

Calamagrostis agrostoides (Pursch) Pursch ex Spreng. *Systema Vegetabilium, editio decima sexta* 1: 252. (1825).

TYPE from USA. **Basionym or Replaced Name:** *Arundo agrostoides* Pursh, *Fl. Am. Sept.* 1: 86 (1814). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: T: *Anonymous s.n.*, no date, USA: New Jersey (US-78847 (fragm.)).

Recent Synonyms: *Agrostis vinealis* Schreb., *Spicil.* 47 (1771).

Illustrations (Books): W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1510, Pl. 222).

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. Europe, Temperate Asia, Tropical Asia.

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. : France. : Romania, Yugoslavia. Belarus, Estonia, North European Russia, South European Russia, Northwest European Russia, Ukraine. Siberia, Russian far east. Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva, West Siberia, Yakutiya. Amur, Kamchatka, Khabarovsk, Magadan, Primorye, Sakhalin. **Indian Subcontinent.** Eastern Himalaya, Pakistan, West Himalaya.

Calamagrostis ajanensis Kharkev. & Prob. *Bot. Zhurn. (Kiev)* 68 (10): 1409 (1983).

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, Chabarovsk, Ajan: *Charkevicz & Butsc* (VLA holo, LE).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 40–50(–110) cm long. Culm-internodes antrorsely scabrous. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 12–25 cm long, (6–)8–10 mm wide, stiff, glaucous. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, continuous or interrupted, 9–12 cm long, 1.3–2 cm wide. 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, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.15–0.25 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 8–11 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 8–11 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex attenuate.

Florets. Fertile lemma oblong, 5–7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.25 way up back of lemma, geniculate, 9.5–12.5 mm long overall. Palea 1 length of lemma.

Flower and Fruit. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russian far east. Primorye.

Calamagrostis alaica Litw. *Not. Syst. Herb. Hort. Petrop.* 2: 122 (1921).

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

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

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From the Alaj valley, Turkestan, former Soviet Union.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms geniculately ascending, 30–65 cm long, 3 -noded. Lateral branches lacking. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades 20–40 cm long, 1.5–5 mm wide, glaucous. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted or spiciform, linear or lanceolate, interrupted, 4–7 cm long. 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, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.75 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 lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -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, 6–8 mm long overall, with a straight or slightly twisted column. Rhachilla extension 1 mm long, pilose, with 3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Middle Asia, China. Turkmenistan.

TDWG4.

Calamagrostis alba (Presl) Steud. *Nom. ed.* 2, 1: 249 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia armata* (Doell) L. Parodi, *Rev. Argent. Agron.* 20: 14 (1953). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Hab. in Peruviae huanoccensibus montanis, *Haenke s.n.*

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (121, Fig. 38), B.Rosengurt, *Gramineas Uruguayas I* (1970) (24, Fig. 4 as ssp. *alba* & *tricholemma*).

Illustrations (Journals): *Darwiniana* (44(1): 145, fig.3 (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): L. white. Usually of spikelets, often due to the pale indumentum.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 40–80 cm long. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Leaf-blades 4–15 cm long, 3–6 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, interrupted, dense, 14–25 cm long, 2–3 cm wide. Primary panicle branches appressed, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

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, 7.5–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.2 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 attenuate. Upper glume lanceolate, 7.5–10 mm long, 1.7–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 4.5–5.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous. Lemma apex obtuse or acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.75–0.85 way up back of lemma, straight, spreading, 4.5–6 mm long overall. Rhachilla extension 1.8–2.1 mm long, pilose, hairy above.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, Southern South America. Brazil South. Argentina Northeast.

TDWG4. Buenos Aires, Cordoba, Corrientes, Entre Rios.

Calamagrostis altaica Tsvelev. *Akad. Nauk SSSR Bot. Inst. Komarova, Rast. Tsentral. Azii, Fasc. 4, 82* (1968).

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

TYPE from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A. Junatov 1462, China boreali-occidentalis (LE).

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

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Culms slender, 40–65 cm long, 2–3 -noded. Culm-internodes smooth. Lateral branches lacking. Ligule an eciliate membrane, 1.5–4 mm long, pubescent on abaxial surface. Leaf-blades 2–4 mm wide, mid-green. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 5–7 cm long, 0.7–1.4 cm wide. Primary panicle branches 0.5–2 cm long. 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 lanceolate, laterally compressed, 4–5 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. Lower glume lanceolate, 0.9 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 4–5 mm long, membranous, purple, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 2 -fid or 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 3.5–5.5 mm long overall, with twisted column. Palea 1 length of lemma. Rhachilla extension 0.8–1.3 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.8–2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Middle Asia. Turkmenistan.

Calamagrostis amoena (Pilger) Pilger. *Engl. Jahrb.* 42:60 (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 Bolivia. **Basionym or Replaced Name:** *Deyeuxia amoena* Pilg., *Engl. Jahrb.* 27: 28. (1899). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *M. Bang* 805, Apr 1890, Bolivia: Talca Chugiaguillo (US-821605, US-10994649, US-1099464).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (206, Fig. 44 as *Deyeuxia filifolia*).

Derivation (Clifford & Bostock 2007): L. beautiful. Attractive in appearance.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 20–50 cm long. Ligule an eciliate membrane. Leaf-blades flexuous, filiform, involute, 6–15 cm long, 1 mm wide, coriaceous. Leaf-blade surface scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 5–12 cm long, 1–2.5 cm wide. Primary panicle branches spreading, branching divaricately. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

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, 4.5–5.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4.5–5.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume surface glabrous or puberulous. Lower glume apex acute. Upper glume lanceolate, 4.5–5.5 mm long, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein ciliolate. Upper glume surface glabrous or puberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex dentate, 3–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, geniculate, 5–7 mm long overall, with a straight or slightly twisted column. Rhachilla extension 1.5–2 mm long, pubescent, hairy throughout but longer above, with 0.5–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest.

TDWG4. Jujuy, Salta, Tucuman.

Calamagrostis ampliflora Tovar. *Mem. Mus. Hist. Nat. Javier Prado*, No. 11, 16 (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 Peru. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 22327, 7 Nov 1923, Peru: Junin (US-1164092).

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

Derivation (Clifford & Bostock 2007): L. amplius, large; flos, flower. Spikelets large.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 100 cm long. Culm-internodes scaberulous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 7–10 mm long. Leaf-blades 25–55 cm long, 2–3 mm wide, coriaceous. Leaf-blade surface scabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 35 cm long, 9 cm wide. Primary panicle branches ascending, 15–23 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1 length of fertile spikelet, pubescent.

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, 6.5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.5 mm long. Floret callus pubescent. Floret callus hairs 0.5–0.7 mm long.

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 surface scabrous. Lower glume apex acute. Upper glume lanceolate, 6.5–8 mm long, 1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–6 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 6.5–7 mm long overall, with twisted column. Palea keels scaberulous. Rhachilla extension 2.5–3 mm long, pubescent, with 0.8–1.2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Calamagrostis angustifolia Komarov. *Not. Syst. Herb. Hort. Bot. U.S.S.R.* 6, 1 (1926).

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: ST: I.A.A. *Bulavkina*, ST: *Vasiliev s.n.*, 28 Aug 1923, Manchuria: fl. Sutschan, in valle rivuli Kamenka non prpcul a fossis Sutschanensibus.

Recent Synonyms: *Calamagrostis tenuis* Vassiliev, *Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS*, 8: 66 (1940).

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

Derivation (Clifford & Bostock 2007): *L. angustus*, narrow; folium, leaf. Leaf-blades narrow.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes elongated. Culms erect, 50–120 cm long, 4–5 -noded. Ligule an eciliate membrane, 3–5 mm long, lacerate, obtuse. Leaf-blades flat or involute, 1–2 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 7–12 cm long. 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 lanceolate, laterally compressed, 3.5 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, exceeding apex of florets, firmer than fertile lemma. 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, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, without a column. Rhachilla extension 0.8–1 mm long, pilose, with 3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russian far east, **China, Eastern Asia.** Amur, Khabarovsk, Magadan, Primorye, Sakhalin.

TDWG4.

Calamagrostis archboldii Hitchcock. *Brittonia*, 2: 115 (1936).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Deyeuxia*).

TYPE from Papua New Guinea. **Basionym or Replaced Name:** *Deyeuxia archboldii* (Hitchcock) Jansen, *Acta Bot. Neerl.* 1: 472 (1952). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *L.J. Brass* 4570, 20 Jul 1933, Papua New Guinea: New Guinea, Central, Murray, 2840 m (L, US-1614449). OS.

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

Derivation (Clifford & Bostock 2007): in honor of Richard Archbold (1907–1976) United States explorer and mammologist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–90 cm long. Culm-internodes distally glabrous. Culm-nodes purple. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–5 mm long, erose or lacerate. Leaf-blades 5–20 cm long, 1–3 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or pyramidal, 10–20 cm long. Primary panicle branches ascending, whorled at most nodes, 3–6 cm long. Panicle axis with lower internodes 3–5 cm long, smooth. Panicle branches 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 lanceolate, laterally compressed, 2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5 mm long, 0.2 length of lemma.

Glumes. Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 2 mm long, 1 length of upper glume, coriaceous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 2 mm long, 0.75–0.85 length of adjacent fertile lemma, coriaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate, 2.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.75–0.85 way up back of lemma, straight, 0.5–1 mm long overall. Palea 1 length of lemma. Rhachilla extension 0.5 mm long, pilose, with 2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuaia. New Guinea PNG. New Guinea.

Calamagrostis arundinacea (L.) Roth. *Tent. Fl. Germ.* 2(1): 89 (1789).

Accepted by: R.J.Soreng et al., *Catalogue of 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 *Deyeuxia pyramidalis*), 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).

Basionym or Replaced Name: *Agrostis arundinacea* L., *Sp. Pl.* 1: 61 (1753)

. T:<Type of Basionym>; *fide* TROPICOS and Kew Synonymy Database: LT: *Amman* 26, (LINN-84.7). LT designated by Veldkamp in Cafferty et al., *Taxon* 49(2): 243 (2000).

Recent Synonyms: *Calamagrostis parviflora* Rupr., *Beitr. Pfl. Russ. Reich.* 4: 36 (1846). *Deyeuxia ampla* Keng, *Sunyatsenia* 6: 92 (1941).

Calamagrostis henryi (Rendle) P.C. Kuo & S.L. Lu ex J.L. Yang, *Fl. Sichuanica*, 5(2): 90 (1988).

Deyeuxia pyramidalis (Host) Veldkamp, *Blumea* 37(1): 230 (1992).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (182, Fig 64), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (270 & 272 as *Deyeuxia formosana* & *D. matsuda*), C-C Hsu, *Taiwan Grasses* (1975) (414, Pl. 1381 as *Deyeuxia* & *D. formosana* & *D. matsuda*), H.J.Noltie, *The Grasses of Bhutan* (2000) (611, Fig. 27), G.Hegi, *Flora von Mitteleuropa* 1 (1909), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 483).

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

Derivation (Clifford & Bostock 2007): *L. arundo*, reed; -acea, like. Culm tall, thereby resembling a reed.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 60–150 cm long. Lateral branches lacking. Ligule an eciliate membrane, 2–4 mm long, truncate or obtuse. Leaf-blades 8–50 cm long, 1.8–10 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above. Panicle open, lanceolate, continuous or interrupted, dense or loose, 8–18 cm long, 1–4 cm wide. 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 lanceolate, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.2–0.25 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–6 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 4–6 mm long, 1.5 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 4–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.25 way up

back of lemma, geniculate, 4–9 mm long overall, with twisted column. Palea hyaline, 2 -veined. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2.4–2.7 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 28$ (10 refs TROPICOS).

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

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

Country /Province /State. : Denmark, Finland, GB Aliens (Ryves et al), Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Poland, Switzerland. : France, Portugal, Spain. : Bulgaria, Greece, Italy, Romania, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. Siberia, Russian far east, **Caucasus, Western Asia, China, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Khabarovsk, Primorye, Sakhalin. China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, China Southeast, Tibet, Xinjiang. Japan, Korea, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China, Malesia, Papuaia.** Eastern Himalaya, India, Pakistan, West Himalaya. Philippines. New Guinea.

TDWG4. Hebei, Shaanxi, Shandong, Shanxi. Anhui, Fujian, Guangdong, Guangxi, Henan, Hunan, Jiangsu, Jiangxi, Zhejiang, Guizhou, Hubei, Sichuan, Yunnan. Bhutan. Tarapaca, Antofagasta, Atacama, Coquimbo.

Calamagrostis atjehensis Ohwi. *Bull. Tokyo Sci. Mus.*, No. 18, 13 (1947).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Deyeuxia*).

TYPE from Indonesia. **Basionym or Replaced Name:** *Deyeuxia atjehensis* (Ohwi) Jansen, *Acta Bot. Neerl.* 1: 470 (1952). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *C.G.G.J. van Steenis* 9583, 7 Mar 1937, Indonesia: Sumatra, Aceh, Kemiri, Gunung, 3314 m (L).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Mt Atjeh, Sumatra, Indonesia.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–50 cm long. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades involute, 10–15 cm long, 2.5–7 mm wide, stiff. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 10–15 cm long, 1.5–3 cm wide. Primary panicle branches 2–5 -nate. 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 cuneate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.2–0.33 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 5–6 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–4.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn from a sinus, straight, 0.5 mm long overall, not or scarcely exerted from spikelet. Palea keels smooth. Rhachilla extension 1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1–1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Calamagrostis aurea (Munro) Hack. ex Sodiro. *Gram. Ecuador.Anal. Univ. Quito*, 1889: 8 (1889).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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. **Basionym or Replaced Name:** *Deyeuxia aurea* Munro ex Wedd., *Bull. Soc. Bot. Fr.* 22: 176 (err. typ. 156), 179. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *W. Jameson s.n.*, 1859, Ecuador: in Andibus Quitensibus (S, LE).

HT: *Jameson* 836, Sep 1859, Ecuador: Pichincha (US-844972, US-149227).

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

Derivation (Clifford & Bostock 2007): L. golden-yellow.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 20–40 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 6–15 mm long, acuminate. Leaf-blades 8–15 cm long, 2–5 mm wide, stiff. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, oblong, 6–15 cm long. Primary panicle branches ascending. Panicle axis dominant. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, glabrous.

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 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, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume linear, 3.5–4.5 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 linear, 4–5 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 2 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, straight, 5–6 mm long overall. Rhachilla extension 0.5–1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 0.5 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador, Peru.

Calamagrostis australis (Moritz) Buse. *Miq. Pl. Jungh.* 343. (1854).

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

Basionym or Replaced Name: *Deyeuxia australis* (Zoll. & Mor.) Jansen, non Benth. & Hook. (1883), *Acta Bot. Neerl.* 1: 472 (1952). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: In rupibus montium Gedeh et Pangerango usque ad alt. 9000's.m., Feb 1844, *Zollinger 1916* (HT: L?).

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

Derivation (Clifford & Bostock 2007): L. of the south. From the south in general as from Africa, America, Europe or elsewhere.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 10–80 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–4 mm long, lacerate. Leaf-blades flat or involute, 4–30 cm long, 1–8 mm wide, light green or glaucous. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, equilateral or nodding, 2.5–26 cm long. Primary panicle branches whorled at lower nodes. Panicle axis smooth or scaberulous, pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–6 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, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose or bearded. Floret callus hairs 1.5–2.5 mm long, 0.33–0.5 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3.5–4 mm long, 0.9 length of upper glume, coriaceous, mid-green or purple, 1-keeled, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 4.5–5.5 mm long, 1.1 length of adjacent fertile lemma, coriaceous, mid-green or purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid or 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 5–8 mm long overall. Palea 1 length of lemma. Rhachilla extension 0.3–1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.25–1.5 mm long, anther tip penicillate. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuasia. Java, Lesser Sunda Is, Sulawesi, Sumatra. New Guinea.

Calamagrostis autumnalis Koidz. *Bot. Mag., Tokyo*, 1925, 9: 18 (1925).

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>: *vide* TROPICOS and Kew Synonymy Database: Japan, Mt. Kujusan: Koidzumi.

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

Derivation (Clifford & Bostock 2007): L. of the autumn. Flowering in autumn.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Rhizomes short. Culms geniculately ascending, 20–70 cm long, 0.7–1.2 mm diam., 3–5 -noded. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface or pilose. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles erect. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 10–30 cm long, 3–10 mm wide, stiff, glaucous. Leaf-blade venation prominent. Leaf-blade surface smooth.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 5–15 cm long, 1–2 cm wide. Primary panicle branches 2–4 -nate, 2–3.5 cm long. Panicle branches smooth to scabrous. 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 lanceolate, laterally compressed, 3.5–5 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. 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, 1 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein scabrous. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 3–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex erose, obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.66 way up back of lemma, straight, 3–4 mm long overall, without a column.

Flower and Fruit. Lodicules 2. Anthers 3, 1.8–2 mm long. Stigmas 2. Caryopsis with adherent pericarp, 2–2.2 mm long. Hilum punctiform. Dissemimule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Japan. Japan Kyushu.

Calamagrostis balkharica P. Smirn. *Bull. Soc. Nat. Mosc., Biol.*, n. s. 49, Livr. 1, 91. (1940).

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, Mt. Elbrus: Elenevsky (MW holo).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, culms solitary. Stolons present. Butt sheaths persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 50–70 cm long, 3 -noded. Lateral branches lacking. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–5 mm long, entire or lacerate, truncate or obtuse. Leaf-blades convolute, 15–25 cm long, 3–5 mm wide. Leaf-blade surface scabrous, glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 8–12 cm long. Primary panicle branches 2–4 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, 6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 4.5 mm long, 0.66–0.75 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 lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma elliptic or oblong, 2 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or asperulous. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal

lemma awn dorsal, arising 0.66–0.75 way up back of lemma, straight, 3 mm long overall, without a column. Palea 1.2 mm long.

Flower and Fruit. Lodicules 2, 0.4 mm long. Anthers 3, 1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, 1.2 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. North Caucasus.

TDWG4.

Calamagrostis bogotensis (Pilger) Pilger. *Bot. Jahrb.* 42:60 (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 Colombia. **Basionym or Replaced Name:** *Deyeuxia bogotensis* Pilger, *Engl. Jahrb.* 25: 712. (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Stbel 14a*, Colombia: *creciscit ad Bogota et locis vicinis* (B; IST: BAA-4365 (fragm. ex B), LE).

