sc.* 23: 459 (1933).

Regarded by K as a synonym (*A. compressus*).

**TYPE** from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 6578, 31 Aug 1910, Mexico: Veracruz: sandy prairie, at sea level (US-928824).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. multus*, many; *pes*, foot.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms geniculately ascending or decumbent, 10–15 cm long, 1 -noded. Culm-nodes glabrous. Leaf-sheaths 2–8 cm long, glabrous on surface. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades 3–6 cm long, 4–7 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex obtuse, soon splitting.

**Inflorescence.** Inflorescence composed of racemes, with 3–4 peduncles per sheath. Peduncle 6–8 cm long. Racemes 2, paired, erect or ascending, unilateral, 4–6 cm long. Central inflorescence axis 0 cm long. Rhachis angular, 0.6–0.7 mm wide, drab or dark-coloured (purple), glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 4–6 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, obtuse to acute, 2.8–3 mm long, 1–1.4 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, mid-green or purple, 5–7 -veined. Upper glume margins eciliate or pubescent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.4 length of fertile lemma, 1 length of spikelet, mid-green or purple, 5–7 -veined, eciliate on margins or pubescent on margins. Fertile lemma 2–2.1 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. North America.

**Country /Province /State.** Mexico. Gulf (Mexico).

**TDWG4.** Veracruz.

**Axonopus obtusifolius** (Raddi) Chase. *Journ. Wash. Acad. Sc.* 1923, 13: 171 (1823).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum obtusifolium* Raddi, *Agrost. Bras.* 23. (1823). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Raddi s.n.*, no date, Brazil: Guanabara (PI; IT: FI, US-2942535 (fragm. ex PI)).

**Illustrations (Books):** S.A.Renvoize, *The Grasses of Bahia*, 1984 (196, Fig. 74), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1105, Fig. 218).

**Derivation** (Clifford & Bostock 2007): *L. obtusus*, blunt; *folium*, leaf. Apices of leaf-blades rounded.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes absent or short. Stolons present. Culms geniculately ascending, 20–75 cm long, 0–2 -noded. Culm-nodes bearded. Leaf-sheaths 3–20 cm long, keeled, glabrous on surface or pubescent. Ligule a ciliolate membrane, 0.4–0.5 mm long. Leaf-blades 2–30 cm long, 0.5–2.5 mm wide. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 15–50 cm long. Racemes 2, paired, ascending, unilateral, 3–8 cm long. Central inflorescence axis 0.5–3 cm long. Rhachis angular, 0.4–0.6 mm wide, drab, glabrous on surface, smooth on margins, glabrous on margins. Spikelet



packing adaxial, 3–4 spikelets per cm. Raceme-bases brief, glabrous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.3–0.5 mm long, tip rectangular.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, acuminate, 3.5–5.1 mm long, 1.3–1.5 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 3–5 -veined. Upper glume primary vein absent or obscure.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.4 length of fertile lemma, 1 length of spikelet, 3–5 -veined, without midvein or with obscure midvein. Fertile lemma elliptic or ovate, 2.5–3.1 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast, Brazil Southeast, Brazil South.

**TDWG4.** Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Misiones.

**Axonopus oiapocensis** G.A. Black. *Advancing Frontiers of Plant Sciences* 5: 154, t. 13. 1963.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. von Luetzelburg* 20299, Jul 1927, Brazil: Amapa: Roca Momperi (IAN; IT: R, US-2236059 (fragm. ex IAN & photo)).

**Illustrations (Books):** E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (104, Fig 14).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Oiapoque, Amapa, Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Annual. Culms 50 cm long, 1 -noded. Culm-nodes bearded. Lateral branches lacking. Leaf-sheaths 5–8 cm long, keeled, papillose. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 0.2–0.3 mm long. Leaf-blades 5–10 cm long, 2–4 mm wide. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 2–7 peduncles per sheath. Peduncle 10–20 cm long. Racemes 2, paired, ascending, unilateral, 1–2.5 cm long. Central inflorescence axis 0 cm long. Rhachis angular, 0.2 mm wide, drab, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 3–4 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or elliptic, dorsally compressed, acuminate, 2.1 mm long, 0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 4–5 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins obscure or distinct. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 4–5 -veined, without midvein or with obscure midvein, obscurely veined or distinctly veined, pubescent, hairy on veins. Fertile lemma 1.8–1.9 mm long, indurate, grey, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Southeast, Brazil North.

**Axonopus paschalis** (Stapf) Pilger. *Nat. Hist. Juan Fernandez & Easter Island* 2: 63 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

**TYPE** from Easter Island. **Basionym or Replaced Name:** *Paspalum paschale* Stapf, *Kew Bull.* 1913, 117. (1913). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Fuentes* 25, Apr 1911, Chile: Easter Island: common in hill of middle Island (K; IT: US-2942546 (fragm. ex K)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. pascha, Passover; -alis, pertaining. From Easter Island.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–80(–100) cm long. Ligule a ciliolate membrane, 0.3–0.7 mm long. Leaf-blades flat or conduplicate, 15–30 cm long, 0.5–0.8 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Racemes 3–6, digitate, unilateral, 7–14 cm long. Rhachis angular, glabrous on surface, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 2.5–3 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet. Fertile lemma elliptic, 2.5–3 mm long, indurate, without keel. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Anthers 3. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** Pacific.

**Country /Province /State. South-central Pacific.** Easter Is.

**Axonopus passourae** G. A. Black. *Advanc. Front. Pl. Sci.* 5 :117 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from French Guiana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: G.A. Black & R. Klein 54–17090, 21 Oct 1954, French Guiana: Campo de Passoura, robusto, em brejo (IAN; IT: CAY, MO-2369280 (fragm. ex CAY), US-2303299).

**Illustrations (Books):** E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (104, Fig. 14).

**Derivation** (Clifford & Bostock 2007): from Campo de Passoura, near Kouran, French Guiana.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, robust, 120 cm long, 2–5 -noded. Culm-internodes elliptical in section. Culm-nodes pubescent. Leaves without demarcation between sheath and blade. Leaf-sheaths 20–40 cm long, keeled, pilose. Ligule a ciliate membrane, 0.7 mm long. Leaf-blades flat or conduplicate, 10–40 cm long, 5–7 mm wide, stiff. Leaf-blade surface glabrous, hairless except near base.

**Inflorescence.** Inflorescence composed of racemes, with 3 peduncles per sheath. Peduncle 45–50 cm long. Racemes 7–9, digitate, erect or ascending, unilateral, 10–20 cm long. Central inflorescence axis 4–5 cm long. Rhachis angular, 0.5 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 6.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present, reduced to a stump, ciliate, hairy at base, with 1–3 mm long hairs.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, obtuse, 1.8–2 mm long, 0.8–0.9 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume primary vein obscure or distinct.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 5–7 -veined, with obscure midvein or with evident midvein. Fertile lemma 1.8–2 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America.** French Guiana.

**Axonopus paucisetosus** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 170 (1963).

Regarded by K as a synonym (*A. aureus*).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: J.R. Swallen 4053, 20–25 Mar 1934, Brazil: Maranhco: Carolina to Santo Antonio de Balsas, among rocks, top of rocky hill (US-1613825).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. paucus*, few; seta, bristle; -osa, abundance. Rhachis with fewer hairs than related species.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 80 cm long, 3–4 -noded. Culm-internodes elliptical in section. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 5–25 cm long. Ligule a ciliate membrane, 0.3 mm long. Leaf-blades flat or conduplicate, 10–20 cm long, 2–3 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex acuminate, filiform.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 25–40 cm long. Racemes 2–4, paired or digitate, ascending, unilateral, 6–13 cm long. Central inflorescence axis 0–2 cm long. Rhachis angular, 0.6–0.7 mm wide, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 9–10 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present, reduced to a stump, ciliate, hairy at base, with 1–2 mm long hairs.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, compressed slightly, obtuse, 1.6–1.7 mm long, 0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume 0.8–0.9 length of spikelet, membranous, 2–4 -veined. Upper glume primary vein absent. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 0.8–0.9 length of fertile lemma, 1 length of spikelet, 2–4 -veined, without midvein, pubescent, hairy between veins. Fertile lemma 1.6–1.7 mm long, indurate, dark brown, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast. Maranhao, Piaui.

**Axonopus pellitus** (Nees ex Trin.) Hitchcock & Chase. *Contrib. US. Nat. Herb.* 18: 301 (1917).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum pellitum* Nees ex Trin., *Gram. Panic.* 89. (1826). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sello l.a Sello l. s.n.*, In Brasilia (LE-TRIN-0507.01; IT: B, BAA-325 (fragm. ex B), US-1258173, US-2942521 (fragm. ex LE), US-2855755). dt absque nom. am. Link.

**Illustrations (Books):** S.A.Renouze, *The Grasses of Bahia*, 1984 (196, Fig. 74).

**Derivation** (Clifford & Bostock 2007): L. covered with skins. The fertile floret(s) is protected by hairy investing glumes or sterile florets.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths persistent and investing base of culm, with curly dead sheaths. Culms robust, 200 cm long, 2–7 -noded. Culm-nodes pubescent. Leaf-sheaths 10–60 cm long, without keel, hirsute. Leaf-sheath oral hairs lacking or ciliate. Ligule a ciliolate membrane, 0.3–1 mm long. Leaf-blades conduplicate, 10–75 cm long, 3–5 mm wide. Leaf-blade surface hirsute, densely hairy.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 30–75 cm long. Racemes numerous, 25–50, borne along a central axis, ascending, unilateral, 9–18 cm long. Central inflorescence axis 7–18 cm long. Rhachis angular, 0.3–0.5 mm wide, drab or dark-coloured (purple), glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5–9 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.2–0.5 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, obtuse, 1.5–2.5 mm long, 0.5–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1–1.2 length of fertile lemma, 1 length of spikelet, 5 -veined, pubescent, hairy between veins. Fertile lemma 1.5–2 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central, Brazil Northeast, Brazil Southeast.

**TDWG4.** Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

**Axonopus pennellii** G. A. Black. *Advanc. Front. Pl. Sci.* 5:142 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.W. Pennell 1539*, 26–31 Aug 1917, Colombia: Meta: Villavicencio, sandy open hillside, near Rmo Guatiquia, alt. 700–900 m, herb (US-1041805).

**Recent Synonyms:** *Axonopus hoehnei* G.A. Black, *Advancing Frontiers of Plant Sciences* 5: 143, t. 9 (1963).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Francis Whittier Pennell (1886–1952) United States botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 75 cm long. Culm-nodes pubescent. Leaves mostly basal. Leaf-sheaths 5–25 cm long. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades flat or conduplicate, 10–25 cm long, 5–10 mm wide. Leaf-blade surface scaberulous, rough adaxially, hirsute. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 2 peduncles per sheath. Peduncle 6 cm long. Racemes 18, digitate, ascending, unilateral, 9–14 cm long. Central inflorescence axis 3.5 cm long. Rhachis angular, 0.4–0.5 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 6.5 spikelets per cm. Raceme-bases brief, pubescent or pilose. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, acute, 1.6–1.7 mm long, 0.5–0.6 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2 -veined. Upper glume primary vein absent. Upper glume surface pubescent, hairy on veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein, pubescent, hairy on veins. Fertile lemma 1.6–1.7 mm long, indurate, light brown, shiny, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America, Western South America, Brazil.** Venezuela. Colombia.

**Axonopus perlongus** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 89 (1963).

Regarded by K as a synonym (*A. siccus*).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Chase 10730*, 4–5 Feb 1930, Brazil: Mato Grosso: Tres Lagoas, conspicuously gray, erect, sandy clay cerrado aberto, 300–325 m (US-1501001).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): per, very; longa, long. Panicle on a long stalk.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 120 cm long, 3–5 -noded. Culm-nodes pubescent. Leaf-sheaths 25–50 cm long, without keel. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.7 mm long. Leaf-blades involute, 25–50 cm long, 1–1.5 mm wide. Leaf-blade surface pilose, hairy adaxially. Leaf-blade apex attenuate, filiform.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 70 cm long. Racemes numerous, 30, borne along a central axis, ascending, unilateral, 20–30 cm long. Central inflorescence axis 15–25 cm long. Rhachis angular, 0.4–0.5 mm wide, drab, glabrous on surface, scaberulous on margins,

glabrous on margins. Spikelet packing adaxial, 5 spikelets per cm. Raceme-bases brief. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.3–0.4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, acuminate, 2.9–3 mm long, 0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume surface puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.4 length of fertile lemma, 1 length of spikelet, 5–7 -veined. Fertile lemma 2.1–2.2 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex acute, pubescent (few hairs). Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil. Brazil West Central, Brazil Southeast. Mato Grosso.

**Axonopus piccae** Giraldo-Caças. *Caldasia* 21(2): 133, f. 1–3. 1999.

**Accepted by:** W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Guainma: Laja with Indian clearing opposite junction of Rmo Negro, Brazo Casiquiare and Rmo Guanma, weedy area on laja, 65 m, 25 Jun 1984, G. Davidse & J. Miller 26620 (HT: COL; IT: MO, VEN).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): In honor of Pablo Picca (fl. 1999) Argentinian naturalist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Butt sheaths pubescent. Basal innovations flabellate. Culms robust, 70–110 cm long, 1–2 -noded. Culm-internodes 18–30 cm long, distally glabrous. Culm-nodes pubescent. Leaf-sheaths 10–33 cm long, glabrous on surface. Ligule a ciliate membrane, 1 mm long. Leaf-blades linear or lanceolate, 0.5–47 cm long, 4–20 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1–3 peduncles per sheath. Peduncle 40–70 cm long, scaberulous above, glabrous. Racemes 8–24, digitate, unilateral, 7–27 cm long. Central inflorescence axis 7–15 cm long. Rhachis angular, scaberulous on margins. Spikelet packing adaxial. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present, oblong or reduced to a stump, 0–2.5 mm long, scaberulous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, 2.2–2.9 mm long, 0.8–1 mm wide, falling entire. Floret callus glabrous or pubescent.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, membranous, without keels, 53 -veined. Upper glume lateral veins prominent. Upper glume surface pubescent. Upper glume margins scaberulous (above).

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1.1 length of fertile lemma, 1 length of spikelet, 5 -veined, pubescent. Fertile lemma elliptic, 1.9–2.4 mm long, 0.7–0.9 mm wide, indurate, yellow, shiny, without keel. Lemma surface papillose. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Lodicules 2, 0.3 mm long. Anthers 3, 0.7–1 mm long, purple. Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Northern South America, Western South America. Venezuela. Colombia.

**Axonopus poiophyllus** Chase. *Proc. Biol. Soc. Washington* 24: 133 (1911).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Guatemala. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O.F. Cook & C.B. Doyle* 58, Apr 1904, Guatemala: Alta Verapaz: in the vicinity of Secanquin, alt. 250–600 m (US-860024).

**Recent Synonyms:** *Axonopus lineatus* G. A. Black, *Advanc. Front. Pl. Sci.* 5: 67 (1963).

**Illustrations (Books):** W. Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (81, Fig. 22).

**Derivation** (Clifford & Bostock 2007): Gk. *poa*, grass; *phyllon*, leaf. Apices of leaf-blades boat-shaped as in *Poa*.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short, knotty. Culms erect, 25–100 cm long, 2–3 mm diam., 1–3 -noded. Culm-internodes thin-walled. Culm-nodes pubescent. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths mostly shorter than adjacent culm internode, keeled, outer margin hairy. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 13–33 cm long, 2–5 mm wide.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 6–25 cm long. Racemes 3–7, digitate, unilateral, 5–11 cm long. Central inflorescence axis 1–4 cm long. Rhachis angular, 0.5 mm wide, with scattered hairs, scabrous on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 2.5–2.8 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure or two, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1–2.5 mm long, 1–5 -veined. Upper glume ovate, 1 length of spikelet, membranous, without keels, 2 -veined. Upper glume primary vein absent. Upper glume surface pubescent, hairy at base. Upper glume margins pubescent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 2 -veined, without midvein, pubescent, hairy at base, pubescent on margins. Fertile lemma ovate, 2.2–2.5 mm long, indurate, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 1.5–1.8 mm long, purple. Caryopsis with adherent pericarp.