ST: *Stbel 111a*, Colombia: in paramo inter Usme et Pasca regionis Cundinamarca (B; IST: US-81865).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Bogota, Colombia.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms 80 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, obtuse. Leaf-blades convolute, 6–30 cm long, 2–3 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 17 cm long. 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, 4 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, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4 mm long, 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 lanceolate, 3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 4 mm long overall, with twisted column. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Northern South America, Western South America. Costa Rica. Venezuela. Colombia, Ecuador.

Calamagrostis bolanderi Thurb. *S. Wats. Bot. Calif.* 2 : 280 (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: IT: *H.N. Bolander 6471*, 1866, USA: California: Mendocino Co.: in swamps (GH, MO, UC, US-556717, US-556718).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (720).

Derivation (Clifford & Bostock 2007): in honor of Henry Nicholas Bolander (1831–1897) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 100–150 cm long. Culm-internodes smooth or scaberulous. Leaves cauline. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 4–5 mm long, scaberulous on abaxial surface. Leaf-blades 5–20 cm long, 5–9 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 10–20 cm long. Primary panicle branches spreading, whorled at most nodes, 5–10 cm long. Panicle axis smooth. Panicle branches scabrous. 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 lanceolate, laterally compressed, 3–4 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. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 3–4 mm long, 1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 3 mm long overall, clearly exerted from spikelet, with twisted column. Rhachilla extension 1–2 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southwestern USA. California.

Calamagrostis boliviensis Hackel. Fedde, *Repert. Nov. Sp.* 6: 156 (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 Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O. Buchtien 866*, 18 May 1907, Bolivia: La Paz: Berghange, 3700 m (W; IT: L, LIL, US-91121, US-3099590 (fragm. ex W)).

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

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Bolivia.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms erect, 10–30 cm long. Culm-internodes smooth. Leaf-sheaths smooth, glabrous on surface or puberulous. Ligule a ciliate membrane, 0.8–1.4 mm long, truncate. Leaf-blades flat or conduplicate or convolute, 2–10 cm long, 1.6 mm wide. Leaf-blade surface scabrous, rough on both sides, glabrous or puberulous, hairy on both sides. Leaf-blade margins ciliate. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 4–9 cm long, 0.5–1 cm wide. Primary panicle branches 0.5 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.4–1.6 mm long, scabrous, glabrous or puberulous.

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, 4–5.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.4–0.8 mm long, 0.1–0.15 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4–5.4 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 scabrous, rough above. Lower glume apex acuminate. Upper glume lanceolate, 3.8–5.2 mm long, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume surface scabrous, rough above. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 2.8–3.6 mm long, membranous, pallid or mid-green, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, rough above or on veins. Lemma apex dentate, 3–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 4–5.8 mm long overall, clearly exerted from spikelet, with twisted column. Palea 1.6–2 mm long. Rhachilla extension 1–1.2 mm long, pilose, with 1–1.4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, oblong, 0.4–0.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Calamagrostis boyacensis Swallen & Garc.-Barr. *Caldasia*, 2: 302 (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 B1461*, 12 Sep 1938, Colombia: Boyaca (US-1772994; IT: COL).

Recent Synonyms: *Calamagrostis weberbaueri* O. Tovar, *Publ. Mus. Hist. Nat. Javier Prado*, B, 32: 3 (1984).

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, caespitose. Culms 20–30 cm long. Ligule an eciliate membrane, 10–17 mm long. Leaf-blades flat or involute, 5–11 cm long, 2–3 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle contracted, elliptic, interrupted, 6–10 cm long, 2–3 cm wide. 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.5 mm long. Floret callus bearded. Floret callus hairs 4.5 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, 2.4–2.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2.5–2.8 mm long, membranous, without keel, more than 3-veined. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, straight, 6–8 mm long overall. Rhachilla extension pilose, with 3–4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador, Peru.

Calamagrostis brassii Hitchcock. *Brittonia*, 2: 116 (1936).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Deyeuxia*).

TYPE from Papua New Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.J. Brass 4205*, May 1933-Jul 1933, Papua New Guinea: New Guinea I., Central Div. (NY; IT: L, US-1819584, US-1614450).

Illustrations (Books): E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (65, Pl. 22 as *Calamagrostis*).

Derivation (Clifford & Bostock 2007): in honor of Leonard John Brass (1900–1971) Australian explorer and plant collector.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 75 cm long, 3–4 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades erect, involute, 1–3 mm wide, stiff. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle contracted or spiciform, linear, 10–12 cm long. Primary panicle branches 2–4 cm long. Panicle axis scaberulous. 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 lanceolate, laterally compressed, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1 mm long, 0.1–0.2 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 5 mm long, 1 length of upper glume, coriaceous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface puberulous. Lower glume apex

acuminate. Upper glume lanceolate, 5 mm long, 1.2 length of adjacent fertile lemma, coriaceous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface puberulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex dentate, 4 -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 0.8 length of lemma. Rhachilla extension 1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuasia. New Guinea PNG. New Guinea.

Calamagrostis breviaristata (Wedd.) Pilger. *Engl. Jahrb.* 42: 66 (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 Peru. **Basionym or Replaced Name:** *Deyeuxia breviaristata* Wedd., *Bull. Soc. Bot. Fr.* 22: 177, 179. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Weddell 3*, Peru austral (P).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*), *Ruizia* (13:186, Fig 20d-f (1993)).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 6–25 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–4.5 mm long, pubescent on abaxial surface. Leaf-blades conduplicate or involute, 2–6 cm long, 2–3 mm wide, stiff. Leaf-blade surface smooth or scaberulous, rough abaxially, pubescent, hairy adaxially. Leaf-blade margins ciliate. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 2–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 3.5–4.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 mm long.

Glumes. Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume lanceolate, 3.5–4.7 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 3–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 1–2 mm long overall. Rhachilla extension 1.5–2 mm long, pilose, with 2–2.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest, Chile North.

TDWG4. Jujuy, Salta. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca, Antofagasta, Atacama.

Calamagrostis brevifolia (Presl) Steud. *Nom. Bot.* ed.2, 1:240 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Deyeuxia brevifolia* J. Presl, *Rel. Haenk.* 1: 248. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Haenke*, Peru: mont. guanoc. (PR; IT: US-3048340 (fragm. ex PR)).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (208, Fig. 45 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *L. brevis*, short; *folium*, leaf. Leaf-blades shorter than those of some other species in the genus or relative to the length of the culm.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, cushion forming. Culms 15–45 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, truncate. Leaf-blades curved or flexuous, filiform,

involute, 2–8 cm long, 1 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins ciliate. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle contracted, oblong, 3.5–7 cm long, 1.2–1.8 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.6–1.3 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 smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein smooth or scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.2–4.8 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth or asperulous. Lemma apex dentate, 3–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight or flexuous, 3–4 mm long overall. Rhachilla extension 2–2.5 mm long, villous, with 3–4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Chile North.

TDWG4. Catamarca, Jujuy, La Rioja, Tucuman. Tarapaca.

Calamagrostis breweri Thurb. *S.Wats., Bot. Calif. 2:280 (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: IT: *W.H. Brewer 2128*, USA: California: Sierra Nevada Mountains, near summit of Carson's Pass, alt. 2946 m (GH, MO, NY, US-323936, US-323955, US-556719). the province of US-556719 is not given on the label, and the plant seems to be *C. muiriana*; *fide* PMP 2005.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (715).

Derivation (Clifford & Bostock 2007): In honor of William Henry Brewer (1828–1910) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 15–30 cm long. Lateral branches lacking. Leaves mostly basal. Ligule an eciliate membrane, 0.5–1.5 mm long, obtuse. Leaf-blades filiform, conduplicate or involute, 0.5–1 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 3–8 cm long. Primary panicle branches spreading, 1–2 cm long. 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, 3.3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5 mm long, 0.15 length of lemma.

Glumes. Glumes persistent, similar, reaching 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 surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 3.3–4 mm long, 1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1–3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 5–6 mm long overall, with twisted column. Palea 1 length of lemma. Rhachilla extension 0.33 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2, 0.7 mm long. Anthers 3, 1.3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northwest USA, Southwestern USA. Oregon. California.

Calamagrostis cabreræ L. Parodi. *Rev. Argent. Agron.* 15: 59 (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 Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.L. Cabrera* 8290, 30 Jan 1944, Argentina: Jujuy (US-1962696).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): in honor of Antonius Cabrera, Spanish cleric and botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 8–18 cm long. Leaf-sheaths keeled. Ligule an eciliate membrane, 3–4 mm long. Leaf-blades involute, 4–10 cm long, 1–2 mm wide, stiff. Leaf-blade margins ciliate. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle, shorter than basal leaves. Panicle contracted, linear, 3–6 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

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, 7–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.5 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 7–8 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–6 mm long, membranous, without keel, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 4–4.5 mm long overall. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, La Rioja, Salta. Antofagasta.

Calamagrostis cainii Hitchcock. *Journ. Wash. Acad. Sc.* 24: 480 (1934).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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.A. Cain* 48, 10 Aug 1929, USA: Tennessee: Sevier Co., summit of Mt. LeConte (US-1611706).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (720).

Derivation (Clifford & Bostock 2007): in honor of Stanley Adair Cain (1901-) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 30–40 cm long. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 1–2 mm long, erose or lacerate, obtuse. Leaf-blades 5–35 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle open, ovate, 6–10 cm long. Primary panicle branches ascending or spreading, whorled at most nodes, 1–2 cm long, bearing 1–3 fertile spikelets on each lower branch. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, pubescent.

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, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1 mm long, 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 attenuate. Upper glume lanceolate, 5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 4–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous, rough above. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 4–5 mm long overall, not or scarcely exerted from spikelet, with a straight or slightly twisted column. Palea 0.9 length of lemma. Rhachilla extension 0.5 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southeastern USA. North Carolina, Tennessee.

Calamagrostis calderillensis Pilger. *Engl. Jahrb.* 42: 72 (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 Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: K. Fiebrig 3172, 25 Mar 1904, Bolivia: Calderillo (B; IT: BAA-4363 (fragm. ex B), L, LIL, SI, US-1499943, US-81684 (fragm.), W).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (206, Fig. 44 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Calderillo, Bolivia.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Basal innovations extravaginal. Culms erect, 100–120 cm long, 2 -noded. Leaf-sheaths striately veined, scaberulous. Ligule an eciliate membrane, truncate. Leaf-blades involute, 40–50 cm long, 3–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or ovate, 12–25 cm long. 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 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, reaching apex of florets or exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 3 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate, 2.5–3 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma apex erose, truncate, mucicous. Rhachilla extension 0.33 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest.

TDWG4. Jujuy, Tucuman.

Calamagrostis canadensis (Michx.) Beauv. *Ess. Agrost.* 15, 157 (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.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *C. langsdorfii*).

TYPE from Canada. **Basionym or Replaced Name:** *Calamagrostis dubia* (Scribn. & Tweedy) Scribn., non Bunge (1851), *Contrib. U. S. Nat. Herb.* 1: 249. (1892). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Michaux s.n.*, Canada: A sinu Hudsonis ad Canadam praesertim ad ripas lacuum (P).

Recent Synonyms: *Calamagrostis nubila* Louis-Marie, *Rhodora*, 46: 296 (1944). *Calamagrostis lactea* Beal, *Grasses N. Amer.* 2: 346 (1896).

Illustrations (Books): K.F.Best, et al, *Prairie Grasses* (1971) (81), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (727 & as var. *canadensis* & var. *langsdorfii*).

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

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 40–180 cm long. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths smooth or antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 2–10 mm long, lacerate. Collar glabrous or pubescent. Leaf-blades flat or involute, 3–8 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, dense or loose, 15–25 cm long. 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, 2.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.75–1 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 2.5–6 mm long, 0.75–1 length of upper glume, chartaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume elliptic, 2.5–6 mm long, 1–1.5 length of adjacent fertile lemma, chartaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma oblong, 2.5–6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn dorsal, arising 0.4–0.8 way up back of lemma, 2–6 mm long overall. Lateral lemma awns present, arising on apex of lobes, 0.2–1 mm long. Palea 0.75–0.8 length of lemma, hyaline, 2 -veined. Palea keels scaberulous. Rhachilla extension 0.2–1.3 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1–1.7 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

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

Country /Province /State. **Western Asia.** Iran. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA.** Aleutian Is, Alaska, Greenland, Northwest Territories, Yukon. 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. New Mexico. Virginia, District of Columbia.

TDWG4. Uttah Pradesh.

Calamagrostis canescens (Web.) Roth. *Tent. Fl. Germ.* 2:93 (1789).

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 Germany. **Basionym or Replaced Name:** *Arundo canescens* Weber, *Prim. Fl. Holsat.* 10 (1780). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Germany, Sufel: Wiggers.

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (282).

Derivation (Clifford & Bostock 2007): *L. canesco*, grow white. Leaf-blades or leaf-sheaths densely invested with white or grey hairs.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Rhizomes short. Culms erect, 50–120 cm long. Lateral branches lacking. Ligule an eciliate membrane, 1–7 mm long, obtuse. Leaf-blades flat or convolute, 6–20 cm long, 3–6 mm wide. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or oblong, nodding, 5–23 cm long, 1.5–6 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.7–3 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, laterally compressed, 4.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.2 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4.5–6 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, 4.5–6 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 2.7–4 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 2 -fid, truncate, awned, 1 -awned. Principal lemma awn

subapical or from a sinus, 0.5–1 mm long overall, not or scarcely exerted from spikelet. Palea 0.66 length of lemma, hyaline, 2 -veined.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$2n = 28$ (3 refs TROPICOS).

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

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. : France, Spain. : Bulgaria, Italy, Romania, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **North-east tropical Africa.** Somalia (*). **Siberia, Caucasus, Western Asia.** Altay, Irkutsk, Tuva.

TDWG4.

Calamagrostis carchiensis S. Laegaard. *Novon*, 8(1): 23 (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 Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: S. Laegaard 54413, 23 May 1985, Ecuador: Sucumbios: Paramo de Mirador above Cocha Seca, 00:34'N, 77:39'W, 3700–3900 m (AAU!; IT: K!, MO-5100301!, QCA!, QCNE!, US-3352666!).

Illustrations (Journals): *Novon* (8: 24 Fig.1A (1998)).

Derivation (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Carchi, Province, Ecuador.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose, clumped loosely. Rhizomes short. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 30–85 cm long, 1.5–2 mm diam. Culm-internodes striate, smooth or antrorsely scabrous. Culm-nodes brown. Leaf-sheaths striately veined, glabrous on surface. Ligule an eciliate membrane, 3 mm long, erose, obtuse. Leaf-blades flat or involute, 15–30 cm long, 7 mm wide. Leaf-blade surface ribbed, grooved adaxially, glabrous, hairless except near base.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 12–19 cm long, 0.5–0.8 cm wide. Primary panicle branches appressed, 1 -nate. Panicle axis scaberulous. 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, 3.5–4 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 lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, keeled above, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.5–4 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins obscure. Upper glume surface scabrous, rough on veins. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, pallid, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, straight, 0.7–1 mm long overall, not or scarcely exerted from spikelet. Palea linear, 2.5 mm long. Rhachilla extension 0.7–1.2 mm long, pubescent.

Flower and Fruit. Lodicules 2. Anthers 1, 1.2 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp, trigonous, 1.8 mm long, light brown. Embryo 0.15 length of caryopsis. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Calamagrostis caucasica Trin. *C. A. Mey. Verz. Pfl. Cauc.* 15 (1831).

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: Inter fragmenta schisti alpis Tufandagh in Caucaso orientali,.

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

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Caucasus Mountains, former Soviet Union.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms geniculately ascending, (15–)45–70 cm long. Leaf-sheaths smooth. Ligule an eciliate membrane, 3–4 mm long, lacerate. Leaf-blades 2–4.5 mm wide. Leaf-blade surface scaberulous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–10 cm long. 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 lanceolate, laterally compressed, 5–6 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. 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, 1.2–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 8–10 mm long overall, with a straight or slightly twisted column. Rhachilla extension 0.75 mm long, pilose, with 2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. North Caucasus, Transcaucasus.

TDWG4.

Calamagrostis cephalantha Pilger. *Engl. Jahrb.* 42: 61 (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 Peru, Bolivia. **Basionym or Replaced Name:** *Deyeuxia lagurus* Wedd., *Bull. Soc. Bot. Fr.* 22: 176, 180. (1875). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A. Weberbauer 1003, 10 Apr 1902, Peru-Bolivia: inter Poto et Suhez, 4600 m (B; IT: BAA-3572 (fragm. ex B), US-3048367 (fragm. ex B)).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia lagurus*).

Derivation (Clifford & Bostock 2007): Gk. kephale, head; anthos, flower. Inflorescence an ovoid panicle.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 2.5–4 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1.2 mm long. Leaf-blades involute, 1–2 cm long, 1 mm wide. Leaf-blade surface pubescent, hairy on both sides.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle contracted, ovate, 0.7–1.7 cm long, 0.5–0.7 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous or puberulous.

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, 4.7–5.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.6–1 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.7–5.2 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 3–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 4.5–5.5 mm long overall, with twisted column. Rhachilla extension 2.3–2.8 mm long, pilose, with 2.5–3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest.

TDWG4. Jujuy, Salta, Tucuman.

Calamagrostis chalybaea (Laest) Fries. *Summa Pl.* 241 (1843).

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).

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

Derivation (Clifford & Bostock 2007): Gk. -ea, belonging to. From the land of the Chalybes, now Turkey.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 60–150 cm long, 4-noded. Culm-internodes smooth. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 3–5 mm long, lacerate. Leaf-blades 20–30 cm long, 4–12 mm wide. Leaf-blade venation indistinct. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above. Panicle open, linear, 10–25 cm long. Primary panicle branches bearing spikelets almost to the base. 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 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.75 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 3–4 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume ovate, 1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma oblong, 2.5–3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0–0.1 way up back of lemma, geniculate, 2.5–3 mm long overall, with twisted column. Palea 1 length of lemma. Rhachilla extension 0.5 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5 mm long, indehiscent. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

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

Region. Northern Europe, Eastern Europe.