$2n = 60$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** **Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Western South America.** Belize, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Cuba. Colombia.

**TDWG4.** Puebla. Tamaulipas. Veracruz. Oaxaca. Chiapas.

**Axonopus polydactylus** (Steud.) Dedecca. *Bragantia*, 15: 273 (1956).

**Accepted by:** R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum polydactylon* Steud., *Syn. Pl. Gram.* 19 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. Salzmann s.n.*, no date, Brazil: Bahia (P; IT: US-2855750 (fragm. ex G, P)).

**Illustrations (Books):** S.A. Renvoize, *The Grasses of Bahia*, 1984 (196, Fig. 74).

**Derivation** (Clifford & Bostock 2007): Gk. *polys*, several; *daktylon*, finger. The panicle has several finger-like branches.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, culms solitary or caespitose. Rhizomes absent or elongated. Culms erect, 50–120 cm long. Culm-nodes glabrous. Leaf-sheaths 10–50 cm long, keeled. Ligule a ciliolate membrane, 0.2–0.5 mm long. Leaf-blades 10–60 cm long, 2–4 mm wide. Leaf-blade surface smooth or scabrous, glabrous to hirsute. Leaf-blade apex obtuse, soon splitting or simple.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 40–80 cm long. Racemes 7–30, digitate, ascending, unilateral, 5–30 cm long. Central inflorescence axis 4–10 cm long. Rhachis angular, 0.3–0.5 mm wide, glabrous on surface, smooth on margins or scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 8 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, bearing a few hairs or glabrous, hairy at base, with 0.2–1 mm long hairs.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret

male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, subacute, 1.4–1.9 mm long, 0.5–0.6 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein. Fertile lemma 1.4–1.9 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex acute, without ornament or pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Northern South America, Brazil. Venezuela. Brazil West Central, Brazil Northeast, Brazil Southeast.

**TDWG4.** Goias, Bahia, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe, Sao Paulo Parana.

**Axonopus polystachyus** G. A. Black. *Advanc. Front. Pl. Sci. (Grasses Gen. Axon.)* 62 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. Dusin 14404*, 16 Jan 1914, Brazil: Parana: Capco Bonito, ad marginem silvae primaeva in terra humida, ca. 780 m (US-2236070; IT: MO-878264).

**Recent Synonyms:** *Axonopus gracilis* G. Black, *Mem. New York Bot. Gard.* 9 (3): 254 (1957).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): G. polys, many; stachys, ear of corn. Plants with many branched culms or inflorescences.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes absent or short. Culms erect or geniculately ascending, 50–120 cm long, 1–5 -noded. Culm-internodes elliptical in section. Culm-nodes glabrous or pubescent. Lateral branches lacking or sparse. Leaves without demarcation between sheath and blade. Leaf-sheaths 15–30 cm long, longer than adjacent culm internode, glabrous on surface. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades ascending, linear or lanceolate, 10–30 cm long, 10–30 mm wide. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, terminal or terminal and axillary, with 1–4 peduncles per sheath. Peduncle 25–50 cm long. Racemes 2–20, digitate, ascending or spreading, unilateral, 5–20 cm long. Central inflorescence axis 3–5 cm long. Rhachis angular, 0.3–0.5 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4.8–7 spikelets per cm. Raceme-bases brief. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, acute, 2.2–2.3 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2–4 -veined. Upper glume primary vein absent. Upper glume surface glabrous or puberulous, hairy on veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 2–4 -veined, without midvein, glabrous or puberulous, hairy on veins. Fertile lemma 2 mm long, indurate, pallid or mid-green, without keel. Lemma margins involute. Lemma apex obtuse or acute, pubescent (few hairs). Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG).** Continent. South America.

**Country /Province /State.** Brazil. Brazil Southeast, Brazil South.

Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

**Axonopus pressus** (Steud.) L. Parodi. *Not. Mus. La Plata, Bot.*, 3: 23 (1938).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum pressum* Nees ex Steud., *Syn. Pl. Gram.* 23 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.F. Sellow 5638*, no date, Brazil (B; IT: BAA-2258 (fragm. ex B), P, US-2942557 (fragm.)).

**Recent Synonyms:** *Axonopus derbyanus* (Steud.) L. Parodi, *Not. Mus. La Plata, Bot.*, 3: 23 (1938).

**Illustrations (Books):** F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (52, Fig. 12).

**Derivation** (Clifford & Bostock 2007): L. compressed. Culms and leaf-sheaths compressed.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated, not obviously scaly or scaly. Culms robust, 80–120 cm long, 2–4 -noded. Culm-internodes elliptical in section. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths 10–40 cm long, outer margin hairy. Ligule a ciliolate membrane, 0.4–0.8 mm long. Leaf-blades erect or spreading, conduplicate, 10–30 cm long, 5–12 mm wide, stiff. Leaf-blade surface scabrous, glabrous or hirsute. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 20–50 cm long, smooth or scaberulous above. Racemes 4–30, digitate, ascending or spreading, unilateral, 10–30 cm long. Central inflorescence axis 5–7 cm long. Rhachis angular, 0.5–0.8 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5.5–7 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.2–0.5 mm long, glabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, obtuse or subacute, 2.2–2.7 mm long, 0.8–0.9 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein. Fertile lemma 2.2–2.7 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America, Brazil, Southern South America. Bolivia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Paraguay.

**TDWG4.** Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

### **Axonopus pruinosus** Henrard. *Blumea* 5: 527 (1945).

Regarded by K as a synonym (*A. anceps*).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Ule 8022*, Feb 1910, Brazil: Amazonas: auf Bergen bei Quarei am oberen Muiam (Miang) Surumu, Rio Branco (L-915.106–372; IT: IAN, K, MG, US-1574203, US-2941908 (fragm. ex K & photo)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. bluish-green. Leaf-blades are covered with short white hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Butt sheaths villous, with yellow hairs. Basal innovations flabellate. Culms robust, 100–120 cm long, 1–2 -noded. Culm-nodes pubescent. Leaf-sheaths 20–30 cm long, keeled, hirsute. Ligule a ciliolate membrane, 0.5–0.6 mm long. Leaf-blades conduplicate, 30–50 cm long, 6–10 mm wide, stiff, glaucous. Leaf-blade surface pubescent. Leaf-blade apex obtuse, soon splitting or asymmetrical.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 30–85 cm long. Racemes 10–35, borne along a central axis, ascending, unilateral, 4–15 cm long. Central inflorescence axis 10–20 cm long. Rhachis angular, 0.2–0.4 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.3–0.4 mm long, scabrous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, compressed slightly or moderately, subacute, 2.3–2.4 mm long, 0.9–1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume lateral veins prominent. Upper glume surface pubescent, hairy between veins.



**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 5 -veined, prominently veined, pubescent, hairy between veins. Fertile lemma 2.3–2.4 mm long, indurate, yellow or light brown, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Brazil. French Guiana, Venezuela. Brazil North. Roraima.

### **Axonopus pubivaginat** Henrard. *Blumea* 5: 276 (1942).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Surinam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.E. Rombouts 395H*, 20 Jan 1936, Surinam: boven Sipaliwini Kamp B (L; IT: IAN, K, MO-1575531, U, US-1914582).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. pubes, signs of puberty; vagina, sheath; -atum, possessing. Leaf-sheath hairy.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 75–100 cm long, 1–4 -noded. Culm-nodes pubescent. Leaf-sheaths 7–45 cm long, keeled, pubescent. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 10–50 cm long, 10–20 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or pubescent. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 30–90 cm long. Racemes 5–20, digitate, ascending, unilateral, 5–20 cm long. Central inflorescence axis 2–10 cm long. Rhachis angular, 0.3–0.7 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5–6.5 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets sessile or pedicelled. Pedicels absent or present, reduced to a stump, 0–0.7 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, subacute, 2.2–3.1 mm long, 0.7–1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1–1.2 length of fertile lemma, 1 length of spikelet, 5 -veined, pubescent, hairy between veins. Fertile lemma 2–2.5 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. French Guiana, Guyana, Surinam, Venezuela. Colombia. Brazil West Central, Brazil Northeast, Brazil North. Mato Grosso.

### **Axonopus purpusii** (Mez) Chase. *Journ. Wash. Acad. Sc.* 17: 144 (1927).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Paspalum purpusii* Mez, *Engl. Jahrb.* 56. *Beibl.* 125, 10 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.A. Purpus 2450*, May 1907, Mexico: Veracruz: Zacuapan and vicinity (B; IT: MO-2875301, US-591124, US-2855767 (fragm. ex B)).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (81, Fig. 22), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (54, Fig. 13).

**Derivation** (Clifford & Bostock 2007): in honor of Carl Albert Purpus (1853–1941) German-born United States botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms 50–80 cm long, 0.5–1 mm diam. Culm-nodes flush

with internodes, purple, glabrous or pubescent. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths mostly shorter than adjacent culm internode, keeled, glabrous on surface or pilose, outer margin hairy. Ligule a ciliolate membrane, 0.3–0.5 mm long. Collar pilose. Leaf-blades 15–25 cm long, 2–4 mm wide. Leaf-blade surface pilose, with tubercle-based hairs. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 12–17 cm long. Racemes 3–6, digitate, unilateral, 4–8 cm long. Central inflorescence axis 1–3 cm long. Rhachis angular, 0.4–0.5 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present, reduced to a stump, pubescent.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, 1.8–2.2 mm long, with hairs extending 0.1–0.3 mm beyond apex, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels, 2 -veined. Upper glume primary vein absent. Upper glume margins pubescent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 2 -veined, without midvein, pubescent on margins. Fertile lemma ovate, 1.7–2.1 mm long, indurate, without keel. Lemma margins involute. Lemma apex scabrous. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 1.2 mm long, purple. Caryopsis with adherent pericarp.  
 $2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State. Mexico.** Central Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America, Brazil, Southern South America.** Costa Rica, Guatemala, Honduras, Nicaragua, Panama. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Argentina Northeast, Paraguay.

**TDWG4.** Roraima, Para, Amapa, Mato Grosso, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Penambuco, Alagoas, Sergipe, Minas Gerais, Rio de Janeiro, Espirito Santo. Misiones. Puebla. Veracruz. Colima, Oaxaca. Campeche, Chiapas, Tabasco.

**Axonopus ramboi** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 134 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Rambo* 36460, 30 Jan 1948, Brazil: Rio Grande do Sul: Cambara, 29:S, 50:W, in dumetis (US-1935537).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Rambo who collected in Brazil.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Rhizomes elongated. Culms robust, 100–120 cm long. Culm-internodes elliptical in section. Leaf-sheaths 15–30 cm long. Ligule a ciliolate membrane, 1 mm long. Leaf-blades 15–30 cm long, 5–7 mm wide, stiff, light green. Leaf-blade surface smooth. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 2 peduncles per sheath. Peduncle 25–50 cm long. Racemes 12–17, digitate, ascending, unilateral, 7–12 cm long. Central inflorescence axis 2–5.5 cm long. Rhachis angular, 0.5 mm wide, dark-coloured (purple), glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile or pedicelled. Pedicels present, reduced to a stump, 0–0.3 mm long, bearing a few hairs, hairy at base.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, acute, 2.7–2.9 mm long, 0.8–0.9 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, purple, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2 length of fertile lemma, 1 length of spikelet, purple, 2 -veined, without midvein, obscurely veined. Fertile lemma 2.3–2.4 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.  
**Country /Province /State. Brazil.** Brazil Southeast, Brazil South.

**Axonopus ramosus** Swallen. *Contrib. U. S. Nat. Herb.* 29: 413 (1950).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Surinam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Maguire 24816*, 19 Sep 1944, Surinam: Tafelberg, joints in bed rock, Savanna I, alt. 565 m (NY; IT: F, U, US-1914998).

**Illustrations (Books):** E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (104, Fig. 14).

**Derivation** (Clifford & Bostock 2007): *L. ramus*, branch; -osa, abundance. Inflorescences or culms much branched.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect or geniculately ascending, slender, 15–80 cm long. Culm-internodes elliptical in section. Culm-nodes glabrous or pubescent. Lateral branches ample. Leaf-sheaths 2–4 cm long, longer than adjacent culm internode, narrower than blade at the collar, outer margin hairy. Ligule a ciliolate membrane, 0.2 mm long. Leaf-blades 3–5 cm long, 0.5–1 mm wide. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 20–40 cm long. Racemes 2–3, paired or digitate, spreading, unilateral, 3–7 cm long. Central inflorescence axis 0.5–1.5 cm long. Rhachis angular, 0.3 mm wide, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 7.5 spikelets per cm. Raceme-bases brief, glabrous. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, obtuse, 1.3–1.4 mm long, 0.5 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, dark brown, 2–4 -veined. Upper glume primary vein absent. Upper glume surface pubescent, hairy on veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, dark brown, 2–4 -veined, without midvein, pubescent, hairy on veins. Fertile lemma 1.3–1.4 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America.** French Guiana, Surinam, Venezuela.

**Axonopus rosei** (Scribn. & Merr.) Chase. *Proc. Biol. Soc. Washington* 24: 132 (1911).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Mexico. **Basionym or Replaced Name:** *Paspalum rosei* Scribn. & Merrill, *U.S. Dept. Agric. Bull. Agrost.* 24: 9. (1901). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.N. Rose 1995*, 4 Aug 1897, Mexico: Nayarit: foothills of the Sierra Madre Mountains, between Pedro Paulo and San Blascito (US-300888; IT: MEXU).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Joseph Nelson Rose (1862–1928) who collected widely in the Americas.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Culms erect, 60–70 cm long, 1-noded. Culm-nodes pubescent. Leaves mostly basal. Leaf-sheaths 3–15 cm long, as wide as blade at the collar. Ligule a ciliate membrane, 0.3 mm long. Leaf-blades flat or conduplicate, 10–20 cm long, 1.5–2 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 30–50 cm long. Racemes 2–3, paired or digitate, spreading, flexuous, unilateral, 5–9 cm long. Central inflorescence axis 0–1 cm long. Rhachis angular, 0.3 mm wide, dark-coloured (purple), glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 3.5 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate, dorsally compressed, acuminate, 4 mm long, 1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume surface glabrous or pubescent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 5–7 -veined, glabrous or puberulous. Fertile lemma 3.4 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** North America.

**Country /Province /State.** Mexico. Southwest Mexico.

**TDWG4.** Nayarit.

**Axonopus rosenfurtii** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 64 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Rosenfurt B 3818 1/2*, Jan 1944, Uruguay: Paysandz: Isla Queguay en el rmo Uruguay, de matas cultivadas en Monzsn-Heber (Soriano) (US-1865690; IT: SI (fragm.)).

**Illustrations (Books):** B.Rosenfurt, *Gramineas Uruguayas I* (1970) (295, Fig. 123).

**Derivation** (Clifford & Bostock 2007): in honor of Bernado Rosenfurt (1916-) who collected in South America.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms decumbent, 20–40 cm long, 1–3 -noded. Culm-internodes elliptical in section. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths 2–15 cm long, wider than blade at the collar, glabrous on surface. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles absent or erect. Ligule a ciliolate membrane, 0.8 mm long. Leaf-blades 8–12 cm long, 5–10 mm wide. Leaf-blade apex acute, hooded or simple.

**Inflorescence.** Inflorescence composed of racemes, with 2–4 peduncles per sheath. Peduncle 4–10 cm long. Racemes 2, paired, erect, unilateral, 4–9 cm long. Central inflorescence axis 0 cm long. Rhachis angular, 0.8 mm wide, drab, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 4.5–4.8 spikelets per cm. Raceme-bases brief. Spikelets appressed, solitary. Fertile spikelets sessile or pedicelled. Pedicels absent or present, reduced to a stump, 0–0.2 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, compressed slightly, acuminate, 2.7–3.2 mm long, 1–1.2 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 4–5 -veined. Upper glume primary vein absent or obscure. Upper glume surface glabrous or puberulous, hairy at base.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 4–5 -veined, without midvein or with obscure midvein, obscurely veined, glabrous or puberulous, hairy at base. Fertile lemma elliptic or ovate, 2.5–2.7 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Argentina Northeast, Uruguay.