Country /Province /State. : Norway, Sweden. North European Russia. Siberia. West Siberia.

TDWG4.

Calamagrostis chaseae Lucas. *Bol. Soc. Venez. Cienc. Nat.* 15: 6 (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: Edo. Merida: Mucuchies: paramo de Minista: 27 Nov 1943, *Lucas* 292 (HT: VEN [Ministerio de Agric. y Cria]).

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

Derivation (Clifford & Bostock 2007): in honor of Virginius Heber Chase (1876–1966) United States naturalist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 75 cm long. Lateral branches lacking. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 2–3.5 mm long, acute. Leaf-blades filiform, conduplicate or involute, 6–15 cm long, 1.5–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 16 cm long, 1–1.5 cm wide. Primary panicle branches appressed or ascending, 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 lanceolate, laterally compressed, 5.5 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, 5.5 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume lanceolate, 5.5 mm long, 1.1–1.5 length of

adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute, mucous or mucronate.

Florets. Fertile lemma oblong, 3.7–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 6–8 mm long overall, with twisted column. Rhachilla extension 0.33–0.5 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America. Venezuela.

Calamagrostis chrysantha (Presl) Steud. *Nom. ed.* 2, 1: 250 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Deyeuxia chrysantha* J. Presl, *Rel. Haenk.* 1: 247. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Haenke s.n.*, Peruviae montanis huanoccensibus (PR; ILT: PR, PRC). LT designated by Villavicencio, Revis. Gatt. *Deyeuxia* Bolivien 63 (1995).

Illustrations (Books): S.A.Renouze, *Gramineas de Bolivia* (1998) (Fig. 45 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*), *Ruizia* (13:186, Fig 20a-c (1993)).

Derivation (Clifford & Bostock 2007): Gk. chrysos, yellow; anthos, flower. Spikelets golden-bronze.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 17–50 cm long. Culm-internodes smooth. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 7–18 mm long, acuminate. Leaf-blades involute, 5–15 cm long, 2–3 mm wide, stiff. Leaf-blade surface scabrous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 2.5–6 cm long, 1.3–2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 5–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Floret callus bearded. Floret callus hairs 1 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 lateral veins absent. Lower glume apex entire or dentate, 2 -fid, acute. Upper glume lanceolate, 5–7.5 mm long, 1.3–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex entire or dentate, 2 -fid, acute.

Florets. Fertile lemma lanceolate, 3.8–4.5 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2–0.25 way up back of lemma, straight, 2–3 mm long overall. Rhachilla extension 0.6–1.2 mm long, pilose, hairy in the middle, with 2–3.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest, Chile North, Chile Central.

TDWG4. Jujuy. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca, Antofagasta.

Calamagrostis chrysophylla (Phil.) R. Govaerts. *World Checklist Seed Plants*, 3(1): 10 : (1999).

Accepted 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. **Basionym or Replaced Name:** *Deyeuxia chrysophylla* Phil., *Anal. Mus. nac. Chile*, 83. (1892). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Chile: Colorados and Calaleste (SGO-PHIL-127; IT: SGO-37500, SGO-71749, SGO-63083, US-556405 (fragm. ex SGO-PHIL-127 & photo)).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): Gk. chrysos, yellow; phyllon, leaf. Leaf-blades golden-yellow.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms erect or geniculately ascending, 5–9 cm long. Culm-internodes smooth. Leaf-sheaths smooth. Ligule a ciliolate membrane, 0.6–1 mm long, glabrous on abaxial surface, truncate or obtuse. Leaf-blades conduplicate, 1–2 cm long, 1.5–2 mm wide. Leaf-blade surface scabrous, rough abaxially. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 1.5–3 cm long, 0.6–1 cm wide. Primary panicle branches appressed, 0.5–0.8 cm long. Panicle axis smooth. Panicle branches smooth or 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 lanceolate, laterally compressed, 3.6–4.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.6–1.2 mm long, 0.2–0.25 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3.6–4.4 mm long, 1 length of upper glume, membranous, yellow or mid-green or purple, 1-keeled, 1-veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.6–4.4 mm long, membranous, yellow or mid-green or purple, 1-keeled, 3-veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.4–4 mm long, membranous, yellow or mid-green or purple, without keel, 5-veined, more than 3-veined. Lemma surface smooth or scaberulous, rough above. Lemma apex dentate, 4-fid, awned, 1-awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, straight or curved, 3.4–4 mm long overall, not or scarcely exerted from spikelet. Palea 2–3.8 mm long. Rhachilla extension 1.6–2.4 mm long, villous, with 1.8–2.8 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 1.6–2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest, Chile North, Chile South.

TDWG4. Catamarca, Jujuy, Salta. Tarapaca, Antofagasta, Atacama, Coquimbo. Antofagasta, Atacama.

Calamagrostis chrysostachya (Desv.) Kuntze. *Rev. Gen. Pl.* 3,2:344 (1898).

Regarded by K as a synonym (*C. chrysantha*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Deyeuxia chrysostachya* E. Desv., *C. Gay, Fl. Chil.*6: 323. (1853). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile: forma copas apretadas junto a los arroyos poco hzmedos de las cordilleras altas de los Patos, en una altura de 3680 n, provincia de Coquimbo, *Gay s.n.*.

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): Gk. chrysos, yellow; stachys, ear of corn. Panicle branches invested in golden-yellow hairs.

Classification. Subfamily Pooideae. Tribe: Poeae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile North, Chile Central.

TDWG4. Mendoza, San Juan. Antofagasta. Coquimbo, Valparaiso, Santiago.

Calamagrostis cinnoides (Muhl.) Barton. *Compend. Fl. Phila.*1:45 (1818).

Regarded by K as a synonym (*C. canadensis*).

Basionym or Replaced Name: *Calamagrostis dubia* (Scribn. & Tweedy) Scribn., non Bunge (1851), *Contrib. U. S. Nat. Herb.* 1: 249. (1892). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Muhlenberg*, (PH-MUHL-XXVIII.01).

LT?: *Muhlenberg hb. 173*, (PH). LT designated by Kearney? (1898).

OM: (PH (ex hb. Elliott); US-78852 (fragm a)).

OM: [*Muhlenberg*], (PH (*Arundo cinnoides*, 5); US-78852 (fragm. B ex PH)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (715).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Cinna*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 80–150 cm long. Culm-internodes antrorsely scabrous. Leaf-sheaths antrorsely scabrous, glabrous on surface or hirsute. Leaf-sheath

oral hairs lacking. Ligule an eciliate membrane, 2–4 mm long, truncate. Leaf-blades 5–10 mm wide, glaucous. Leaf-blade surface glabrous or hirsute, sparsely hairy.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle contracted, linear, 8–20 cm long, 1–2 cm wide. Primary panicle branches 1–3 cm long. Panicle axis scabrous. Panicle branches scabrous. 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 lanceolate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.66 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 lateral veins absent. Lower glume surface scabrous. Lower glume apex attenuate. Upper glume lanceolate, 6–7 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume surface scabrous. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 5–6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, straight, 1–2 mm long overall, not or scarcely exerted from spikelet. Rhachilla extension 1 mm long, pubescent.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

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

Country /Province /State. Western Asia. Iran. Eastern Canada, Northeast USA, Southeastern USA. Nova Scotia. Maine, Ohio, Georgia, Louisiana, Virginia.

TDWG4. Jammu Kashmir.

Calamagrostis cleefii F.D. Escalona. *Phytologia* 65(5): 339 (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 Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.M. Cleef 7768, 13 Jan 1973, Colombia: Meta (US-2785746).

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

Derivation (Clifford & Bostock 2007): in honor of A. M. Cleef (fl. 1972) who collected in Colombia.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations intravaginal. Culms erect, 10–25 cm long. Culm-internodes distally glabrous. Leaf-sheaths 1–2 cm long, glabrous on surface. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades convolute, 2–5 cm long, 1 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Peduncle 6–11 cm long. Panicle open, lanceolate, 3–6 cm long, 0.5–1 cm wide. Primary panicle branches whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 4–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.2 mm long. Floret callus bearded. Floret callus hairs 2.3–3.5 mm long, 1.1–1.3 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 4.5 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2.2–2.6 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, straight, 5 mm long overall, with twisted column. Palea 2 mm long. Palea keels scabrous. Rhachilla extension 2 mm long, villous.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5 mm long, yellow. Caryopsis with adherent pericarp, oblong, 1.25 mm long, light brown. Embryo 0.33 length of caryopsis. Endosperm soft.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador.

Calamagrostis coahuilensis P.M.Peterson, Soreng & Valdés-Reyna. *Sida* 21(1): 312, 314, f. 1 (2004).

Accepted by: 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: Coahuila, Sierra Madre Oriental, 32 mi SE of Saltillo and 8 mi SE of Jame on road to Sierra La Viga, 3240m, 29 Sep 1990, P.M. Peterson, C.R. Annable & J. Valdés-Reyna 10051b (HT: US).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths or fibrous dead sheaths. Basal innovations extravaginal and intravaginal. Culms erect, (22–)40–100 cm long. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths 6–8 cm long, mostly shorter than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 5–8 mm long, entire or lacerate, truncate. Leaf-blades 8–20 cm long, 2–4 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 9–20 cm long, 0.5–1.2 cm wide. Primary panicle branches appressed or ascending, 1–2-nate, 2–10 cm long, bearing spikelets almost to the base. Panicle axis scaberulous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.6–4 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, 5.8–7.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.8–1.8 mm long, 0.33–0.66 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5.8–7.2 mm long, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1-veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–5.7 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–5.7 mm long, membranous, without keel, 5-veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scaberulous. Lemma apex entire or dentate, 2-fid, awned, 1-awned. Principal lemma awn dorsal, arising 0–0.15 way up back of lemma, geniculate, 8–10 mm long overall, with twisted column. Palea 1 length of lemma, 2-veined. Palea keels scaberulous. Rhachilla extension 2.4–3 mm long, pilose, with 0.5–1 mm long hairs.

Flower and Fruit. Lodicules 2, lanceolate, 1 mm long, emarginate. Anthers 3, 1–1.2 mm long, purple. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform, 2–2.5 mm long, green. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Northeast Mexico. Coahuila.

Calamagrostis coarctata Eaton. *Man. ed.* 5:144 (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).

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

Derivation (Clifford & Bostock 2007): *L. coarcto*, compress; -ata, possessing; Panicles spicate-spiciform.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 13–35 cm long. Culm-internodes smooth. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1.5 mm long. Leaf-blades straight, 2–10 cm long, 1–3 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 3–6 cm long, 0.8–1.2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or scaberulous, glabrous.

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, 5.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.7 mm long.

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 smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate,

5.5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume primary vein smooth or scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.5–5 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth or scaberulous. Lemma apex entire or erose, obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 4.5–5 mm long overall, with twisted column. Rhachilla extension 1.5–2 mm long, pubescent, with 0.5–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Northeast USA. New Jersey, Pennsylvania. Northern South America. Venezuela.

Calamagrostis cordechii R. Govaerts. *World Checklist Seed Plants*, 3(1): 10 (1999).

Accepted by: R.J.Soreng et al., *Catalogue of 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 *D. ciliata*).

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

Derivation (Clifford & Bostock 2007): In honor of O.M.R. Cordech (fl.1987) Bolivian botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms erect, 37–55 cm long. Culm-internodes smooth. Leaf-sheaths smooth, hispid. Ligule a ciliolate membrane, 0.8–2 mm long, obtuse. Leaf-blades convolute, 7–22 cm long, 2–3 mm wide. Leaf-blade venation with sclerenchyma strands widened to form a discontinuous subepidermal layer or with continuous uniform subepidermal sclerenchyma layer on the underside. Leaf-blade surface scabrous, rough abaxially, pubescent, hairy adaxially. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or oblong, 2–10.5 cm long, 0.7–1.5 cm wide. Primary panicle branches 3–3.5 cm long. Panicle axis smooth or scaberulous, hispidulous. Panicle branches hispidulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.6–3.6 mm long, pubescent.

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, 3.8–4.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or sparsely hairy. Floret callus hairs 0.3 mm long, 0.05 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3.6–4.2 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 surface hispidulous. Lower glume apex obtuse. Upper glume lanceolate, 3.8–4.4 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins ribbed. Upper glume surface hispidulous. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate, 3.4–3.8 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, rough above. Lemma apex entire or dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.75 way up back of lemma, straight, 1.4–1.7 mm long overall, not or scarcely exerted from spikelet. Palea 2–3.4 mm long. Rhachilla extension 0.7–1.5 mm long, pilose, with 1.2–1.4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 2–2.2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Endosperm soft. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Calamagrostis crispa (Rugolo & Villav.) R. Govaerts. *World Checklist Seed Plants*, 3(1): 10 (1999).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia crispa* Z.E. Rugolo de Agrasar & X. Villavicencio, *Bol. Soc. Argent. Bot.*, 31: 128 (1995). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina: Jujuy: Dep. Rinconada: Rinconada, Co. a 5 km del pueblo, 22.26S 66.09W, 28 Feb 1980, *Arenas BACF-1909* (HT: SI; IT: B).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): L. curly. Leaf blades very flexuous or coiled.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 5–10 cm long. Culm-internodes estriate, smooth. Leaf-sheaths smooth. Ligule a ciliolate membrane, 1.2–4 mm long, glabrous on abaxial surface, bilobed. Leaf-blades conduplicate, 4–10 cm long, 2 mm wide. Leaf-blade venation without layer of subepidermal sclerenchyma masking vein striation. Leaf-blade surface ribbed, grooved adaxially, scabrous, rough adaxially or on both sides. Leaf-blade margins ciliate. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, shorter than basal leaves. Panicle contracted, linear, 3–5 cm long, 0.5 cm wide. Primary panicle branches 1–3 cm long. Panicle axis smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.8–4 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 lanceolate, laterally compressed, 5.4–6.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, with elliptic scar. Floret callus hairs 1 mm long, 0.2–0.25 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5.4–6.2 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 attenuate. Upper glume lanceolate, 5–5.8 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 4.4–5 mm long, membranous, purple, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, rough above. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 5–6.2 mm long overall, clearly exerted from spikelet, with twisted column. Palea 3.2–3.4 mm long. Rhachilla extension 1.8–2.4 mm long, villous, with 2.4–3.2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 1.6–2.4 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, La Rioja, Salta. Tarapaca, Antofagasta.

Calamagrostis cryptolopha (Wedd.) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 374 (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).

Basionym or Replaced Name: *Deyeuxia cryptolopha* Wedd., *Bull. Soc. Bot. Fr.* 22: 176, 179. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *G. Mandon 1313*, no date, Bolivia: La Paz (L, US-81863, US-3168206, US-863442 (fragm.)).

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

Derivation (Clifford & Bostock 2007): Gk. kryptos, hidden; lophos, crest.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 75 cm long. Ligule an eciliate membrane. Leaf-blades involute, 2–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear or lanceolate, dense, 15 cm long. Primary panicle branches ascending, 2–5 cm long. 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, 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. 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, 6 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4 way up back of lemma, geniculate, 4 mm long overall, with twisted column. Rhachilla extension 1.5 mm long, pilose, with 3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Calamagrostis curta (Wedd.) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 376 (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).

Basionym or Replaced Name: *Deyeuxia curta* Wedd., *Bull. Soc. Bot. Fr.* 22: 176, 179 (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *G. Mandon s.n.*, 1858, Bolivia: La Paz (US-81866).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): L. short. Leaf-blades short.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 3–8 cm long, 1 -noded. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades filiform, convolute, 1–1.8 cm long, 0.2 mm wide. Leaf-blade surface pubescent.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 1–2.5 cm long, 0.5–1 cm wide. 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, 4.5–6 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. Lower glume lanceolate, 5.5–6 mm long, 1.1 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, 5–5.5 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4.5 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 4–7.5 mm long overall, with twisted column. Palea 2.5–3 mm long. Rhachilla extension 0.25–0.5 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 0.2–0.3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminal comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia.

TDWG4. Tucuman.

Calamagrostis curtoides (Rugolo & Villav.) R. Govaerts. *World Checklist Seed Plants*, 3(1): 10 : (1999).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia curtoides* Z.E. Rugolo de Agrasar & X. Villavicencio, *Bol. Soc. Argent. Bot.*, 31: 132 (1995). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolivia: La Paz: Prov. Murillo: 3.4 km N of Milluni on road Zongo, 4600 m, 25 Apr 1985, *Escalona, Solomon & Moraes B543* (HT: LPB).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms erect, 5–8 cm long. Culm-internodes smooth. Leaf-sheaths smooth. Ligule a ciliolate membrane, 2–5 mm long, acuminate. Leaf-blades aciculate, conduplicate, 1–3 cm long, 1.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle spiciform, ovate, 1.5–2 cm long, 1 cm wide. Primary panicle branches 0.5–1 cm long. Panicle axis smooth. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3.8 mm long, puberulous.

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, 6–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.8–1.2 mm long, 0.1 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 6–6.5 mm long, 1 length of upper glume, membranous, yellow, 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, 6–6.5 mm long, membranous, yellow, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins prominent. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3.8–4.4 mm long, membranous, yellow, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex dentate, 2 -fid or 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 6–6.2 mm long overall, not or scarcely exerted from spikelet, with twisted column. Palea 2.8–3 mm long. Rhachilla extension 1.2 mm long, pilose, with 1.5–1.6 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear or oblong, 0.6–0.8 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Calamagrostis curvula (Wedd.) Pilger. *Engl. Bot. Jahrb.* 42: 60 (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).

Basionym or Replaced Name: *Deyeuxia curvula* Wedd., *Bull. Soc. Bot. Fr.* 22: 178, 179. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *A. D'Orbigny 219*, no date, Peru (US-1126790).

ST: *Weddell s.n.*, Peru.

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *L. curvus*, bent; -ula, diminutive. Leaf-blades curved.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, cushion forming. Rhizomes short. Culms erect, 5–30 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.2–2 mm long. Leaf-blades curved, involute, 1–4 cm long, 1–2 mm wide, stiff. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade margins pubescent. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 1–3 cm long, 0.7–1.6 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 4.6–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.6–5 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.7 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 3 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, straight or flexuous, 1.5 mm long overall. Rhachilla extension 1.8–2.3 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, Salta. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca, Antofagasta.

Calamagrostis cuzcoensis O. Tovar. *Publ. Mus. Hist. Nat. Javier Prado*, B, 33: 11 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O. Tovar 8905*, Mar 1981, Peru: Cuzco: Abra Malaga, carretera Cuzco-Quillabamba, pajonal de Puna, alt. 4230 m (USM; IT: MAF, MO-3812376, US-3029233).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Cuzco, now Cusco Region, Peru.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 20–50 cm long, 2–3 -noded. Ligule an eciliate membrane, 0.5–2 mm long. Leaf-blades 3–13 cm long, 1–2 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 7–10 cm long, 1–2 cm wide. 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, 5–5.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.6–0.8 mm long. Floret callus pilose. 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–5.2 mm long, 1.4–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.2–3.8 mm long, membranous, without keel, more than 3-veined. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, geniculate, 8–10 mm long overall, with a straight or slightly twisted column. Rhachilla extension 1.7–1.9 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Calamagrostis decora Hook. f. *Fl. Brit. Ind.* 7: 260 (1896).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (& as *Deyeuxia kashmeriana*).

Basionym or Replaced Name: *Deyeuxia kashmiriana* Bor, *Kew Bull.* 1954, 558 (1955). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *J. F. Duthie 12660*, India: Kashmir, Astor, forest (K).

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

Derivation (Clifford & Bostock 2007): *L. decor*, elegance. Attractive, usually with respect to habit.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 60–120 cm long. Lateral branches lacking. Ligule an eciliate membrane, 4–5 mm long, obtuse. Leaf-blades flat or convolute, 15–30 cm long, 3.5–6 mm wide, glaucous. Leaf-blade surface scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle open, lanceolate, 8–15 cm long. 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 lanceolate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 4 mm long, 0.75–1 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. 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 acuminate. Upper glume lanceolate, 5–6 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 4 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, straight, 2.5–4 mm long overall. Palea 3.5 mm long, hyaline, 2 -veined. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Pakistan, West Himalaya.

TDWG4. Jammu Kashmir.

Calamagrostis densiflora (Presl) Steud. *Nom. ed.* 2, 1: 250 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia densiflora* J. Presl, *Rel. Haenk.* 1: 247. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. in Peruviae montanis huanoccensibus, *Haenke s.n.*

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

Derivation (Clifford & Bostock 2007): *L. densus*, dense; flos, flower. Inflorescences congested.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 38–60 cm long. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–7 mm long. Leaf-blades conduplicate or involute, 7–15 cm long, 2–3 mm wide, stiff. Leaf-blade surface scabrous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle contracted, linear or oblong, 9–18 cm long, 1.7–3 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous or puberulous.

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, 5.7–6.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or 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, purple, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5.7–6.1 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume primary vein smooth or scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.5–5 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth or scaberulous. Lemma apex dentate, 3 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.6 way up back of lemma, straight, 3.5–4.5 mm long overall. Rhachilla extension 1.7–2 mm long, pilose, with 3–3.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Colombia, Peru.

Calamagrostis deschampsiformis C.E.Hubb. *Bull. Brit. Mus. (Nat. Hist.), Bot.*, 8(4): 386 (1981).

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

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

Derivation (Clifford & Bostock 2007): *L. forma*, appearance. Resembling *Deschampsia*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths coriaceous, persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 35–50 cm long, 2 -noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3–7 mm long, obtuse. Leaf-blades erect, filiform, involute, 8–19 cm long, 1–1.2 mm wide, stiff. Leaf-blade surface ribbed, grooved adaxially, smooth, glabrous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 13 cm long, 2–3 cm wide, contracted about primary branches. Primary panicle branches 4–9 cm long. Panicle axis scabrous. Panicle branches terete, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 1–4 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 oblong, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1–1.6 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume linear or lanceolate, 7–9 mm long, 0.9 length of upper glume, chartaceous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 8–10 mm long, chartaceous, 1-keeled, 2–3 -veined. Upper glume primary vein smooth. Upper glume apex acute.

Florets. Fertile lemma oblong, 4.5–5 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, with lateral lobes bidentate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, flexuous or geniculate, 5.5–8 mm long overall, without a column or with a straight or slightly twisted column. Palea oblong, 1 length of lemma, hyaline, 2 -veined. Palea keels scaberulous. Rhachilla extension 2–3 mm long, villous. Apical sterile florets 0–1 in number, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 0–3 mm long.

Flower and Fruit. Lodicules 2, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, oblong, 2 mm long, dark brown. Hilum elliptic.

Distribution (TDWG). Continent. Antarctica.

Country /Province /State. Subantarctic islands.

Calamagrostis deschampsoides Trin. *Ic. Gram.* 3, t. 354 (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), 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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: (LE).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (720).

Derivation (Clifford & Bostock 2007): Gk. -oides resembling. Resembling *Deschampsia*..

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose, clumped loosely. Rhizomes elongated. Culms geniculately ascending, 15–40 cm long. Culm-internodes smooth. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 3–7 cm long, 1–4 mm wide. Leaf-blade surface smooth. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 4–8 cm long. Primary panicle branches spreading, whorled at most nodes. Panicle axis smooth. Panicle branches capillary, flexuous, smooth. 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 lanceolate, laterally compressed, 4–6 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, reaching 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 acuminate. Upper glume lanceolate, 4–6 mm long, 1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4–6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, geniculate, 3–5 mm long overall, clearly exerted from spikelet, with twisted column. Rhachilla extension 1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (2 refs TROPICOS).

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

Region. Eastern Europe.

Country /Province /State. North European Russia. Siberia, Russian far east, **China, Eastern Asia.** Krasnoyarsk. Kamchatka, Khabarovsk, Kuril Is, Magadan, Sakhalin. Japan. Japan Honshu. **Subarctic America, Western Canada, Eastern Canada.** Alaska, Northwest Territories, Yukon. Manitoba. Ontario, Quebec. Tristan de Cunha.

TDWG4.

Calamagrostis deserticola (Phil.) R. Phil. *Anal. Univ. Chil.* 94: 21 (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).

Basionym or Replaced Name: *Deyeuxia deserticola* Phil., *Fl. Atac.* 55. (1860). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: 1854, Chile: Atacama, Cachinal de la Sierra e Imilac (SGO-37280; ILT: SGO-PHIL-136, SGO-63087, US-556407 (fragm. ex SGO-PHIL-136 & photo), US- (photo SGO-37280)). LT designated by Rzgolo in Villavicencio, Revis. Gatt. *Deyeuxia* Bolivien 85 (1995).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): L. desertum, desert; -cola, dweller. Growing in arid places.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 16–27 cm long. Culm-internodes antrorsely scabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane or a ciliate membrane, 3–8.3 mm long, bilobed, acuminate. Leaf-blades convolute, 10–19 cm long, 2–3 mm wide. Leaf-blade venation with sclerenchyma strands widened to form a discontinuous subepidermal layer. Leaf-blade surface ribbed, grooved adaxially, scabrous, rough on both sides, glabrous or puberulous, hairy adaxially. Leaf-blade margins ciliate.

Inflorescence. Inflorescence a panicle, shorter than basal leaves. Panicle spiciform, linear, 7–11 cm long, 0.5–1.5 cm wide. Primary panicle branches 2.5–3.5 cm long. Panicle axis smooth or scaberulous. Panicle branches scabrous, with scattered hairs or glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.6–6.2 mm long, scaberulous or 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, 6–7.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, with elliptic scar. Floret callus hairs 0.6–1 mm long, 0.1–0.15 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 6–7.4 mm long, 1 length of upper glume, membranous, yellow or mid-green or purple, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 6–7.4 mm long, membranous, yellow or mid-green or purple, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 5.2–5.8 mm long, membranous, yellow or mid-green or purple, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex dentate, 3–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 5–6.8 mm long overall, clearly exerted from spikelet or not or scarcely exerted from spikelet, with a straight or slightly twisted column or with twisted column. Palea 3.2–4.6 mm long. Rhachilla extension 2.2–2.4 mm long, villous, with 3.2–3.8 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 1.8–2.6 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, San Juan, Tucuman. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca, Antofagasta.

Calamagrostis divaricata P.M. Peterson & Soreng. *Sida* 21 (1): 315, f. 3 (2004).

Accepted by: 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: Durango, Sierra Madre Occidental, ca 3 mi S of Hwy 40 at Mexiquillo, Arroyo Paso Resbaloso (23°42'46.2N 105°39'45.1"W), 2520m, 14 Sep 2003, P.M. Peterson, M.S. González-Elizondo & G. Teña-González 17774 (HT: US; IT: ANSM, CIIDIR, MO, RSA, US).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Rhizomes short. Basal innovations extravaginal. Culms erect or geniculately ascending, 52–96 cm long. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths 8–20 cm long, subequal to internodes, glabrous on surface. Ligule a ciliolate membrane, 2–3.6 mm long, entire or lacerate, obtuse or acute. Leaf-blades flat or involute, 15–60 cm long, 1–3 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, loose, 9–16 cm long, 4–10 cm wide. Primary panicle branches ascending or spreading, 3–6 -nate, whorled at most nodes, 2–8 cm long. Panicle axis scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–5 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, 3.4–4.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent or pilose. Floret callus hairs 0.2–1 mm long, 0.05–0.25 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3.4–4.3 mm long, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate, 3.4–4.3 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute or acuminate.

Florets. Fertile lemma lanceolate, 3.8–4.3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, geniculate, 4–6 mm long overall, with a straight or slightly twisted column. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Rhachilla extension 1.6–1.9 mm long, pilose, with 1–1.5 mm long hairs.

Flower and Fruit. Lodicules 2, lanceolate, 0.7–0.8 mm long. Anthers 3, 1.8–2.2 mm long, yellow. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, fusiform, 1.8–2.5 mm long, light brown. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Northeast Mexico. Durango.

Calamagrostis divergens Swallen. *Contrib. U. S. Nat. Herb.* 29: 262 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Cuatrecasas et al. 12604A*, 27 Oct 1941, Colombia: Norte de Santander (US-1850357).

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

Derivation (Clifford & Bostock 2007): panicle branches appressed to central axis rather than held in an open panicle.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 50 cm long. Culm-internodes distally glabrous. Leaf-sheaths subequal to internodes, glabrous on surface. Ligule an eciliate membrane, 2 mm long, erose. Leaf-blades 15–20 cm long, 5–6 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or ovate, 11–12 cm long, 6 cm wide. Primary panicle branches ascending, 4–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.3 mm long, glabrous.

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, 3.2–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5 mm long, 0.1–0.15 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.2–3.7 mm long, 1 length of upper glume, membranous, purple, 1-keeled. Lower glume apex acute. Upper glume lanceolate, 3.2–3.7 mm long, 1.1 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, straight, 3 mm long overall, with twisted column. Palea 2.5 mm long. Palea keels approximate, scabrous. Rhachilla extension 1 mm long, pubescent.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Calamagrostis dmitrievae Tzvelev. *Bot. Zhurn.*, 78(10): 90 (1993).

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

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

Derivation (Clifford & Bostock 2007): In honor of A. Dimitrieva (fl.1962) Russian botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Cataphylls evident. Culms geniculately ascending, 40–80 cm long. Ligule an eciliate membrane. Collar glabrous. Leaf-blades flat or convolute, 2–6 mm wide, light green and mid-green, discolourous with last colour beneath. Leaf-blade surface scaberulous, rough abaxially, glabrous or pilose, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 6–18 cm long. 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 lanceolate, laterally compressed, 4.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.7–2 mm long, 0.5 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4.5–6 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined or 3 -veined. Lower

glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 4.5–6 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex dentate, 2 -fid or 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 7–8 mm long overall, with a straight or slightly twisted column. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. North Caucasus.

Calamagrostis ecuadoriensis S. Laegaard. *Novon*, 8(1): 25 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *S.Laegaard 53295*, 2 Nov-4 Nov 1984, Ecuador: Tungurahua: Cordillera de los Llanganatis, paramo de Jaramillo, 01:10'S, 78:22'W, 4000--4250 m (AAU!; IT: MO-5100302!, QCA!, QCNE!, US-3352670!).

Illustrations (Journals): *Novon* (8: 24 Fig.1B (1998)).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Ecuador.

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 20–30 cm long, 1 mm diam. Culm-internodes distally hispid. Leaf-sheaths longer than adjacent culm internode, striately veined, glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Leaf-blades involute, 3–7 cm long, 0.3–1 mm wide. Leaf-blade surface ribbed, grooved adaxially, puberulous, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 8–10 cm long, 1 cm wide. Panicle axis hispid. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

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, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.5 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, keeled above, 3 -veined. Lower glume lateral veins obscure. Lower glume surface scabrous, glabrous. Lower glume apex erose, obtuse. Upper glume lanceolate, 3.5–4 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, keeled above, 3 -veined. Upper glume lateral veins obscure. Upper glume surface scabrous. Upper glume apex erose, obtuse.

Florets. Fertile lemma lanceolate, 3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex obtuse, mucicous. Palea 2 mm long. Palea keels scabrous. Rhachilla extension 1.5 mm long, pilose, with 1–1.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 0.8–1 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Calamagrostis effusa (HBK) Steud. *Nom. ed.* 2, 1: 250 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia effusa* Kunth, *Nov. Gen. et Sp.* 1: 145. (1815). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Humboldt & Bonpland s.n.*, Ecuador: Antisanae: radicebus: 1200 hexap.

ST: *Humboldt & Bonpland s.n.*, Ecuador: Regno Quitensi: montis Saraguru inter Ona et Loxa: umbrosis humidis: 1300 hexap (P?).

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

Derivation (Clifford & Bostock 2007): L. spread out. Inflorescence an open panicle.

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 erect, 40–100 cm long. Ligule an eciliate

membrane, obtuse. Leaf-blades erect, involute, 20–30 cm long, 2–3 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 10–20 cm long. Primary panicle branches whorled at most nodes. 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 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–4 mm long, 1–1.3 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.6 way up back of lemma, geniculate, 2–4 mm long overall, with twisted column. Rhachilla extension pubescent, hairy throughout.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia, Ecuador.

Calamagrostis elatior (Griseb.) A.Camus. *Bull. Soc. Bot. Fr.* 75:555 (1928).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Deyeuxia*).

Basionym or Replaced Name: *Deyeuxia elatior* (Griseb.) Hook. f., *Fl. Brit. Ind.* 7: 266. (1896).

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

Derivation (Clifford & Bostock 2007): L. taller. Culms taller than those of related species.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, reed-like, 100–200 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface or hirsute. Ligule an eciliate membrane. Leaf-blades 15–20 cm long, 8–15 mm wide, coriaceous. Leaf-blade midrib prominent beneath. Leaf-blade surface glabrous or pubescent, hairy abaxially.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 15–30 cm long, 10–15 cm wide. Primary panicle branches spreading, whorled at lower nodes. 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, 5–5.5 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 lanceolate, 5–5.5 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. Upper glume lanceolate, 4.5–5 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 lanceolate or ovate, 4–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 7–8 mm long overall, with twisted column. Palea 4 mm long, hyaline, 2 -veined. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Assam, Eastern Himalaya.

TDWG4. Bhutan. Meghalaya.

Calamagrostis eminens (Presl) Steud. *Nom. ed.* 2, 1: 250 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia eminens* J. Presl, *Rel. Haenk.* 1: 250. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, Peru Huanuco (PR; IT: PRC, US-81862 (fragm.)).

Recent Synonyms: *Calamagrostis grata* Phil., *Anal. Univ. Chil.* 94: 22 (1896).

Illustrations (Books): S.A. Renvoize, *Gramineas de Bolivia* (1998) (206, Fig. 44 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes short. Culms erect or geniculately ascending, 35–100 cm long. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 10–18 mm long, acuminate. Leaf-blades involute, 10–30 cm long, 2–3 mm wide, stiff.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 10–20 cm long, with spikelets clustered towards branch tips. Primary panicle branches drooping. Panicle branches flexible. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1 length of fertile spikelet, glabrous.

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, 4–5.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Floret callus bearded. Floret callus hairs 1 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 lateral veins absent. Lower glume apex erose, acute. Upper glume lanceolate, 4–5.4 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex erose, acute.

Florets. Fertile lemma lanceolate, 2.6–3.5 mm long, membranous, without keel, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2–0.5 way up back of lemma, straight, 2–3.2 mm long overall. Rhachilla extension 1–1.7 mm long, pilose, hairy throughout, with 1.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Colombia, Peru. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, La Rioja, Mendoza, Salta, San Juan, Tucuman. Cordoba. Rest of Chile-Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Tarapaca, Antofagasta.

Calamagrostis emodensis Griseb. *Goett. Nachr.* 80. (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), N.L. Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (& as *C. garhwalensis*).

Basionym or Replaced Name: *Calamagrostis garhwalensis* C.E. Hubb. & Bor, *Indian Forester*, 68: 355 (1942). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sikkim: 1829–2743 m, *J.D. Hooker s.n.* (HT: ?; ST: L).

Illustrations (Books): H.J. Noltie, *The Grasses of Bhutan* (2000) (611, Fig. 27), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 499).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Emodi Montes, Latin name of Himalayas.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 80–130 cm long. Lateral branches lacking. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1–3(–5) mm long, obtuse. Leaf-blades 25–55 cm long, (4–)8–12 mm wide, glaucous. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle open, lanceolate or ovate, effuse, nodding, 13–35 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 lanceolate, laterally compressed, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 6–7 mm long, 2–3 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume linear, 5–8 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 acuminate. Upper glume linear, 5–8 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 2.5–4 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 0.5–0.66 way up back of lemma, geniculate, 4–9 mm long overall, 1.5–2.5 length of lemma, clearly exerted from spikelet, with twisted column. Palea 2.5 mm long, hyaline, 2 -veined.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

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

Country /Province /State. Western Asia, China. Iran. China South Central, China North-Central, Tibet. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya, India, Pakistan, West Himalaya.

TDWG4. Shaanxi. Sichuan, Yunnan. Bhutan, Sikkim. Nagaland. Punjab, Uttah Pradesh, West Bengal. Himachal Pradesh, Jammu Kashmir.

Calamagrostis epigeios (L.) Roth. *Tent. Fl. Germ.* 1: 34 (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), 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 *C. gigantea*), 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:** *Arundo epigeios* L., *Sp. Pl.* 1: 81 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: (LINN (photo GH)).