**TDWG4.** Buenos Aires, Distrito Federal.

**Axonopus rupestris** G. Davidse. *Ann. Missouri Bot. Gard.* 74(2): 416 (1987).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Plowman et al. 8216*, 1 Feb 1980, Brazil: Goias: Mun. Presidente Kennedy: Road from Highway BR-153 to Itapora, 12 km west of village of Presidente Kennedy (MG; IT: MO-2890234; NY-233100, NY-346109).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. rupes*, rock; -estre, place of growth; Growing amongst rocks.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Basal innovations flabellate. Culms geniculately ascending, 10–35 cm long, 1–2 mm diam., 1–2 -noded. Culm-internodes thin-walled, distally glabrous. Leaves without demarcation between sheath and blade. Leaf-sheaths 7.5 cm long, with winged keel, glabrous on surface. Ligule a ciliate membrane, 0.5–0.6 mm long. Leaf-blades erect, conduplicate, 5–10 cm long, 2–4 mm wide. Leaf-blade surface glabrous or hirsute, sparsely hairy, hairy abaxially, with tubercle-based hairs. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Racemes 2(–3), paired, spreading, unilateral, 4.5–6.5 cm long. Central inflorescence axis 0(–1) cm long. Rhachis angular, 0.6 mm wide, glabrous on margins. Spikelet packing adaxial, 6 spikelets per cm, regular, 2 -rowed. Raceme-bases pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, obtuse, 2.9–3.5 mm long, 0.8–1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, exceeding apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume surface pilose, hairy between veins. Upper glume hairs 0.5–1 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 2.7–3.2 mm long, 0.9 length of spikelet, 4 -veined, without midvein, pilose, hairy between veins. Fertile lemma elliptic, 2.4–3.5 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Flower and Fruit.** Lodicules 2, fleshy. Anthers 3, 1–1.2 mm long, yellow.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil West Central, Brazil North.

**Axonopus scoparius** (Fluegge) Kuhl. *Comm. Linh. Telegr. Matto Grosso Amaz. Anexo 5*, Bot. 11: 45 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. **Basionym or Replaced Name:** *Paspalum scoparium* Fluegge, *Gram. Monog.* 124. (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *s.c. a:139 & b:8139*, (LE-TRIN-0528.01 (fragm. ex hrb. Willd., 1836)).

HT: *Humboldt & Bonpland s.n.*, Venezuela (P; IT: US-80014 (fragm. ex B-W, P)).

**Illustrations (Books):** M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (567), S.A.Renvoize, *Gramineas de Bolivia* (1998) (502, Fig. 111), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1128, Fig. 220), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (83, Fig. 23).

**Derivation** (Clifford & Bostock 2007): *L. scopae*, broom; -aria, pertaining to. Inflorescences condensed resembling a broom.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rootstock evident. Stolons absent or present. Culms erect, robust, 100–150 cm long, 3–7 mm diam. Culm-internodes solid. Lateral branches lacking or sparse. Leaf-sheaths keeled. Ligule a ciliolate membrane, 1–2.7 mm long. Collar pubescent. Leaf-blades 15–50 cm long, 5–30 mm wide. Leaf-blade surface hirsute, with tubercle-based hairs. Leaf-blade apex acute.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 15–30 cm long. Racemes numerous, borne along a central axis, unilateral, 6–12 cm long. Central inflorescence axis 7–15 cm long. Rhachis angular, with scattered hairs or glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 2.7–2.9 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, purple, without keels, 3 -veined. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 3 -veined, with evident midvein, pubescent, hairy between veins.

Fertile lemma oblong, 2.2–2.4 mm long, indurate, without keel. Lemma surface striate. Lemma margins involute. Lemma apex obtuse, scabrous. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 1.5–1.7 mm long, purple. Caryopsis with adherent pericarp.

$2n = 20$  (1 ref TROPICOS).

**Distribution (TDWG). Continent.** North America, South America.

**Country /Province /State.** Mexico. Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America, Brazil.** Costa Rica, El Salvador, Honduras, Nicaragua, Panama. Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Southeast.

Oaxaca. Chiapas.

### **Axonopus senescens** (Doell) Henrard. *Blumea* 5: 529 (1945).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from French Guiana. **Basionym or Replaced Name:** *Paspalum senescens* Doell, *Mart. Fl. Bras.* 2 (2) 119. (1877). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.R. LePrieur* 264, 1838, French Guiana (P; IT: K, MO-1639988, US-80016 (fragm. ex BR, P)).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): *L. senesco*, grow old. Leaf-blades with indumentum of white hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 50–100 cm long, 1–2 -noded. Culm-internodes elliptical in section, distally glabrous. Leaves without demarcation between sheath and blade. Leaf-sheaths 5–20 cm long, keeled, outer margin hairy. Ligule a ciliolate membrane. Leaf-blades 15–30 cm long, 3–5 mm wide. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade apex abruptly acute, hooded.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle glabrous. Racemes digitate, ascending, unilateral, 5–13 cm long. Central inflorescence axis 0.5–2 cm long. Rhachis angular, 0.5–0.7 mm wide, villous on surface, scabrous on margins, setose on margins. Rhachis hairs white, 2–3 mm long. Spikelet packing adaxial, 7–10 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.1–0.2 mm long, bearing a few hairs, hairy at tip.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse to acute, 1.6–1.7 mm long, 0.6 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2 -veined. Upper glume primary vein absent. Upper glume lateral veins prominent. Upper glume surface pilose, hairy on veins, without hair tufts or with an apical beard.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein, prominently veined, pilose, hairy on veins, without hair tufts or with conspicuous apical hairs. Fertile lemma 1.6–1.7 mm long, indurate, yellow, dull, without keel. Lemma surface with conspicuous apical hairs. Lemma margins involute. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Western South America, Brazil. French Guiana. Colombia. Brazil North.

### **Axonopus siccus** (Nees) Kuhlm. *Comm. Linh. Telegr. Matto Grosso, Amaz. Anexo* 5, Bot. 11: 87 (1922).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum siccum* Nees, *Agrost. Bras.* 28. (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: Brazil: Minas Gerais (LE-TRIN-0533.01 (fragm. ex hb. reg. Monac. & illustr. no. 582, 1836)). Herb. reg. Monac. ill. no 582 1836. HT: *K.F.P. von Martius s.n.*, no date, Brazil: Minas Gerais: Adamantiem Dist. (M; IT: LE, US-80020 (fragm.)).

**Recent Synonyms:** *Axonopus malmei* G. A. Black, *Advanc. Front. Pl. Sci.* 5: 101 (1963). *Axonopus pilosus* G. A. Black, *Advanc. Front. Pl. Sci.* 5:100 (1963).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1105, Fig. 218), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (57, Fig. 14).

**Derivation** (Clifford & Bostock 2007): *L. dry.* Growing on dry grassy plains.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms slender, 50–90 cm long, 1–4 -noded. Culm-internodes terete. Leaf-sheaths without keel. Ligule a ciliate membrane, 0.2–0.3 mm long. Leaf-blades erect, curved, conduplicate or involute, 5–40 cm long, 2–7 mm wide, stiff. Leaf-blade surface glabrous.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 25–50 cm long. Racemes 4–30, borne along a central axis, ascending or spreading, unilateral, 5–15 cm long. Central inflorescence axis 3–15 cm long. Rhachis angular, 0.3–0.4 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 6–10 spikelets per cm. Raceme-bases brief, glabrous or pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.2–0.4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, obtuse or subacute, 1.6–2.1 mm long, 0.6–0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume lateral veins ribbed. Upper glume surface glabrous or puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 5 -veined, ribbed, glabrous or puberulous, hairy between veins. Fertile lemma 1.6–2.1 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Western South America, Brazil, Southern South America.** Bolivia. Brazil West Central, Brazil Southeast, Brazil South. Argentina Northwest, Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Mato Grosso, Goias, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Jujuy, Salta, Tucuman. Corrientes, Entre Rios, Misiones.