Recent Synonyms: *Calamagrostis gigantea* Roshev., non Nutt.(1837), *Bull. Jard. Bot. Acad. Sc. URSS* 30: 294 (1932).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (284), G.Hegi, *Flora von Mitteleuropa* 1 (1909), H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (192, Fig. 115), R.M.Phillip, F.T.E.A., *Gramineae* (1(1970):103, Fig. 35), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (95, Fig 66), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (77, Fig. 36), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (52, Fig. 24 as var. *capensis*), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (188, Fig. 66), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (262), C-C Hsu, *Taiwan Grasses* (1975) (410, Pl. 1379), 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) (711), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 503 as *Calamagrostis epigeios* var. *epigeios* & *C. epigeios* var. *parviflora*).

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): Gk. epi, on; ge, earth. Growing on land whereas related species grow in swamps.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 60–200 cm long, 2–3 -noded. Leaf-sheaths without keel, smooth, glabrous on surface. Ligule an eciliate membrane, 3–12 mm long, lacerate, truncate. Leaf-blades flat or involute, 10–70 cm long, 3–14 mm wide, stiff. Leaf-blade surface ribbed, scaberulous. Leaf-blade margins scaberulous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle contracted, lanceolate to oblong, 15–30 cm long, 3–6 cm wide. Primary panicle branches 5–8 cm long. Panicle branches terete, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 0.3–1 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, 4.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.5–2 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, 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 acuminate. Upper glume lanceolate, 2 length of

adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3–4 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 3–4 mm long overall, not or scarcely exerted from spikelet. Palea elliptic, 0.5–0.7 length of lemma, hyaline, 2 -veined.

Flower and Fruit. Lodicules 2, lanceolate, membranous. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp, fusiform, 1 mm long. Embryo 0.25 length of caryopsis. Hilum punctiform. Endosperm farinose. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS), or 56 (2 refs TROPICOS).

Distribution (TDWG). **Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (*), North America.

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. : Corsica, Channel Islands, France, Monaco, Sardinia, Andorra, Gibraltar, Spain. : Albania, 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. **West-central tropical Africa, Northeast tropical Africa, East tropical Africa, Southern Africa.** Rwanda. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. North-West, Gauteng, Western Cape, Eastern Cape. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Kuril Is, Primorye. Kazakhstan, Kirgizistan, Turkmenistan, Tadzhikistan, Uzbekistan. Iran, Iraq. China South Central, Manchuria. Mongolia. Japan, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent.** India, Pakistan, West Himalaya. **Australia.** Tasmania (*). **Eastern Canada, North-central USA, Northeast USA, Southwestern USA.** Ontario. Minnesota, Wisconsin. Michigan, New York, Pennsylvania.

TDWG4. Sichuan. Sikkim. Uttah Pradesh, West Bengal.

Calamagrostis erectifolia Hitchcock. *N. Am. Fl.* 17: 507 (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:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 7162, 23–24 Sep 1910, Mexico: Jalisco: Nevado de Colima (US-844948).

Illustrations (Books): R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983).

Derivation (Clifford & Bostock 2007): *L. erectus*, tending towards being erect; folium, leaf. With at least some leaf-blades erect.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 100–150 cm long. Ligule an eciliate membrane. Leaf-blades erect, involute, 20–50 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or pyramidal, 15–20 cm long. Primary panicle branches 5–10 cm long. Panicle branches capillary, flexuous. 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 lanceolate, laterally compressed, 4–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.5 mm long.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–6.5 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, 4–6.5 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 acute.

Florets. Fertile lemma lanceolate, 4–6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or scaberulous, glabrous to pubescent. Lemma apex dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus or dorsal, arising 0.5 way up back of lemma, straight or geniculate, 0–5 mm long overall, without a column or with twisted column. Rhachilla extension 2–2.5 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Central Mexico, Southwest Mexico.

TDWG4. Puebla. Colima, Jalisco.

Calamagrostis eriantha (Kunth) Steud. *Synopsis Plantarum Glumacearum* 1: 190. (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).

Basionym or Replaced Name: *Deyeuxia eriantha* Kunth, *Nov. Gen. et Sp.* 1: 145. (1815). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, Feb, Mexico: inter Mexico et Tezcuco (P).

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

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, clumped densely. Basal innovations intravaginal. Culms erect, 35–50 cm long. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades erect, filiform, involute, 10–20 cm long, 1 mm wide. Leaf-blade surface puberulous.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, loose, 7–15 cm long. Primary panicle branches 1–4 -nate. Panicle branches capillary. 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 lanceolate, laterally compressed, 6–6.5 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. Lower glume lanceolate, 6–6.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acuminate. Upper glume lanceolate, 6–6.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 5–6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent or pilose. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 4 mm long overall, clearly exerted from spikelet, with twisted column. Palea keels ciliolate. Palea apex dentate, 2 -fid. Rhachilla extension 2.5–3 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 3 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Central Mexico, Gulf (Mexico).

Distrito Federal, Mexico State, Puebla. Veracruz.

Calamagrostis erythrostachya (Desv.) Hackel ex Stuckert. *Anal. Mus. Buenos Aires, Ser.* 3, 6: 476 (1906).

Regarded by K as a synonym (*C. gayana*).

Basionym or Replaced Name: *Deyeuxia erythrostachya* E.Desv., C. Gay, *Fl. Chil.* 6: 324. (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Gay s.n.*, Chile: Colchagua: Cordillera de Talcaregue (?; IT: BAA).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (360, Fig. 239).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): Gk. erythros, red; stachys, ear of corn. Panicle purple-red.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes elongated. Culms 2–23 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–8 mm long, acute. Leaf-blades curved, elliptic, 0.4–1 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, elliptic or globose, 1–7 cm long. Panicle branches smooth or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or 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, 3.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.5 mm long. Floret callus bearded. Floret callus hairs 1 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, 1.8–2.1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2–2.6 mm long, membranous, without keel, 0–4 -veined, 0–3 -veined or more than 3-veined, without veins or one-veined or several-veined. Lemma lateral veins obscure. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, straight, 3.5–5.5 mm long overall. Palea keels scabrous, adorned above.

Flower and Fruit. Lodicules 2. Anthers 3, 0.5–0.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, 1.4–2 mm long. Embryo 0.33 length of caryopsis. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina South, Chile Central, Chile South.

TDWG4. Mendoza, Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso, Chiloe, Aisen, Magellanes. Coquimbo, Valparaiso, Santiago, Maule, Biobio. Los Lagos, Aisen, Magellanes.

Calamagrostis expansa (Munro ex Hillebr.) Hitchcock. *Mem. Bishop Mus., Honolulu*, 8: 149 (1922).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

Basionym or Replaced Name: *Deyeuxia expansa* Munro ex Hillebr., *Fl. Hawaiian Ils.* :519 (1888). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *C. Wilkes s.n.*, no date, Hawaii: Maui I., Maui Co. (US-866012 (fragm. ex GH)).

Illustrations (Books): W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1506, Pl. 221).

Derivation (Clifford & Bostock 2007): an orthographic error for *inexpansa*..

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 50–60 cm long. Lateral branches lacking. Leaf-sheaths retrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades flat or involute, 15–20 cm long, 5–10 mm wide, 2–4 cm long at summit of culm. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex hardened.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 8–15 cm long. 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 lanceolate, laterally compressed, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 4–5 mm long, 0.5–0.6 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 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 acuminate. Upper glume lanceolate, 7 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 3–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, curved, 5 mm long overall. Palea 2.5–3 mm long, hyaline, 2 -veined. Palea keels scaberulous. Rhachilla extension 0.5–2 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. North-central Pacific. Marquesas. Hawaii.

Calamagrostis fauriei Hack. *Bull. Herb. Boiss.* 7: 653 (1899).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *U. Faurie* 1200, 28 1897, Japan (US-3168576 (fragm. ex W)).

ST: *Faurie* 6253, Japan: Sambongi

ST: *Faurie* 12084, Japan: Ozaka

ST: *Faurie* 13805, Japan: Akita

ST: *Faurie* 1205, Japan: Akita.

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (178, Fig. 62).

Derivation (Clifford & Bostock 2007): in honor of Urbain Jean Faurie (1847–1914) French cleric and amateur botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Cataphylls evident. Rhizomes short. Culms geniculately ascending, 20–60 cm long, 0.8–1.7 mm diam., 2–3 -noded. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades 10–20 cm long, 2–4 mm wide, pruinose. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, 5–10 cm long. Primary panicle branches spreading, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

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. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.25–0.33 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny, recurved at apex. Lower glume lanceolate, 5–7 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 acuminate. Upper glume lanceolate, 5–7 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 4.5–6.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface punctate. Lemma apex dentate, 4 -fid, awned, 5 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, geniculate, 15–20 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 1–4 mm long. Apical sterile florets 1 in number, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 5–7 mm long.

Flower and Fruit. Lodicules 2. Anthers 3, 2.2–2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Japan. Japan Honshu.

Calamagrostis fibrovaginata S. Laegaard. *Novon*, 8(1): 29 (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).

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

Derivation (Clifford & Bostock 2007): *L. fibra*, thread; *vagina*, sheath; *-ata*, possessing. Leaf-sheath fibrous.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 13–35 cm long. Culm-internodes smooth. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1.5 mm long. Leaf-blades straight, 2–10 cm long, 1–3 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 3–6 cm long, 0.8–1.2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or scaberulous, glabrous.

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, 5.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.7 mm long.

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 smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate,

5.5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume primary vein smooth or scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.5–5 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth or scaberulous. Lemma apex entire or erose, obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.4 way up back of lemma, geniculate, 4.5–5 mm long overall, with twisted column. Rhachilla extension 1.5–2 mm long, pubescent, with 0.5–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America, and Southern South America. Venezuela. Colombia, Ecuador, Peru.

Calamagrostis fiebrigii Pilger. *Engl. Jahrb.* 42: 68 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K. Fiebrig 3191*, 25 Mar 1904, Bolivia: Puna Patanca, 3700 m, Ber sichelung (B; IT: BAA-4353, L, US-19114409, US-81687).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): in honor of Karl Fiebrig Gertz (1869–1951) German-born South American botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms 15–30 cm long. Ligule an eciliate membrane, 2–3 mm long, erose. Leaf-blades involute, 5–9 cm long, 2–3 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, linear, dense, 5–9 cm long. Primary panicle branches 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 lanceolate, laterally compressed, 6–7 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, 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, 6–7 mm long, 1–1.1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 6 mm long, membranous, without keel, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 6 mm long overall, with twisted column. Rhachilla extension 0.5 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northeast, Argentina Northwest.

TDWG4. Jujuy, Tucuman.

Calamagrostis filipes (Keng) P.C. Kuo & S.L. Lu ex J.L. Yang. *Fl. Sichuanica*, 5(2): 92 (1988).

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

Basionym or Replaced Name: *Deyeuxia filipes* Keng, *Sunyatsenia*, 6: 93 (1941). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Lijiang Xian, May-Oct. 1922, *J.F. Rock 5957* (HT: US-1214333).

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, 30–60 cm long, 1–1.2 mm diam. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades erect, flat or involute, 6–18 cm long, 2–7 mm wide. Leaf-blade surface smooth or scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Peduncle smooth. Panicle open, lanceolate or pyramidal, 8–15 cm long, 3–5 cm wide. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, flexuous, 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, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.25–0.33 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5–6 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 acuminate. Upper glume lanceolate, 5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, (1–)3 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent or obscure. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 4–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent or extending close to apex. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 6–9 mm long overall, with twisted column. Palea 3–5 mm long, 0.75–1 length of lemma, 2 -veined. Rhachilla extension 1–1.5 mm long, pilose, with 1.5–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 2.5–3 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp, fusiform, 2 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

Calamagrostis foliosa Kearn. *U.S. Dept. Agric. Bull. Agrost.* 11: 17 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.N. Bolander 6470*, 1866, USA: California: Humboldt Co.: Mattole district, near shore (US-556730; IT: GH, MO, UC, US-556731, US-323935, US-843650). US-559610 & US-747033 are possible isotypes.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (713).

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

Derivation (Clifford & Bostock 2007): *L. folium*, leaf; -osa, abundance. Culms with many leaves often separated by long evenly spaced internodes.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 30–60 cm long. Culm-internodes scaberulous. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades involute, 20–50 cm long, 1–2 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above. Panicle contracted or spiciform, linear, continuous or interrupted, 5–12 cm long. Primary panicle branches appressed. Panicle axis scaberulous. Panicle branches scabrous. 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 lanceolate, laterally compressed, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 3 mm long, 0.5–0.66 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 lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 10 mm long, 1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 5–7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 9–10 mm long overall, clearly exerted from spikelet, with twisted column. Rhachilla extension 4–6 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southwestern USA. California.

Calamagrostis fulgida S. Laegaard. *Novon*, 8(1): 26 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Laegaard 53765*, 28 Feb 1985, Ecuador: Zamora-Chinchipec: 2500 m (AAU!; IT: QCA!).

Illustrations (Journals): *Novon* (8: 24 Fig.1C (1998)).

Derivation (Clifford & Bostock 2007): *L. fulgeo*, gleam; -idum, becoming.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms slender, 40–50 cm long, 0.7–1 mm diam. Culm-internodes striate. Leaf-sheaths longer than adjacent culm internode, striately veined, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long, truncate. Leaf-blades involute, 1–1.5 mm wide, stiff. Leaf-blade surface ribbed, grooved adaxially, scabrous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 13 cm long, 1 cm wide. Primary panicle branches appressed, bearing spikelets almost to the base. Panicle axis scabrous. 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 lanceolate, laterally compressed, 4.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus sparsely hairy. Floret callus hairs 0.1 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, much thinner on margins, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.5–5.5 mm long, 1.3 length of adjacent fertile lemma, membranous, with membranous margins, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface glabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma surface asperulous. Lemma apex dentate, 2 -fid, obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 3 mm long overall. Palea 3.5–4 mm long. Rhachilla extension 1 mm long, sparsely hairy, hairy below.

Flower and Fruit. Lodicules 2. Anthers 3, 1.3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Calamagrostis fulva (Griseb.) Kuntze. *Rev. Gen.* 3, 2: 344 (1898).

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

Basionym or Replaced Name: *Agrostis fulva* Griseb., *Goett. Abh.* 24: 294. (1879). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Hieronymus & P.G. Lorentz 77*, 19–23 Mar 1873, Argentina: Salta, Nevado del Castillo (GOET; IT: B, CORD, US-732872 (ex B), US-1126837 (ex W), US-76271 (fragm. ex B)).

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

Derivation (Clifford & Bostock 2007): *L. brown*, deep yellow. Usually a reference to spikelet color.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 50–70 cm long. Ligule an eciliate membrane, 4–5 mm long, acuminate. Leaf-blades 6–12 cm long, 2–3 mm wide. Leaf-blade surface ribbed. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, linear, dense, 12–15 cm long. 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, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.5 mm long, 0.3–0.4 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, yellow, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 3.5–4 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, yellow, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex muticous. Rhachilla extension 1.5 mm long, pilose, with 1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 0.9–1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northwest.

Calamagrostis fuscata (Presl) Steud. *Nom. ed.* 2, 1: 250 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia fuscata* J. Presl, *Rel. Haenk.* 1: 249. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, no date, Peru: Huanuco (PR; IT: US-866013 (fragm.)).

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

Derivation (Clifford & Bostock 2007): *L. fuscus*, dark; -ata, possessing. Spikelets invested with dark hairs.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 25–50 cm long. Leaves mostly basal. Leaf-sheaths 1.5–8 cm long, smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 2–2.5 mm long, truncate. Leaf-blades involute, 5–25 cm long, 1–2 mm wide, coriaceous. Leaf-blade surface scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–9 cm long. Primary panicle branches appressed or ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

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, 6–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 mm long.

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 ciliate. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–6.5 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume primary vein ciliate. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.2–5.3 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.5 way up back of lemma, geniculate, 6–7.5 mm long overall, with twisted column. Rhachilla extension 2–2.5 mm long, pilose, with 1–1.8 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Colombia, Ecuador, Peru.

Calamagrostis gayana (Steud.) Soreng. *Contr. U. S. Natl. Herb.* 48: 203 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Aira gayana* Steud., *Syn. Pl. Gram.* 1: 220 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *D. Gay s.n.*, 1833, Chile: In sumitate montium Cordileras, Chili (P-STEUD-16 (ex hb. Buchinger); IT: BAA (fragm. ex P-STEUD-16), US-76304 (fragm. ex P-STEUD-16 & fig.)).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (360, Fig. 269 as *Deyeuxia erythrostachya*).

Derivation (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of Claude Gay (1800–1873) French botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes elongated. Culms 2–23 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–8 mm long, acute. Leaf-blades curved, elliptic, 0.4–1 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, elliptic or globose, 1–7 cm long. Panicle branches smooth or scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or 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, 3.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.5 mm long. Floret callus bearded. Floret callus hairs 1 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, 1.8–2.1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2–2.6 mm long, membranous, without keel, 0–4 -veined, 0–3 -veined or more than 3-veined, without veins or one-veined or several-veined. Lemma lateral veins obscure. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, straight, 3.5–5.5 mm long overall. Palea keels scabrous, adorned above.

Flower and Fruit. Lodicules 2. Anthers 3, 0.5–0.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, 1.4–2 mm long. Embryo 0.33 length of caryopsis. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile South.

TDWG4. Neuquén, Río Negro.

Calamagrostis gigas Takeda. *Bot. Mag. Tokyo*, 24: 43 (1910).

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: Mt. Shirouma: Takeda.

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

Derivation (Clifford & Bostock 2007): *L. giant*. Culms taller than most other species in the genus.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms 80–200 cm long, 5–7 -noded. Culm-internodes smooth or scaberulous. Leaf-sheaths smooth or scaberulous, pubescent. Ligule an eciliate membrane, 1–3 mm long, pubescent on abaxial surface. Leaf-blades 20–35 cm long, 4–12 mm wide, stiff. Leaf-blade surface smooth or scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle open, lanceolate or ovate, 12–30 cm long, 7–15 cm wide. Panicle branches scabrous. 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 lanceolate, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.5–0.75 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 4–6 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4–6 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 3.5–5.5 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.5 way up back of lemma, straight or geniculate, 5–6 mm long overall, without a column or with a straight or slightly twisted column.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp, oblong, 2 mm long. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Japan. Japan Hokkaido, or Honshu.