**Axonopus steyermarkii** Swallen. *Fieldiana, Botany* 28(1): 20. 1951.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.A. Steyermark 58001*, 26 Aug 1944, Venezuela: Amazonas: Cerro Duida, Southeastern-facing slopes of sandstone bluffs near Caqo Negro (tributary of Caqo Iguapo), moist bluffs, alt. 1095–1520 m (US-1911649).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (62, Fig. 37).

**Derivation** (Clifford & Bostock 2007): in honor of Julian Alfred Steyermark (1909–1988) United States botanist who worked principally in Venezuela.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms 40–60 cm long, 1 -noded. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 6–10 cm long, wider than blade at the collar, keeled. Leaf-sheath auricles erect. Ligule a ciliolate membrane, 0.4–0.5 mm long. Leaf-blades 15–25 cm long, 5–7 mm wide. Leaf-blade apex obtuse, soon splitting or simple.

**Inflorescence.** Inflorescence composed of racemes, with 2–3 peduncles per sheath. Peduncle 20–30 cm long. Racemes 3–4, digitate, ascending, unilateral, 6–9 cm long. Central inflorescence axis 2–4 cm long. Rhachis angular, 0.3 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 3.5–4.5 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 1 mm long, puberulous.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, acute, 2.8–3 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, dark brown, 5 -veined. Upper glume surface glabrous or puberulous, hairy between veins, without hair tufts or with an apical beard.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, dark brown, 5 -veined, with unevenly spaced veins (near margin), glabrous or puberulous, hairy between veins, without hair tufts or with conspicuous apical hairs. Fertile lemma elliptic, 2.5 mm long, indurate, light brown, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.  
**Distribution (TDWG). Continent.** South America.  
**Country /Province /State.** Northern South America. Venezuela.

**Axonopus succulentus** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 134 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Paraguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Rojas 6176*, Feb 1933, Paraguay: Cordillera: campo serrania, Ybytymi Cordillerita, 25:46'S, 56:48'W, perenne 60–80 cm (US-2012951; IT: BAA).

**Illustrations (Books):** F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (61, Fig. 15).

**Derivation** (Clifford & Bostock 2007): L. succus, juice; -ulentus, well developed. Foliage a useful fodder.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 60–120 cm long, 3–4 -noded. Culm-nodes glabrous. Leaf-sheaths 8–30 cm long. Leaf-sheath auricles absent or erect. Ligule a ciliate membrane. Leaf-blades 10–50 cm long, 10–20 mm wide, light green or glaucous. Leaf-blade surface smooth, glabrous. Leaf-blade apex obtuse, soon splitting or simple.

**Inflorescence.** Inflorescence composed of racemes, with 2–3 peduncles per sheath. Peduncle 30–45 cm long. Racemes 15–25, digitate, ascending, unilateral, 8–18 cm long. Central inflorescence axis 5–8 cm long. Rhachis angular, 0.4 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5–5.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present, reduced to a stump, bearing a few hairs, hairy at base.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, obtuse or subacute, 2.4–2.5 mm long, 0.7–0.9 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, purple, 2 -veined. Upper glume primary vein absent. Upper glume surface pubescent, hairy on veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein, pubescent, hairy on veins. Fertile lemma 2.4–2.5 mm long, indurate, light brown or dark brown, shiny, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Southern South America. Paraguay.

**Axonopus suffultiformis** G. A. Black. *Mem. N. Y. Bot. Gard.* 9: 253 (1957).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Maguire, Cowan & Wurdack 30520*, 1 Jan 1951, Venezuela: Amazonas: Cerro Yapacana, Rmo Orinoco, locally frequent, conduplicate, NW slopes, (US-2040241).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (62, Fig. 36 as var. *suffultiformis*).

**Derivation** (Clifford & Bostock 2007): L. forma, appearance. Similar in appearance to *Axonopus suffultus*.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Basal innovations flabellate. Culms erect, 100 cm long, 1–2 -noded. Culm-nodes glabrous. Leaf-sheaths 8–9 cm long, keeled. Ligule an eciliate membrane, 0.2 mm long. Leaf-blades persistent or deciduous at the ligule, conduplicate, 20–40 cm long, 10–12 mm wide, stiff, light green. Leaf-blade surface glabrous. Leaf-blade apex obtuse, soon splitting or simple.

**Inflorescence.** Inflorescence composed of racemes, with 2 peduncles per sheath. Peduncle 25–30 cm long. Racemes 9, digitate, ascending, unilateral, 5–12 cm long. Central inflorescence axis 1–3.5 cm long. Rhachis angular, 0.3 mm wide, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 10 spikelets per cm. Raceme-bases brief, pubescent or pilose. Spikelets appressed, solitary. Fertile spikelets sessile or pedicelled. Pedicels present, reduced to a stump, 0–0.4 mm long, ciliate, hairy at base, with 0.5–0.8 mm long hairs.



**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, obtuse, 2 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, light green, 5 -veined. Upper glume surface glabrous or puberulous, hairy at base.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, light green, 5 -veined, glabrous or puberulous, hairy at base. Fertile lemma 2 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex acute, without ornament or pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Axonopus suffultus** (Mikan ex Trin.) L. Parodi. *Not. Mus. La Plata, Bot.*, 3: 23 (1938).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum suffultum* Mikan ex Trin., *Spreng. Neue Entdeck.* 2: 46 (1821). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.S. Mikan*, In Brasilia (LE-TRIN-0537.07 (& illustr.); IT: US-80029 (fragm. ex LE)).

**Illustrations (Books):** L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1105, Fig. 218 & 1135, Fig. 221), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (415, Fig. 174), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (502, Fig. 130), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (63, Fig. 16), B.Rosengurtt, *Gramineas Uruguayas* (1970) (282, Fig. 121).

**Derivation** (Clifford & Bostock 2007): *L. suffulcio*, support from beneath. Rhizome raised off the soil by prop roots.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms 40–120 cm long. Culm-nodes glabrous. Ligule a ciliolate membrane. Leaf-blades 10–60 cm long, 2–6 mm wide. Leaf-blade apex abruptly acute.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Racemes 10–25, digitate, ascending, unilateral, 3–10 cm long. Rhachis angular, 0.6 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 5.5 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.2–0.3 mm long, ciliate, hairy at base, with 1–1.5 mm long hairs.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, obtuse, 2.3 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, hyaline, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, hyaline, 2 -veined, without midvein. Fertile lemma 2.3 mm long, indurate, dark brown, shiny, without keel. Lemma margins involute. Lemma apex obtuse, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

*N* = 10 (1 ref TROPICOS).

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay.

**TDWG4.** Sao Paulo Parana, Catarina, Rio Grande do Sul. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe.

**Axonopus sulcatus** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 94 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: J.G. Kuhlmann 2073, 24 Apr 1924, Brazil: Para: Macapa: planta de campo a sombra de diversas arvores (US-1447872).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. sulcus, furrow; -ata, possessing. Fertile lemmas grooved.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, 80–100 cm long, 2–3 -noded. Culm-nodes bearded. Leaves basal and cauline. Leaf-sheaths 8–12 cm long, narrower than blade at the collar, keeled. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blade base cuneate or truncate. Leaf-blades 8–22 cm long, 7–10 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

**Inflorescence.** Inflorescence composed of racemes, with 2 peduncles per sheath. Peduncle 25 cm long. Racemes 10, digitate, ascending, flexuous, unilateral, 8–15 cm long. Central inflorescence axis 3 cm long. Rhachis angular, 0.5–0.6 mm wide, glabrous on surface, smooth on margins or scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 5 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.3–0.4 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, obtuse, 2 mm long, 0.7 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume lateral veins ribbed. Upper glume surface pubescent, hairy between veins. Upper glume hairs purple.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 5 -veined, ribbed, pubescent, hairy between veins, bearing purple hairs. Fertile lemma linear, 1.7–1.8 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG), Continent.** South America.

**Country /Province /State.** Brazil. Brazil North.

Para, Amapa.