Calamagrostis glacialis (Wedd.) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 375 (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).

Basionym or Replaced Name: *Deyeuxia glacialis* Wedd., *Bull. Soc. Bot. Fr.* 22: 178, 179. (1875).
T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *G. Mandon 1312*, no date, Bolivia: La Paz [Sorata] (US-2756380; IST: L, US-863438).

ST: *Weddell s.n.*, Bolivia

ST: *G. Mandon s.n.*, 1851, Bolivia: La Paz: Larecaja: Cordillere de Sorata (IST: US-3048343 (fragm.), US-82507 (fragm.)).

IT: *G. Mandon 1312*, May 1859, Bolivia: Sorata, 5000 m (L).

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. Rhizomes short. Culms erect, 30–55 cm long. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 4–6 mm long, truncate. Leaf-blades involute, 5–18 cm long, 2–3 mm wide, stiff. Leaf-blade surface scabrous. Leaf-blade margins scabrous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, flexuous, 10–20 cm long, 2–2.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

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, 7–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.8 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 smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 7–8 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein smooth or scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5.3–6.3 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 3–4 mm long overall, with twisted column. Rhachilla extension 2 mm long, villous, with 3–4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Calamagrostis griffithii (Bor) G. Singh. *Taxon*, 33(1): 94 (1984).

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

TYPE from Yugoslavia. **Basionym or Replaced Name:** *Deyeuxia griffithii* Bor, K. H. Rechinger, *Fl. Iran., Lief.* 70, 272 (1970). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Osero: Coll?.

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. Culm-internodes smooth. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades conduplicate or convolute, 7–15 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough on both sides, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, effuse, 9–18 cm long, 4–5 cm wide. Primary panicle branches 4–8 cm long. 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, 3.5 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 elliptic, 3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 5–7 mm long overall, with twisted column. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Iran.

Calamagrostis guamanensis F.D. Escalona. *Phytologia*, 65(5): 340 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Escalona & Gallegos 390*, 3 Mar 1985, Ecuador: Napo: 4260 m (ISC; IT: K, MO, QCA, US, VEN).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From the paramo of Guamani, Ecuador.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Basal innovations intravaginal. Culms erect, 6–15 cm long. Leaf-sheaths smooth. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades conduplicate, 2–8 cm long, 2–3 mm wide. Leaf-blade midrib indistinct.

Inflorescence. Inflorescence a panicle. Peduncle 7–14 cm long. Panicle open, lanceolate, 5–8 cm long, 1–2 cm wide. Panicle axis glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 1 mm long. Floret callus pilose. Floret callus hairs 0.5 length of lemma.

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, purple (at tip), 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 4–5 mm long, 1.6 length of adjacent fertile lemma, membranous, purple (at tip), 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2.5–3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or curved, 7–9 mm long overall. Palea 2 mm long. Palea keels scaberulous. Rhachilla extension 1.5 mm long, villous, with 2 mm long hairs.

Flower and Fruit. Anthers 3, 1 mm long, purple. Caryopsis with adherent pericarp, ovoid. Endosperm liquid.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador.

Calamagrostis guatemalensis Hitchcock. *Proc. Biol. Soc. Wash.* 40: 82 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.S. Hitchcock 9120*, 5 Dec 1911, Guatemala: Volcano Agua, alt. 2000–3500 m (US-844985).

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

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Guatemala.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 30–60 cm long. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades involute, 1–3 mm wide. Leaf-blade surface scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted or spiciform, ovate, continuous or interrupted, 7–12 cm long. Primary panicle branches appressed or ascending, 1–3 cm long, bearing spikelets almost to the base. 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 lanceolate, laterally compressed, 4–5 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. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 4–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 6–9 mm long overall, clearly exerted from spikelet, with twisted column. Rhachilla extension 1 mm long, pilose, with 2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southeast Mexico. **Mesoamerica.** Guatemala. Chiapas.

Calamagrostis hackelii Lillo ex Stuckert. *An. Mus. Nac. Buenos Aires*, 21: 100 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: (US-3099597).

Illustrations (Journals): *Darwiniana* 44(1) (2006) as *Deyeuxia*.

Derivation (Clifford & Bostock 2007): Gk. chloa, grass. In honor of Eduard Hackel (1850–1926) Bohemian-born Austrian botanist with special interest in the grasses.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 5–18 cm long, 1 -noded. Ligule an eciliate membrane, 4–7 mm long, acute. Leaf-blades filiform, convolute, 1–3 cm long, 0.2–0.3 mm wide, stiff. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle capitate, ovate, 1.5–2 cm long, 1–1.5 cm wide. 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, 4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.3–0.4 mm long. 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.5 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, muticous. Rhachilla extension 0.8 mm long, glabrous.

Flower and Fruit. Lodicules 2. Anthers 3, 1.8 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, Salta, Tucuman.

Calamagrostis hedbergii Melderis. *Svensk Bot. Tidskr.* 1. 544 (1956).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kenya: Mt. Kenya, Teleki Valley, alpine region, in small rock crevice in the upper part of the valley, 4250 m, 4 Aug 1948, *Hedberg 1810* (HT: UPS).

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

Derivation (Clifford & Bostock 2007): in honor of Karl Olov Hedberg (1923-) Swedish botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms geniculately ascending, 35–45 cm long, rooting from lower nodes. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades 3–6 cm long, 1–2 mm wide, stiff. Leaf-blade surface ribbed, scaberulous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate, hardened.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle spiciform, oblong, 5–6 cm long, 0.8–1.2 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, laterally compressed, 4.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.2–1.5 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, 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, 4.5–5 mm long, 1.6–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 2.5–3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface asperulous, rough above. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 2 mm long overall, not or scarcely exerted from spikelet. Palea hyaline, 2 -veined.

Flower and Fruit. Lodicules 2, lanceolate, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Endosperm farinose. Disseminule comprising a floret.

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa. Kenya.

Calamagrostis hedinii Pilger. *Hedin, S. Tibet*, 6, 3: 93 (1922).

Regarded by K as a synonym (*C. pseudophragmites*).

Accepted by: 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. 501).

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 60 cm long, 4 -noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, striately veined. Ligule an eciliate membrane, 2–5 mm long, erose. Leaf-blades erect, involute, 7–20 cm long, 1–2 mm wide, stiff, glaucous. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, dense, 9 cm long. Primary panicle branches 2–4 cm long, bearing spikelets almost to the base. Panicle branches scabrous. 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, 6 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, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4–5 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 6 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, 3 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, with lobes 2 mm long, awned, 1 -awned. Principal lemma awn dorsal, straight, 1–2 mm long overall. Palea 0.5 length of lemma, hyaline, 2 -veined.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

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

Country /Province /State. Middle Asia, China. Kirgizistan, Tadjikistan. China South Central, Qinghai, Tibet, Xinjiang. **Indian Subcontinent.** India, Pakistan.

TDWG4. Sichuan.

Calamagrostis heterophylla (Wedd.) Pilger. *Engl. Jahrb.* 42: 64 (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).

Basionym or Replaced Name: *Deyeuxia heterophylla* Wedd., *Bull. Soc. Bot. Fr.* 22: 177, 180. (1875). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: A. *D'Orbigny* 202, no date, Bolivia: Potosi (US-1126729 (fragm.)).

LT: *Weberbauer* 417, Peru: bei Pucara, Bahnsttion in der Richtung Puno-Cuzco, auf offenen Matten bei 3700 m (P). LT designated by Pilger, *Bot. Jahr. Syst.* 42: 64 (1909).

ST: *Weddell*, Bolivia.

Illustrations (Books): S.A.Renouze, *Gramineas de Bolivia* (1998) (208, Fig. 45 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): Gk. heteros, different; phyllon, leaf. Culms with two types of leaf-blade. Usually the basal leaves are fine-bladed and those of the culm are conspicuously broader.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 8–60 cm long. Leaf-sheaths glabrous on surface or puberulous. Ligule an eciliate membrane, 1.5–4 mm long, truncate. Leaf-blades 3–15 cm long, 2–5 mm wide. Leaf-blade surface pubescent, hairy on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted or spiciform, linear, 2–20 cm long, 0.6–2 cm wide. Primary panicle branches appressed or ascending, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

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, 3.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.4–1 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, light green or purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous. Lower glume apex acute. Upper glume lanceolate, 3.5–4.5 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, light green or purple, 1-keeled. Upper glume surface puberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.7 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous, glabrous or puberulous. Lemma apex dentate, 3–4 -fid, awned, 5 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, geniculate, 4.3–5.8 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 0.5 mm long. Rhachilla extension 0.6–1 mm long, pubescent, with 0.5–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America, Southern South America. Venezuela. Bolivia, Ecuador, Peru. Argentina Northwest, Chile North.

TDWG4. Jujuy, La Rioja, Salta. Tarapaca.

Calamagrostis hieronymi Hack. *Oesterr. Bot. Zeitschr.* 52: 109 (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 Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Hieronymus & Niederlein* 4, 8 Nov 1879, Argentina: La Rioja: Cuesta de la Puerta de Piedra, Sierra de Velasco (W; IT: B, BAA- (fragm. ex B), US-85120).

Recent Synonyms: *Deyeuxia hieronymi* (Hack.) Turpe, *Lilloa* 31: 122 (1962)

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): in honor of George Hans Emmo Wolfgang Hieronymus (1846–1921) German botanist, sometime resident of Argentina.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–60 cm long. Culm-internodes scaberulous. Leaf-sheaths 15–25 cm long, glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, erose, obtuse. Leaf-blades flat or convolute, 20–60 cm long, 1–4.7 mm wide. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, dense, 10–20 cm long. 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 lanceolate, laterally compressed, 3.8–4.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet, 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 acute. Upper glume lanceolate, 3.5–4 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.8–4.3 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma midvein ciliolate. Lemma surface pubescent. Lemma apex erose, obtuse, mucronate or awned, 1 -awned. Principal lemma awn subapical, straight, 1 mm long overall. Palea 1 length of lemma. Palea keels scabrous. Rhachilla extension 1.5–2 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.8–2 mm long. Stigmas 2. Caryopsis with adherent pericarp, lanceolate, 1.5–1.8 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, Tucuman. Cordoba.

Calamagrostis hillebrandii (Munro ex Hillebr.) Hitchcock. *Mem. Bishop Mus., Honolulu*, 8: 147 (1922).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA: Hawaii: Maui: top of Mt. Eeka, *Forbes* 369.

Illustrations (Books): W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1510, Pl. 222).

Derivation (Clifford & Bostock 2007): in honor of Wilhelm Hillebrand (1821–86) German physician and botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 30–50 cm long. Lateral branches lacking. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1 mm long, erose. Leaf-blades flat or involute, 10–15 cm long, 2–4 mm wide, 2–4 cm long at summit of culm, stiff. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 5–10 cm long, 3–7 cm wide. Primary panicle branches ascending, rebranched below middle. Panicle branches smooth, glabrous in axils or pubescent in axils. 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, 4–6 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. Lower glume lanceolate, 4–6 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 acuminate. Upper glume lanceolate, 4–6 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein smooth. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 4–5 mm long, membranous, much thinner above, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex dentate, 4 -fid, awned, 5 -awned. Principal lemma awn dorsal, arising 0.5–0.75 way up back of lemma, curved, 5–10 mm long overall. Palea 1 length of lemma, hyaline, 2 -veined. Palea keels scaberulous. Rhachilla extension 2.5–3 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. North-central Pacific. Marquesas. Hawaii.

Calamagrostis hirsuta Vassiliev. *Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS*, 13: 50 (1950).

Regarded by K as a synonym (*C. angustifolia*).

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

Derivation (Clifford & Bostock 2007): L. hairy. Plant hairy in respect to all or some parts.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 26–50 cm long. Culm-internodes antrorsely scabrous, distally glabrous or pilose. Leaf-sheaths scaberulous. Ligule a ciliate membrane, 1.2–3.4 mm long, truncate or obtuse. Leaf-blades straight, filiform, convolute, 17–33 cm long, 1–3 mm wide, stiff. Leaf-blade surface scabrous, rough on both sides, glabrous or puberulous, hairy adaxially. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle, shorter than basal leaves. Panicle contracted, linear, 8–14 cm long, 0.5–1 cm wide. Primary panicle branches 2–6 cm long. Panicle axis smooth or scaberulous. Panicle branches hispidulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.8–2.5 mm long, pubescent.

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, 4.4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.6–0.8 mm long, 0.25 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4.4–5 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 surface scabrous. Lower glume apex acute. Upper glume lanceolate, 4.4–5 mm long, membranous, mid-green or purple, 1-keeled, 3-veined. Upper glume primary vein scabrous. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.6–4.6 mm long, membranous, mid-green or purple, without keel, 5-veined, more than 3-veined. Lemma surface scabrous, rough generally or above. Lemma apex dentate, 4-fid, awned, 1-awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 4–5 mm long overall, not or scarcely exerted from spikelet, with twisted column. Palea 2.8–3.6 mm long. Rhachilla extension 2.8–3.6 mm long, pilose, with 1–1.4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 1.6–2.2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Calamagrostis hirta (Sodirol ex Mille) S. Laegaard. *Novon*, 8(1): 29 (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).

Basionym or Replaced Name: *Deyeuxia hirta* Sodirol, *Rev. Col. Nac. Vicente Rocafuerte*, 11 Nos. 40–41, 76 (1930). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sodirol or Mille s.n.*, Ecuador: Pichincha (QPLS?).

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. Culms geniculately ascending, 85 cm long. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 1 mm long, obtuse. Leaf-blades 10–25 cm long, 3 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, interrupted, 15 cm long, 2 cm wide. 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, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5.5–6.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 5.5–6.5 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein ciliolate. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 5 mm long, membranous, without keel, 5-veined, more than 3-veined. Lemma lateral veins excurrent (1–2mm). Lemma surface glabrous. Lemma apex dentate, 4-fid, awned, 1-awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 6–7 mm long overall, with 4–5 mm long limb. Palea 2 mm long, 2-veined. Palea keels approximate. Rhachilla extension 1.3 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Calamagrostis holmii Lange. *Th. Holm, Novaia-Zemlia's Vegetation*, 20 (1887).

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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Th. Holm s.n.*, 13 Sep 1882, Europ. Russia: [Arkhangelsk prov.]: Yugorski Shar strait (LE, US-863544 (fragm.)).

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

Derivation (Clifford & Bostock 2007): in honor of Herman Theodor Holm (1854–1932) Danish-born United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Stolons absent or present. Culms decumbent, 15–20 cm long. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.5–3 mm long. Leaf-blades flat or involute, 2–3 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle open or contracted, linear or lanceolate, 3–5 cm long. 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, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.75 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, shiny. Lower glume elliptic, 3–5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 3–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.6 way up back of lemma, straight or curved, 0.5–2 mm long overall, not or scarcely exerted from spikelet. Palea 0.66 length of lemma. Rhachilla extension 0.5 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5–2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

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

Region. Eastern Europe.

Country /Province /State. North European Russia. Siberia, Russian far east. Krasnoyarsk. Kamchatka, Magadan. **Subarctic America.** Alaska.

TDWG4.

Calamagrostis howellii Vasey. *Coult. Bot. Gaz.* 6: 271 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Howell s.n.*, 1881, USA: Oregon (US; IT: MO, PH).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (711).

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 30–50 cm long. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–6 mm long, erose, acute. Leaf-blades conduplicate or involute, 1–2.5 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 5–15 cm long. Primary panicle branches spreading, whorled at lower nodes, 3–5 cm long. 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.5–3 mm long, 0.25–0.5 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 6–7 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4 way up back of lemma, geniculate, 10–15 mm long overall, with twisted column. Palea 0.75 length of lemma. Rhachilla extension 0.5 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2, 1 mm long. Anthers 3, 3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

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

Calamagrostis hupehensis (Rendle) Chase. *Contrib. Inst. Bot. Nat. Acad. Peiping*, 4 :151 (1936).

Not on *GrassBase*.

Basionym or Replaced Name: *Deyeuxia hupehensis* Rendle, *Journ. Linn. Soc.* 36: 394. (1904). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Hubei.; A. *Henry 6726* (HT: BM; IT: K, US-801821).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Hupeh, China.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending, 50–80 cm long, 1–1.3 mm diam., 2 -noded. Leaf-sheaths smooth, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades conduplicate, 15–30 cm long, 4–8 mm wide. Leaf-blade surface scaberulous, rough abaxially, pubescent, hairy adaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, linear, dense, 15 cm long, 2.5–3 cm wide. Primary panicle branches ascending, bearing spikelets almost to the base. Panicle branches 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, 3.5–4 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, 3.5–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume margins ciliate. Lower glume apex acute. Upper glume elliptic, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0–0.1 way up back of lemma, geniculate, 5–6 mm long overall, with twisted column. Rhachilla extension pilose, with 1.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China.

Calamagrostis inexpansa A. Gray. *N. Amer. Gram. & Cyper.*, 1: 20 (1834).

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: *H.P. Sartwell s.n.*, 1833, USA: New York: Yates Co.: Penn Yan (?; IT: MO).

Recent Synonyms: *Calamagrostis crassiglumis* Thurb. ex S. Wats., *Bot. Calif.* 2: 281 (1880). *Calamagrostis fernaldii* Louis-Marie, *Rhodora*, 46: 290 (1944).

Calamagrostis labradorica Kearm., *U.S. Dept. Agric. Bull. Agrost.* 11: 38. (1898).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (201 as *Deyeuxia*), K.F.Best, et al, *Prairie Grasses* (1971) (83).

Derivation (Clifford & Bostock 2007): an orthographic error for *inexpansa*..

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Butt sheaths persistent and investing base of culm. Culms 40–120 cm long. Culm-internodes antrorsely scabrous. Lateral branches lacking. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 4–10 mm long, erose or lacerate, truncate or obtuse. Collar glabrous. Leaf-blades involute, 10–30 cm long, 2–4 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle contracted, linear, 5–15 cm long, 1–1.5 cm wide. Primary panicle branches appressed, 2–3 cm long. 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, 3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.66 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, 3.5 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 lanceolate, 3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure, excurrent. Lemma surface puberulous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4 way up back of lemma, straight, 2–2.5 mm long overall, not or scarcely exerted from spikelet. Palea 2.5 mm long. Rhachilla extension 1 mm long, 0.25 length of fertile floret, villous.

Flower and Fruit. Lodicules 2, 1.8 mm long. Anthers 3, 1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 70$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America.

Country /Province /State. Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA. Alaska, Yukon, Northwest Territories, Nunavut, Greenland. Manitoba. Labrador, Newfoundland, Nova Scotia, Ontario, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Iowa, Minnesota, Missouri, North Dakota, Nebraska, South Dakota, Wisconsin. Maine, Michigan, New Hampshire, Vermont. Arizona, California, Nevada, Utah. New Mexico. Maryland, Virginia.

Calamagrostis insperata Swallen. *Journ. Wash. Acad. Sc.* 25: 413 (1935).

Accepted by: 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: *F. Bartley & Leslie L. Pontius 10*, 1 Aug 1934, USA: Ohio: Jackson Co., Liberty Township, Ofir Hollow (US-1611713; IT: MO).

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

Derivation (Clifford & Bostock 2007): *L. unexpected*. A newly recognized genus in an otherwise taxonomically well studied genus.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 85–95 cm long. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 5 mm long. Leaf-blades 10–22 cm long, 3–8 mm wide. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 12–14 cm long. Primary panicle branches ascending, 2–5 cm long. Spikelets appressed, 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 lanceolate, laterally compressed, 5–5.5 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. Lower glume lanceolate, 4–5 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, 5–5.5 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 3 mm long overall, not or scarcely exerted from spikelet, with a straight or slightly twisted column. Rhachilla extension 0.5 mm long, pilose, with 2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northeast USA. Ohio.

Calamagrostis intermedia Lindeb. ex Nym., in syn. *Consp.* 799 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Deyeuxia intermedia* J. Presl, *Rel. Haenk.* 1: 249. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Haenke s.n.*, Peru (PR).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (116, Fig. 36).

Derivation (Clifford & Bostock 2007): *L. intermediate*. Having affinities with but distinct from other species.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 45–110 cm long, 1.5–3 mm diam. Culm-internodes thin-walled, distally glabrous. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles erect, 1.5–3.5 mm long. Ligule an eciliate membrane, 1–2.9 mm long. Leaf-blades involute, 10–45 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface scaberulous, rough abaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 12–35 cm long. Primary panicle branches ascending, 4–8 cm long. Panicle branches scabrous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 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, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.5–1 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 5–6.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface scaberulous. Lemma apex dentate, 2 -fid, with lobes 1 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 7–11 mm long overall, with twisted column. Palea 4–5 mm long. Rhachilla extension 1.5–3.5 mm long, pilose, with 1–1.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 2.5–2.8 mm long, yellow or purple. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 56$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Central Mexico, Gulf (Mexico), Southwest Mexico. **Mesoamerica, Western South America.** Costa Rica, Panama. Bolivia, Colombia, Ecuador, Peru.

Mexico State. Veracruz. Oaxaca.

Calamagrostis involuta Swallen. *Contrib. U. S. Nat. Herb.* 29: 259 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.P. Killip & A.C. Smith 17618*, 18 Jan 1927, Colombia: Norte de Santander (US-1353180).

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

Derivation (Clifford & Bostock 2007): *L. involvo*, inroll. Leaf-blades inrolled.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 18–28 cm long. Leaf-sheaths longer than adjacent culm internode, glabrous on surface or pilose, with reflexed hairs. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades involute, 5–10 cm long. Leaf-blade surface glabrous or pilose.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–7 cm long, 0.3–0.6 cm wide. Primary panicle branches appressed, 1–2 cm long. 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, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5 mm long, 0.1 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 5–5.5 mm long, 0.9 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous (above). Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–5.5 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, straight, 6 mm long overall, with twisted column. Rhachilla extension 1.4 mm long, pubescent.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Calamagrostis jamesonii Steud. *Syn. Pl. Gram.* 191 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Jameson s.n.*, Ecuador: Pichincha (US-844980 (fragm.), US-844979, US-844981).

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

Derivation (Clifford & Bostock 2007): in honor of William Jameson (1796–1873) who collected in South America.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 6–24 cm long. Culm-internodes purple. Ligule an eciliate membrane, 1–2 mm long, lacerate. Leaf-blades curved, involute, 1–4.5 cm long, 1–2 mm wide, herbaceous or coriaceous. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade margins pubescent. Leaf-blade apex obtuse or abruptly acute.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, ovate, 1.8–4 cm long, 1–1.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1 length of fertile spikelet, pubescent or ciliate.

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, 5.7–6.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 mm long.

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 ciliate. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5.7–6.3 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume primary vein ciliate. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–4.5 mm long, membranous, without keel, more than 3-veined. Lemma apex entire or dentate, 2 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight, 1.5–2 mm long overall. Rhachilla extension 1.5–2 mm long, villous, with 3–4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Colombia, Ecuador, Peru.

Calamagrostis kalarica Tzvelev. *Fl. Arct. URSS, Fasc. 2*, 74 (1964).

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

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

Derivation (Clifford & Bostock 2007): *L. -ica*, belonging to. From Kalar Mountains, Transbaical Province, former Soviet Union.

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 erect, 20–40 cm long. Lateral branches lacking. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades flat or conduplicate, 2–5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 3–9 cm long. Panicle branches scaberulous, rough distally. 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, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.33–0.5 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4–6 mm long, 1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 4–5 mm long overall, with twisted column. Palea hyaline, 2 -veined. Rhachilla extension 1–2 mm long, villous.

Flower and Fruit. Lodicules 2, lanceolate, membranous. Anthers 3, 1.6–2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia. Buryatiya, Chita.

TDWG4.

Calamagrostis kasmiriana (Bor) Govaerts. *World Checkl. Seed Pl.* 3(1): 10. (1999).

Not on *GrassBase*.

Basionym or Replaced Name: *Deyeuxia kashmiriana* Bor, *Kew Bull.* 1954: 558 (1955), *Deyeuxia hackelii* Bor, *Kew Bull.* 1954: 497 (1954).

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

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Kashmir.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 45–90 cm long. Ligule an eciliate membrane, 6 mm long, truncate. Leaf-blades 10–20 cm long, 3–6 mm wide. Leaf-blade surface smooth or scabrous, rough adaxially, glabrous. Leaf-blade margins scaberulous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 9–18 cm long, 1–3 cm wide. Primary panicle branches appressed, 2–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete.

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, 6–7 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, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 6–6.5 mm long, 1 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume surface scabrous. Lower glume apex acuminate. Upper glume lanceolate, 6–6.5 mm long, 1.2 length of adjacent fertile lemma, chartaceous, 1-keeled, 3–5 -veined. Upper glume surface scabrous. Upper glume apex acuminate.

Florets. Fertile lemma oblong or ovate, 5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 4 mm long overall, with twisted column. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2, membranous. Anthers 3, 2–2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Calamagrostis kengii T. F. Wang. *Acta Phytotax. Sin.* 10: 312 (1965).

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: Heilongjiang: Shanchi, Maorshan, 13 July 1961, *Y.B. Chang & G.J. Yin 3660* (HT: Acad. Silvicult. Bor.-Or., Harbin).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 504).

Derivation (Clifford & Bostock 2007): In honor of Keng Yi-li (1894–1975) Chinese agrostologist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 90–135 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–4(–7) mm long, entire or lacerate, truncate. Leaf-blades convolute, 25–35 cm long, 5 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, interrupted, 12–17(–22) cm long, 1.2–2.5 cm wide. 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 5.5–6.9 mm long, 1.3–1.5 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 6–7 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, 6–7 mm

long, 1.4 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 4–5 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 2.5–3 mm long overall. Palea 2.6–3 mm long, 0.6–0.8 length of lemma, hyaline, 2 -veined. Palea keels scaberulous. Rhachilla extension 0.5–0.8 mm long, pilose, hairy above.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. Manchuria.

TDWG4.

Calamagrostis killipii Swallen. *Contrib. U. S. Nat. Herb.* 29: 257 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.P. Killip & A.C. Smith 17466*, 17 Jan 1927, Colombia: Norte de Santander: Paramo de Santurban, near Vetas, alt. 3950–4160 m (US-1253058; IT: MO-996239).

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

Derivation (Clifford & Bostock 2007): in honor of Ellsworth Paine Killip (1890–1968) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 20–28 cm long. Leaf-sheaths longer than adjacent culm internode, glabrous on surface or puberulous. Ligule an eciliate membrane, 0.8 mm long, erose. Leaf-blades erect, involute, 6–15 cm long. Leaf-blade venation prominent. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins ciliate, hairy at base.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–8 cm long, 0.8–1.2 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, 6.5–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1 mm long, 0.2 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 6.5–7.5 mm long, 1 length of upper glume, membranous, much thinner above, purple, 1-keeled. Lower glume apex acuminate. Upper glume lanceolate, 6.5–7.5 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, much thinner above, purple, 1-keeled. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 7 mm long overall, with twisted column. Rhachilla extension 3 mm long, villous, hairy throughout but longer above, with 7 mm long hairs.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Calamagrostis koelerioides Vasey. *Coult. Bot. Gaz.* 16: 147 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.R. Orcutt s.n.*, Jul 1890, USA: California: San Diego Co.: collected near Julian (US-556738; IT: US-843899).

Recent Synonyms: *Calamagrostis densa* Vasey, *Coult. Bot. Gaz.* 16:147 (1891).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (722).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Koeleria* especially with respect to the inflorescence.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes absent or short. Culms 40–80 cm long. Lateral branches lacking. Leaf-sheaths smooth. Ligule an eciliate membrane, 1.5–3.5 mm long, pubescent on abaxial surface, erose or lacerate, truncate or obtuse. Collar glabrous. Leaf-blades flat or involute, 2–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle contracted, linear, 7–12 cm long, 1–1.5 cm wide. 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, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.24–0.5 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins distinct. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 5–6 mm long overall, not or scarcely exerted from spikelet, with twisted column. Palea 1 length of lemma. Rhachilla extension 1.2 mm long, 0.25 length of fertile floret, pilose, with 1 mm long hairs.

Flower and Fruit. Lodicules 2, 0.6 mm long. Anthers 3, 2.2–3.2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northwest USA, Southwestern USA. Idaho, Montana, Oregon, Washington, California.

***Calamagrostis x kolymaensis* Komarov. *Not. Syst. Herb. Hort. Petrop.* ii. 129 (1921).**

Not on *GrassBase*.

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.

Flower and Fruit. $2n = 42$ (1 ref TROPICOS).

***Calamagrostis korshinskyi* Litw. *Not. Syst. Herb. Hort. Petrop.* 2: 122 (1921).**

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

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

Derivation (Clifford & Bostock 2007): in honor of Sergei Iwanowitsch Korzhinskii (1860–1900) Russian botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes elongated. Culms erect, 50–70 cm long, 3–4 -noded. Lateral branches lacking. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades flat or involute, 3–4 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 10–15 cm long. 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, 4 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, exceeding apex of florets, firmer than fertile lemma. 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, 1.6 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 2.5 mm long, membranous, 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, straight, 2–3 mm long overall. Palea 0.5 length of lemma. Rhachilla extension 0.4 mm long, pilose, with 1.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Middle Asia. Turkmenistan.

TDWG4.

Calamagrostis lahulensis Singh. *Taxon* 33:94 (1984).

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

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (611, Fig. 27).

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Lahul District, India.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect, 15–30 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1 mm long. Leaf-blades flat or involute, 13.5 cm long, 2.5–3 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy adaxially. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, equilateral, 2.5–5 cm long. Panicle branches 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 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, 4–4.5 mm long, 0.9–1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 4–5 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong or ovate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, 3 mm long overall. Palea 3 mm long, hyaline, 2 -veined. Rhachilla extension 1.5–2 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

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

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

TDWG4. Darjeeling, Bhutan, Sikkim. Uttah Pradesh. Himachal Pradesh.

Calamagrostis lapponica (Wahlenb.) Hartm. *Gen. Gram.* 5 (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), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

Basionym or Replaced Name: *Arundo lapponica* Wahlenb, *Fl. Lapp.* 27, pl. 1 (1812). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Wahlenberg s.n.*, Lapponia (UPS; IT: L, LE).

Recent Synonyms: *Deyeuxia lapponica* (Wahlenb.) Kunth, *Revis. Gramin.* 1: 76 (1829).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (731), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 489).

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Lapponia, now Lapland.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 27–80 cm long. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades flat or involute, 5–15 cm long, 2–4 mm wide. Leaf-blade surface ribbed, smooth or scaberulous.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle contracted, oblong, 7–15 cm long. 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 lanceolate, laterally compressed, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.75–1 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, 4.5–5.5 mm long, 1.3–1.6 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight or curved, 1.5 mm long overall, not or scarcely exerted from spikelet. Rhachilla extension 0.5 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5–2.1 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS), or 112 (1 ref TROPICOS).

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

Region. Northern Europe, Eastern Europe.

Country /Province /State. : Finland, Norway, Sweden. Central European Russia, East European Russia, North European Russia. Siberia, Russian far east, **China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Khabarovsk, Kuril Is, Magadan, Primorye, Sakhalin. China South Central, Inner Mongolia, Manchuria, China North-Central, Tibet, Xinjiang. Mongolia. Korea. **Subarctic America, Western Canada, Eastern Canada.** Greenland. Alberta, British Columbia, Manitoba, Saskatchewan. Labrador, Ontario, Quebec.

TDWG4. Gansu. Sichuan.

Calamagrostis leiophylla (Wedd.) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 367 (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.

Basionym or Replaced Name: *Deyeuxia leiophylla* Wedd., *Bull. Soc. Bot. Fr.* 22: 177, 180. (1875).
T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *G. Mandon* 1299, 1858, Bolivia (P; IT: US-81869, W).

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

Derivation (Clifford & Bostock 2007): Gk. leios, smooth; phyllon, leaf. Leaf-blades glabrous.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 50–100 cm long. Ligule an eciliate membrane. Leaf-blades flat or involute, 3–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, nodding, 20 cm long. Primary panicle branches spreading. 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, 7–8 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 7–8 mm long, 1.4–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5 mm long, membranous, without keel, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 4–5 mm long overall, with a straight or slightly twisted column. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Western South America.** Bolivia.

Calamagrostis leonardii Chase. *Journ. Wash. Acad. Sc.* 17 : 72 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: West Indies: Haiti: vicin. of Furcy: open mt. top, red clay: 1300m: 26 May 1920, *Leonard* 4325.

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (72, Fig. 40).

Derivation (Clifford & Bostock 2007): in honor of Emery Clarence Leonard (1892–1968) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, culms solitary. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms geniculately ascending, 60–100 cm long. Culm-nodes brown. Leaves cauline. Leaf-sheaths smooth, pubescent, with reflexed hairs. Ligule an eciliate membrane, 3–4 mm long, erose.

Leaf-blades 6–20 cm long, 2–5 mm wide. Leaf-blade surface scabrous, glabrous or pilose, sparsely hairy, hairy adaxially. Leaf-blade margins ciliate.

Inflorescence. Inflorescence a panicle. Panicle open, linear, nodding, 12–20 cm long, 2–4 cm wide. Primary panicle branches ascending, 2–5 cm long, bearing spikelets almost to the base. Panicle branches scabrous. 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 lanceolate, laterally compressed, 4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 2 mm long, 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, much thinner on margins, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 4.5 mm long, 1.1 length of adjacent fertile lemma, membranous, with hyaline margins, purple, 1-keeled, 1 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–4.2 mm long, membranous, much thinner above, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, flexuous, 6 mm long overall, clearly exerted from spikelet. Rhachilla extension 1.5 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico.

Calamagrostis ligulata (HBK) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 372 (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).

Basionym or Replaced Name: *Deyeuxia ligulata* Kunth, *Nov. Gen. et Sp.* 1: 145. (1815). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland 60*, Jan, Ecuador: Pichincha: Montis Javeral, 2750 m (P; IT: US-3049486 (fragm.)).

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

Derivation (Clifford & Bostock 2007): L. ligula, small tongue; -ata, possessing. Ligule conspicuous.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms erect, 25–65 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 10–15 mm long, acuminate. Leaf-blades conduplicate, 3–15 cm long, 1–2 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 7–15 cm long. Primary panicle branches ascending. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 5–5.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Floret callus bearded. Floret callus hairs 1 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–5.8 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4.8 mm long, membranous, without keel, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, straight, 3.5–4 mm long overall. Rhachilla extension 1.5–1.8 mm long, pilose, with 2–3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Bolivia, Colombia, Ecuador, Peru.

Calamagrostis llanganatensis S. Laegaard. *Novon*, 8(1): 26 (1998).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *L.B.Holm-Nielsen & J.Jaramillo 28362*, 10 Nov 1980, Ecuador: Prov. Tungurahua: Cordillera de los Llanganates, saddle between Rmo Topo and Rmo Verde on W side of Cerro Hermoso, 2.4 km from summit, polylepis scrub, 78:18'W 01.:13'S, 3850 m (QCA!; IT: AAU!, MO-5100252!, US-3352671!).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (8: 24 Fig.1D (1998)).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Cordillera de los Llanganates, Ecuador.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Rhizomes short. Culms 120–150 cm long, 3 mm diam. Culm-internodes distally glabrous. Culm-nodes brown. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined, glabrous on surface. Ligule an eciliate membrane, 3–4 mm long, scaberulous on abaxial surface, erose, obtuse. Leaf-blades 15–20 cm long, 6–10 mm wide. Leaf-blade surface ribbed, grooved adaxially, scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 40–50 cm long, 10–15 cm wide. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, flexuous, 5–8 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 lanceolate, laterally compressed, 2.5–2.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 2.3 mm long, 1 length of lemma.

Glumes. Glumes persistent, similar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, purple, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–2.7 mm long, 1.1 length of adjacent fertile lemma, membranous, purple, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2.3 mm long, membranous, pallid, without keel, 0 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma apex erose, obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 1–1.5 mm long overall, not or scarcely exerted from spikelet. Palea 1.5 mm long, 0 -veined.

Flower and Fruit. Lodicules 2. Anthers 3, 1 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Calamagrostis longiseta Hack. *Bull. Herb. Boiss.* 7:650 (1899).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *J. Matsumura 57*, no date, Japan: Sadi Island (W; IST: US-3168580 (fragm. ex W)).