**Axonopus surinamensis** (Steud.) Henrard. *Blumea* 5: 275 (1942).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Surinam. **Basionym or Replaced Name:** *Panicum surinamense* Hochst. ex Steud., *Syn. Pl. Gram.* 42 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Surinam, *Hostmann & Kappler 1283* (IT: IAN, K, US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. -ensis, denoting origin. From Surinam.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose, clumped densely. Basal innovations subterete or flabellate. Culms robust, 100–200 cm long, 3–5 mm diam., 1–3 -noded. Culm-internodes elliptical in section. Culm-nodes glabrous or pubescent. Lateral branches lacking. Leaves basal and cauline. Leaf-sheaths 15–50 cm long, keeled, hirsute. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades 10–40 cm long, 2–15 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, terminal or terminal and axillary, with 1–3 peduncles per sheath. Peduncle 35–100 cm long. Racemes 8–10, digitate, ascending or drooping, unilateral, 12–20 cm long. Central inflorescence axis 2–10 cm long. Rhachis angular, 0.4–0.5 mm wide, drab, glabrous on surface, scaberulous on margins, glabrous on margins. Spikelet packing adaxial, 5–6.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, subacute, 3–3.2 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume lateral veins prominent. Upper glume surface glabrous or puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.3–1.4 length of fertile lemma, 1 length of spikelet, 5 -veined, glabrous or puberulous, hairy

between veins. Fertile lemma 2.1–2.7 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America, Brazil. French Guiana, Guyana, Surinam, Venezuela. Brazil West Central, Brazil Northeast, Brazil North. Maranhao, Piaui.

**Axonopus swallenii** G. A. Black. *Advanc. Front. Pl. Sci.* 5: 92 (1963).

Regarded by K as a synonym (*A. pellitus*).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Para: Large erect or spreading clumps, open sandy land, Santarem, 19–26 Jan 1934, *J. R. Swallen 3258* (HT: US).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Jason Richard Swallen (1903–1991) United States botanist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Culms erect, robust, 120 cm long, 5–10 -noded. Culm-nodes pubescent. Leaves without demarcation between sheath and blade. Leaf-sheaths 20–30 cm long, keeled, hirsute. Ligule a ciliolate membrane, 0.7–0.8 mm long. Leaf-blades flat or conduplicate, 30 cm long, 5–12 mm wide. Leaf-blade surface hirsute, densely hairy. Leaf-blade apex attenuate.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 40 cm long. Racemes 14, borne along a central axis, ascending, unilateral, 8–12 cm long. Central inflorescence axis 7 cm long. Rhachis angular, 0.5–0.6 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 6.5–7.5 spikelets per cm. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets sessile or pedicelled. Pedicels absent or present, 0–0.2 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, acute, 2.5 mm long, 0.7–0.8 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5 -veined. Upper glume surface pubescent, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.1 length of fertile lemma, 1 length of spikelet, 5 -veined, pubescent, hairy between veins. Fertile lemma linear, 2.2 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex acute, without ornament. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil. Brazil North.

Para, Amapa.

**Axonopus tenuis** S.A. Renvoize. *Kew Bull.* 39(1): 182 (1984).

Regarded by K as a synonym (*A. aureus*).

**Accepted by:** U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Bahia: Lagoa Encantada, 19 km NW of Ibicoara, 1 Feb 1974, *R.M. Harley et al. 15788* (HT: CEPEC; IT: US).

**Illustrations (Books):** S.A. Renvoize, *The Grasses of Bahia*, 1984 (191, Fig. 72).

**Derivation** (Clifford & Bostock 2007): L. thin. Culms, leaf-blades or pedicels, slender.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms slender, 30–50 cm long. Ligule a ciliolate membrane. Leaf-blades filiform, 4–10 cm long, 1 mm wide. Leaf-blade apex acute or acuminate.

**Inflorescence.** Inflorescence composed of racemes. Racemes 2–4, paired or digitate, ascending, unilateral, 2.5–5 cm long. Central inflorescence axis 0 cm long. Rhachis angular, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, ciliate.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or oblong, dorsally compressed, obtuse, 1.2 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 2 -veined. Upper glume primary vein absent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 2 -veined, without midvein. Fertile lemma 1.2 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Brazil.** Brazil Northeast.

**TDWG4.** Bahia.

### **Axonopus triglochoides** (Mez) Dedecca. *Bragantia* 15 : 280 (1956).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. **Basionym or Replaced Name:** *Paspalum triglochoides* Mez, *Repert. Spec. Nov. Regni Veg.* 15: 61 (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Guainia: ad flum. Guainia, Rio Negro supra ostium fluminis Casiquiare, insula arenosa inundata fl. Guainia, *R. Spruce* 3756, 1854 (B; IT: BR, G-Bois., K, US-80055 (fragm.), W).

**Illustrations (Books):** J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (58, Fig. 28).

**Derivation** (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Triglochin*.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Stolons present. Culms 25–65 cm long, 1–2 -noded. Culm-internodes terete. Culm-nodes glabrous or pubescent. Leaves mostly basal, without demarcation between sheath and blade. Leaf-sheaths 8–20 cm long, without keel. Leaf-sheath oral hairs pubescent. Ligule a ciliate membrane, 0.3–0.4 mm long. Leaf-blades 10–30 cm long, 1–2 mm wide. Leaf-blade apex filiform.

**Inflorescence.** Inflorescence composed of racemes, with 1 peduncles per sheath. Peduncle 10–17 cm long. Racemes 2–3, paired or digitate, ascending, unilateral, 5–10 cm long. Central inflorescence axis 0 cm long. Rhachis angular, 0.3–0.4 mm wide, drab, glabrous on surface, smooth on margins, glabrous on margins. Spikelet packing adaxial, 2.5 spikelets per cm. Raceme-bases linear, 10–15 mm long, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, acuminate, 3.6–4 mm long, 1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 3–5 -veined. Upper glume surface puberulous, hairy between veins, without hair tufts or with an apical beard.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2 length of fertile lemma, 1 length of spikelet, 3–5 -veined, puberulous, hairy between veins, without hair tufts or with conspicuous apical hairs. Fertile lemma 3 mm long, indurate, pallid or yellow, without keel. Lemma margins involute. Lemma apex acuminate, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State. Northern South America, Western South America, Brazil.** Venezuela. Colombia. Brazil West Central.

Amazonas, Acre, Rondonia.

### **Axonopus uninodis** (Hackel) G. A. Black. *Advanc. Front. Pl. Sci.* 5: 102 (1963).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Brazil. **Basionym or Replaced Name:** *Paspalum uninode* Hack., *Denkschr. Akad. Wien, Math.-Nat.* 79: 67 (1908). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M. Wacket s.n.*, 1902, Brazil: Sco Paulo: Pilar, between Alto da Serra and Santos (W; IT: US-2856020).

**Illustrations (Books):** F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (65, Fig. 17).

**Derivation** (Clifford & Bostock 2007): L. unus, one; nodus, knot. Flowering culms with a single node.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Rhizomes short. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect, 50–80 cm long, 1–3 -noded. Culm-internodes elliptical in section, 20–35 cm long, yellow or purple, smooth, distally glabrous. Culm-nodes

pubescent or bearded. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths 6–14 cm long, glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.3 mm long. Collar glabrous. Leaf-blades filiform, involute, 17–60 cm long, 0.5–1 mm wide, stiff. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex acuminate, pungent, hardened, hairy.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 20–50 cm long, glabrous. Racemes 2–4(–7), digitate or borne along a central axis, erect or ascending, flexuous, unilateral, 4–8.5 cm long. Central inflorescence axis 2–6 cm long. Rhachis angular, 0.3–0.6 mm wide, drab, glabrous on surface, glabrous on margins. Spikelet packing adaxial, 2 -rowed. Raceme-bases glabrous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.2–0.6 mm long.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, acuminate, 4.2–4.5 mm long, 0.9 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 4–4.6 mm long, 1 length of spikelet, membranous, 5 -veined. Upper glume lateral veins obscure. Upper glume margins villous. Upper glume hairs 1–2.4 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 4.2–4.8 mm long, 1.3–1.4 length of fertile lemma, 1 length of spikelet, 5 -veined, obscurely veined, villous on margins, bearing hairs 1–2.4 mm long. Fertile lemma elliptic, 3–3.8 mm long, 0.8 mm wide, indurate, yellow, without keel. Lemma surface papillose. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Lodicules 2, cuneate, 0.2 mm long. Anthers 3, 2.7 mm long, purple. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Brazil, Southern South America. Brazil Southeast. Paraguay.

**Axonopus villosus** Swallen. *Fieldiana, Bot.*, 28 No. 1, 21 (1951).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: J.A. Steyermark 58226, 2 Sep 1944, Venezuela: Amazonas: summit of Cerro Duida, Savanna Hills, alt. 1025–1200 m (F; IT: US-1911651).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. villi, long weak hairs; -osa, abundance. The plant in whole or in part covered with long hairs.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial. Basal innovations flabellate. Culms robust, 70–200 cm long. Culm-nodes bearded. Leaves without demarcation between sheath and blade. Leaf-sheaths hirsute. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades conduplicate, 10–17 cm long, 6–10 mm wide, stiff. Leaf-blade surface hirsute.

**Inflorescence.** Inflorescence composed of racemes, with 2 peduncles per sheath. Racemes 4–6, digitate, ascending or spreading, unilateral, 7–16 cm long. Central inflorescence axis 2–5 cm long. Rhachis angular, 0.4 mm wide, glabrous on surface, scabrous on margins, ciliate on margins. Rhachis hairs 1–2 mm long. Spikelet packing adaxial, 4.5 spikelets per cm. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, subacute, 3.5–4 mm long, 1–1.2 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 5–7 -veined. Upper glume surface glabrous or puberulous, hairy between veins.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1.2 length of fertile lemma, 1 length of spikelet, 5–7 -veined, glabrous or puberulous, hairy between veins. Fertile lemma 3 mm long, indurate, yellow, without keel. Lemma margins involute. Lemma apex obtuse, pubescent. Palea involute, indurate.

**Flower and Fruit.** Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Axonopus volcanicus** R.W. Pohl. *Fieldiana, Bot., n.s.*, 4: 84 (1980).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: R.W. Pohl 12662, 30 Jun 1971, Costa Rica: Guanacaste: W Volcan de la Vieja, Los Capelares, 10:50'N, 85:21'W, 1400 m (ISC; IT: CR-69368).

**Illustrations (Books):** W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (85, Fig. 24).

**Derivation** (Clifford & Bostock 2007): L. *Vulcanus*, god of fire; *-icus*, belonging to. Collected from a volcanic peak in Costa Rica.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Culms erect, 30–80 cm long, 1–3 mm diam. Culm-internodes elliptical in section, thick-walled or solid. Lateral branches ample. Leaf-sheaths longer than adjacent culm internode, keeled, outer margin hairy. Ligule a ciliolate membrane, 0.7–0.9 mm long. Collar pilose. Leaf-blades 9–20 cm long, 4–7 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex obtuse, hooded.

**Inflorescence.** Inflorescence composed of racemes. Peduncle 6–15 cm long. Racemes 3–8, digitate, unilateral, 6–13 cm long. Central inflorescence axis 1–3 cm long. Rhachis angular, 0.5 mm wide, with scattered hairs, scabrous on margins, glabrous on margins. Spikelet packing adaxial. Raceme-bases brief, pilose. Spikelets appressed, solitary. Fertile spikelets sessile.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 3–3.5 mm long, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume ovate, 1 length of spikelet, membranous, without keels, 4–5 -veined. Upper glume primary vein absent or obscure. Upper glume surface pubescent, hairy at base. Upper glume margins pubescent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1 length of spikelet, 4–5 -veined, without midvein or with obscure midvein, pubescent, hairy at base, pubescent on margins. Fertile lemma elliptic, 2.5–3.1 mm long, indurate, without keel. Lemma surface striate. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 2.2 mm long, purple. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Mesoamerica. Costa Rica.

**Axonopus yutajensis** G. Black. *Mem. N. Y. Bot. Gard.* 9: 251 (1957).

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: B. Maguire & C.K. Maguire 35265, 15 Feb 1953, Venezuela: Amazonas: Cerro Yutaje, Serrania Yutaje, Rmo Manapiare, along fork of Caqo Yutaje, 1300–1400 m, clumped about 1 m high, common, thickets along fork of Caqo Yutaje (US-2116108).

**Recent Synonyms:** *Axonopus arundinaceus* G. Black, *Mem. N. Y. Bot. Gard.* 9: 251 (1957).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Cerro Yutaje, Venezuela.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Basal innovations flabellate. Culms erect, robust, 75–100 cm long, 1–2 -noded. Culm-nodes glabrous. Lateral branches sparse. Leaves mostly basal. Leaf-sheaths 6–35 cm long, keeled. Ligule a ciliolate membrane, 0.3–0.4 mm long. Leaf-blades deciduous at the ligule, conduplicate, 5–30 cm long, 4–7 mm wide, stiff, light green. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 30–45 cm long. Racemes 5–8, digitate, ascending or spreading, unilateral, 10–20 cm long. Rhachis angular, 0.5 mm wide, drab, glabrous on surface, scabrous on margins, glabrous on margins. Spikelet packing adaxial, 4 spikelets per cm. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, reduced to a stump, 0.3–0.5 mm long, ciliate, hairy at base, with 1–3 mm long hairs.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic or ovate, dorsally compressed, obtuse, 2.5–2.8 mm long, 1–1.2 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume 1 length of spikelet, membranous, 7 -veined. Upper glume lateral veins prominent.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, 1 length of fertile lemma, 1 length of spikelet, 5–7 -veined. Fertile lemma 2.5–2.8 mm long, indurate, yellow or light brown, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea involute, indurate.

**Flower and Fruit.** Anthers 3, 1.2–1.3 mm long, purple. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Northern South America. Venezuela.

**Axonopus zuloagae** Giraldo-Caças. *Caldasia* 20(2): 89, f. 3–4. 1998.

**Accepted by:** R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

**TYPE** from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Guaviare: Mun. San Josi del Guaviare: serranma La Lindosa (Formacisn Araracuara), Ciudad de Piedra, 250 m, Mar 1996, *D. Giraldo-Caças & R. Lspez* 2588 (HT: COAH).

**Illustrations (Books):** No illustration found (BKS).

**Derivation** (Clifford & Bostock 2007): in honor of Fernando Zuloaga (194x-), Argentinean agrostologist.

**Classification.** Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

**Habit, Vegetative Morphology.** Perennial, caespitose. Cataphylls evident. Butt sheaths pubescent. Basal innovations flabellate. Culms 9–32 cm long. Culm-internodes 2–5 cm long. Culm-nodes pubescent. Leaf-sheaths 1.5–7 cm long, striately veined, glabrous on surface. Ligule a ciliate membrane, 0.1–0.3 mm long. Leaf-blades flat or conduplicate, 0.8–13 cm long, 1.5–2.4 mm wide. Leaf-blade surface scaberulous, glabrous, hairless throughout or except near base. Leaf-blade apex obtuse, hooded.

**Inflorescence.** Inflorescence composed of racemes, with 1–2 peduncles per sheath. Peduncle 6–22.5 cm long, glabrous. Racemes 2, paired, flexuous, unilateral, 1.8–4 cm long. Rhachis angular, scaberulous on margins. Spikelet packing adaxial. Raceme-bases brief, pubescent. Spikelets appressed, solitary. Fertile spikelets sessile or pedicelled.

**Fertile Spikelets.** Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets lanceolate or elliptic, dorsally compressed, acute, 2.6–3.8 mm long, 0.9–1.1 mm wide, falling entire.

**Glumes.** Glumes one the lower absent or obscure, reaching apex of florets, thinner than fertile lemma. Upper glume elliptic, 1 length of spikelet, membranous, without keels, 53 -veined. Upper glume lateral veins prominent. Upper glume surface glabrous or pilose. Upper glume hairs 0.1–1 mm long.

**Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1.1 length of fertile lemma, 1 length of spikelet, 5 -veined, glabrous or pilose, bearing hairs 0.1–1 mm long. Fertile lemma elliptic, 2–3 mm long, indurate, yellow, shiny, without keel. Lemma surface papillose. Lemma margins involute. Lemma apex pubescent. Palea involute, indurate.

**Flower and Fruit.** Lodicules 2, 0.3 mm long. Anthers 3, 1–1.2 mm long, purple. Caryopsis with adherent pericarp.

**Distribution (TDWG). Continent.** South America.

**Country /Province /State.** Western South America. Colombia.