ST: *Matsumura s.n.*, Japan: in m. Shimizutooge, prov. Echigo.

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

Derivation (Clifford & Bostock 2007): *L. longus*, long; seta, bristle. Glumes or lemmas long awned.

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, 20–80 cm long, 1.2–1.5 mm diam., 2–3 -noded. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades involute, 15–30 cm long, 2–6 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 8–15 cm long, 2.5–4 cm wide. Primary panicle branches 4–8 -nate, 1–3 cm long. Panicle branches scabrous. 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 lanceolate, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.66–0.75 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 4–5 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 acuminate. Upper glume lanceolate, 4–5 mm long, 1.1 length of adjacent fertile lemma, membranous, with hyaline margins, 1-keeled. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 3.5–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, geniculate, 7–10 mm long overall, with a straight or slightly twisted column. Palea 0.75 length of lemma.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Japan. Japan Honshu.

Calamagrostis macbridei Tovar. *Mem. Mus. Hist. Nat. Javier Prado*, No. 11, 62 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.F. MacBride & W. Featherstone s.n.*, 12 Jun 1922, Peru: Pasco (US-1161508).

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

Derivation (Clifford & Bostock 2007): in honor of James Francis Macbride (1892-) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 35–50 cm long. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.8–1.5 mm long, pubescent on abaxial surface. Leaf-blades 4–7 cm long, 1.5–3 mm wide. Leaf-blade surface pubescent, densely hairy, hairy abaxially.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 6–9 cm long. 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, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.6 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5–5.5 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 acute. Upper glume lanceolate, 5–5.5 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, geniculate, 5.5–6 mm long overall, with twisted column. Rhachilla extension 0.8 mm long, pubescent, with 0.5–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Calamagrostis macrolepis Litw. *Not. Syst. Herb. Hort. Petrop.* 2: 125 (1921).

Regarded by K as a synonym (*C. epigeios*).

Accepted by: S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tajikistan: Shugnan, Anderob village on Pyanja, 9 Aug. 1897, *S. Korzhinskii* 6065 (HT: LE).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 500).

Derivation (Clifford & Bostock 2007): Gk *makros*, large; *lepis*, scale. Glumes and or lemmas large.

Classification. Subfamily Pooideae. Tribe: Poeae.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Middle Asia, Caucasus, China, Mongolia, Eastern Asia, Russia. Tadzhikistan. Inner Mongolia, Manchuria, China North-Central, Qinghai, Xinjiang. Mongolia. Japan.

TDWG4. Hebei, Shanxi.

Calamagrostis macrophylla (Pilger) Pilger. *Bot. Jahrb.* 42:60 (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).

Basionym or Replaced Name: *Deyeuxia macrophylla* Pilger, *Engl. Jahrb.* 25: 711. (1898).

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

Derivation (Clifford & Bostock 2007): Gk. makros, large; phyllon, leaf. Leaf-blades large.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms decumbent, 50–130 cm long. Leaf-sheaths smooth or antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long, acuminate. Leaf-blades involute, 20–45 cm long, 2–3 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, interrupted, dense, 15–30 cm long, 2–3 cm wide. Primary panicle branches ascending. Panicle branches puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

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, 6–7.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.7–1 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, light green or purple, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7.8 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, light green or purple, 1-keeled. Upper glume primary vein smooth or scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5.5–6.5 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth or scaberulous. Lemma apex dentate, 2–3 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 7–9 mm long overall, with twisted column. Rhachilla extension 2.7–3.5 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador, Peru.

Calamagrostis malamalensis Hackel ex Stuckert. *Anal. Mus. Buenos Aires, Ser.* 3, 6: 478 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: (US-3099599).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Cumbre de Malamala, Tucuman Province, Argentina.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 20–30 cm long, 1 -noded. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3–4 mm long, acuminate. Leaf-blades filiform, convolute, 8–20 cm long, 0.5 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 10–20 cm long. Primary panicle branches spreading, whorled at most nodes. 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.5 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, 1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, 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, 5–5.5 mm long overall, with twisted column. Palea 3 mm long. Rhachilla extension 1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.8–2 mm long. Stigmas 2. Caryopsis with adherent pericarp, lanceolate, 1.8 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest.

TDWG4. Catamarca, Jujuy, Tucuman.

Calamagrostis mandoniana (Wedd.) Pilger. *Engl.Jahrb.* 49: 183 (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).

Basionym or Replaced Name: *Deyeuxia mandoniana* Wedd., *Bull. Soc. Bot. Fr.* 22 :179, 180. (1875). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *G.Mandon 1308*, Mar 1861, Bolivia: La Paz (L, US-81871, US-844967 (fragm.)).

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 Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 46–120 cm long. Culm-internodes smooth or antrorsely scabrous. Leaf-sheaths smooth or antrorsely scabrous. Ligule an eciliate membrane or a ciliolate membrane, 2–12 mm long, obtuse or acute or acuminate. Leaf-blades flat or convolute, 30–60 cm long, 3.3–3.6 mm wide. Leaf-blade venation with subepidermal sclerenchyma attached to veins above and below, without layer of subepidermal sclerenchyma masking vein striation. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex acute or acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, linear, nodding, 24–52 cm long, 2–5 cm wide. Primary panicle branches ascending or drooping, 10–16 cm long. Panicle axis smooth or scaberulous. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.2–6.6 mm long, 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, 6.2–7.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.8–1.2 mm long, 0.15–0.3 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 6.2–7.8 mm long, 1.05 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 or acuminate. Upper glume lanceolate, 5.8–7.6 mm long, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface scabrous, rough above. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–6.2 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, rough generally or on veins. Lemma apex dentate, 2–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 5–7.2 mm long overall, clearly exerted from spikelet, with a straight or slightly twisted column. Palea 4–5 mm long. Rhachilla extension 1.6–2.4 mm long, villous, with 3.2–4.2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 2.2–2.6 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Calamagrostis matsumurae Maxim. *Bull. Acad. Petersb.* 2: 628 (1886).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

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

Derivation (Clifford & Bostock 2007): in honor of Jinzt Matsumura (1856–1928) Japanese botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Cataphylls evident. Rhizomes short. Culms 50–120 cm long, 1.8–2 mm diam. Leaves cauline. Leaf-sheaths tight, smooth, glabrous on surface. Ligule an eciliate membrane, 2–6 mm long. Leaf-blades 15–30 cm long, 3–8 mm wide. Leaf-blade surface scaberulous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, dense, 7–15 cm long, 2–3 cm wide. Primary panicle branches 1–6 -nate, 1–4 cm long, bearing spikelets almost to the base. Panicle branches scabrous. 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 lanceolate, laterally compressed, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. 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, 3–5 mm long, 1 length of upper glume, chartaceous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3–5 mm long, 1.2 length of adjacent fertile lemma, chartaceous, 1-keeled. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 2.5–4 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins extending close to apex. Lemma surface scabrous. Lemma apex entire, acute, muticous.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Japan. Japan Honshu.

Calamagrostis menhoferi R. Govaerts. *World Checklist Seed Plants*, 3(1): 11 (1999).

Accepted by: R.J.Soreng et al., *Catalogue of 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): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): In honor of Menhofer (fl.1983) who collected in Bolivia.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 26–50 cm long. Culm-internodes antrorsely scabrous, distally glabrous or pilose. Leaf-sheaths scaberulous. Ligule a ciliolate membrane, 1.2–3.4 mm long, truncate or obtuse. Leaf-blades straight, filiform, convolute, 17–33 cm long, 1–3 mm wide, stiff. Leaf-blade surface scabrous, rough on both sides, glabrous or puberulous, hairy adaxially. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle, shorter than basal leaves. Panicle contracted, linear, 8–14 cm long, 0.5–1 cm wide. Primary panicle branches 2–6 cm long. Panicle axis smooth or scaberulous. Panicle branches hispidulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.8–2.5 mm long, pubescent.

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, 4.4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.6–0.8 mm long, 0.25 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4.4–5 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 surface scabrous. Lower glume apex acute. Upper glume lanceolate, 4.4–5 mm long, membranous, mid-green or purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.6–4.6 mm long, membranous, mid-green or purple, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, rough generally or above. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 4–5 mm long overall, not or scarcely exerted from spikelet, with twisted column. Palea 2.8–3.6 mm long. Rhachilla extension 2.8–3.6 mm long, pilose, with 1–1.4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 1.6–2.2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Calamagrostis minarovii Sh.A. Guseinov. *Bot. Zhurn.*, 73(12): 1741 (1988).

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

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 7–90 cm long. Culm-internodes distally glabrous. Leaf-sheaths smooth. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades 4.5–6.5 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 10–14 cm long. 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 lanceolate, laterally compressed, 10–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.66 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 lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 5–6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins distinct. Lemma surface asperulous. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 10–12 mm long overall, with twisted column. Column of lemma awn 5–6 mm long. Rhachilla extension 1.5–2 mm long, villous, with 3–4 mm long hairs.

Flower and Fruit. Anthers 3, 3–4 mm long, yellow.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. North Caucasus.

Calamagrostis minima (Pilger) Tovar. *Mem. Mus. Hist. Nat. Javier Prado*, No. 11, 52 (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).

Basionym or Replaced Name: *Calamagrostis vicunarium* var. *minima* Pilger, *Bot. Jahrb.* 42:63 (1908). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Weberbauer 953, no date, Peru: Puno: Sandia Prov. (B; IT: US-3099601 (fragm. ex B)).

Recent Synonyms: *Deyeuxia minima* (Pilg.) Z. Rugolo de Agrasar, *Revis. Gatt. Deyeuxia Bolivien* 116 (1995).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*), *Ruizia* (13:197, Fig 21a-b (1993)).

Derivation (Clifford & Bostock 2007): L. least. Smallest of the known species.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, cushion forming. Culms erect, 2–5 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane, 0.3 mm long, truncate. Leaf-blades curved, conduplicate or involute, 0.5–1 cm long, 1 mm wide. Leaf-blade margins ciliate. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 1–1.5 cm long, 0.4–0.6 cm wide, bearing few spikelets. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous or puberulous.

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, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.7 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–5.5 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.7–4 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth or scaberulous. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, geniculate, 4.5–4.8 mm long overall, with twisted column. Rhachilla extension 0.6–0.8 mm long, pubescent, with 0.6–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Calamagrostis mollis Pilger. *Engl. Jahrb.* 42: 61 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Hans Meyer 148*, June 1903, Ecuador: in monte Chimborazo ad septentrionali-occidentem versus, in regione Paramo dicta, 4500 m (B; IST: BAA-4643 (fragm. ex B), US-3049482).

ST: *Hans Meyer 149*, June 1903, Ecuador: in monte Chimborazo, paramo, alt. 4000 m (B).

ST: *Hans Meyer 144b*, June 1903, Ecuador: Chimborazo, paramo, alt. 4200 m (B).

ST: *H. Meyer 141*, June 1903, Ecuador: Chimborazo, paramo: alt. 4500 m (B).

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

Derivation (Clifford & Bostock 2007): L. soft. Softly hairy usually of leaf-blades.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Basal innovations extravaginal or intravaginal. Culms 5–20 cm long. Leaf-sheaths pubescent. Ligule an eciliate membrane. Leaf-blades curved, involute, 3–5 cm long, 1–2 mm wide. Leaf-blade surface pubescent. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle spiciform, elliptic or oblong, 4–5 cm long. 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, 7 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 ovate, 7 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 acuminate. Upper glume lanceolate, 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 apex acute.

Florets. Fertile lemma lanceolate, 6.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, with outer lobes longer, awned, 5 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 10 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 1–2 mm long. Palea 0.5 length of lemma. Rhachilla extension 0.33–0.5 length of fertile floret, pilose, with 3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 0.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador, Peru.

Calamagrostis montanensis (Scribn.) Scribn. ex Vasey. *Contrib. U. S. Nat. Herb.* 1: 249 (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).

Basionym or Replaced Name: *Deyeuxia montanensis* Scribn., *Proc. Soc. Promot. Agric. Sc.* 6 (1885). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: USA: Montana, *Scribner & R. S. Williams s.n.*

Illustrations (Books): K.F.Best, et al, *Prairie Grasses* (1971) (85), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (727).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Montana, USA.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, culms solitary. Rhizomes elongated. Butt sheaths papery. Culms 15–35 cm long. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth. Ligule an eciliate membrane, 3–5 mm long, erose or lacerate, obtuse or acute. Leaf-blades erect, involute, 1–3 mm wide, stiff. Leaf-blade surface scabrous. Leaf-blade apex hardened.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle contracted or spiciform, linear, 3–10 cm long, 1–1.5 cm wide. 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, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.33–0.66 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 surface smooth or scabrous. Lower glume apex acuminate. Upper glume lanceolate, 4–5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume surface smooth or scabrous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3.5–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 2.5–3 mm long overall, not or scarcely exerted from spikelet, with twisted column. Palea 3–4 mm long. Rhachilla extension 1.5 mm long, 0.33–0.5 length of fertile floret, villous.

Flower and Fruit. Lodicules 2, 0.6 mm long. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America.

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

Calamagrostis muiriana B.L.Wilson & SamiGray. *Madrogo* 49(3): 174 . (2002).

Accepted by: R.J.Soreng et al., *Catalogue of 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: USA: California: Tuolumne Co., Yosemite National Park, Dana Fork, Tuolumne Rv, 9525 ft, 1 Aug 1997, B.L. Wilson & S. Gray 8909 (HT: OSC; IT: CAS, NY, RSA, UC, US, UTC).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (715).

Derivation (Clifford & Bostock 2007): L. *-iana*, indicating connection. In honor of John Muir (1838–1914) United States naturalist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms 12–34 cm long. Leaf-sheaths glabrous on surface or pilose, with reflexed hairs. Ligule an eciliate membrane, 0.8–2.2 mm long, obtuse. Leaf-blades involute, 4–12 cm long, 2–4 mm wide, glaucous. Leaf-blade venation comprising 5 vascular bundles. Leaf-blade surface scabrous, rough abaxially, pubescent, hairy adaxially. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 1.9–7.5 cm long, 0.4–3 cm wide, bearing few spikelets. 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. Floret callus hairs 0.3–0.6 mm long, 0.1 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3–4.5 mm long, 1 length of upper glume, membranous, purple, without keels or 1-keeled. Lower glume apex acute, mucronate. Upper glume lanceolate, 3–4.5 mm long, 1.1 length of adjacent fertile lemma, membranous, purple, without keels or 1-keeled, keeled above. Upper glume apex acute, mucronate.

Florets. Fertile lemma lanceolate, 2.5–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface smooth or scaberulous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 3.3–6 mm long overall, with twisted column. Palea 1 length of lemma. Rhachilla extension 2 mm long, pilose.

Flower and Fruit. Anthers 3, 0.9–2.5 mm long, purple. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southwestern USA. California.

Calamagrostis mulleri Luces. *Bol. Soc. Venez. Cienc. Nat.* 15: 9 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.S. Mueller 897, 11 Nov 1939, Venezuela: Edo. Mirida: paramo de Mucuchies, 11 Nov 1939 (VEN; IT: US-1762349).

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

Derivation (Clifford & Bostock 2007): in honor of C.H. Muller (fl. 1939) who collected in Venezuela and Mexico.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 20–30 cm long. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 5–6 mm long, acute. Leaf-blades 3–8 cm long, 3–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade margins ciliate.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 3–8 cm long, 1–1.5 cm wide. 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 lanceolate, laterally compressed, 4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.1 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4.5 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, 4 mm long, 1.1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent or obscure. Upper glume apex acute.

Florets. Fertile lemma oblong, 3.5–3.7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 4 -fid, with lobes 0.5 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 4–5 mm long overall, with twisted column. Rhachilla extension 0.2–0.25 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America. Venezuela.

Calamagrostis munroi Boiss. *Fl. Orient.* 5: 526 (1884).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (as *Deyeuxia*).

Basionym or Replaced Name: *Deyeuxia munroi* (Boiss.) Bor, *Indian Forester*, 66: 419 (1940). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab ad Chendtoi et Sikaram vallis Kurrum Affghaniae, *Aitch* 1251.

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

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 Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–50 cm long. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades convolute, 6–12 cm long, 1–2 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, continuous or interrupted, 8–10 cm long. 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, 6–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.2 mm long, 0.25 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 6–8.5 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, 6–8.5 mm long, 1.2–1.7 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 lanceolate, 5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 7–8 mm long overall, with twisted column. Palea 1 length of lemma. Rhachilla extension 1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Iran.

Calamagrostis nagarum (Bor) G. Singh. *Taxon*, 33(1): 94 (1984).

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 *Deyeuxia*).

Basionym or Replaced Name: *Deyeuxia nagarum* Bor, *Indian Forest Rec.*, n. s. *Bot.*, 1: 69 (1938). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *N.L. Bor s.n.*, no date, India: Assam (US-866015 (frag.)).

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

Derivation (Clifford & Bostock 2007): from Naga Hills, Assam.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 50–100 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 15–30 cm long, 2–4 mm wide, light green.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 10–20 cm long. Primary panicle branches spreading, 3–5 -nate. 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 lanceolate, laterally compressed, 4.5–5.5 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 or ovate, 4.5–5.5 mm long, 1.1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned. Upper glume lanceolate, 4–5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate, awned, 1 -awned.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface scaberulous, rough above. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.75–0.8 way up back of lemma, flexuous, 4–5 mm long overall. Palea 2.5–3 mm long, hyaline, 2 -veined. Rhachilla extension 1 mm long, pilose, hairy at tip, with 3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Assam, Eastern Himalaya.

TDWG4. Bhutan.

Calamagrostis nardifolia (Griseb.) Hackel ex Stuckert. *Anal. Mus. Buenos Aires, Ser. 3, 6:* 480 (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).

Basionym or Replaced Name: *Agrostis nardifolia* Griseb., *Goett. Abh.* 19: 252. (1874). T:<Type of Basionym>; *fide* TROPICOS and Kew Synonymy Database: ST: *Lorentz 644*, Feb 1872, Argentina: Catamarca: bei Yacutula im Distrikt Belin (GOET; IST: CORD, US-76281 (fragm. ex GOET)).

ST: *Lorentz 654*, Feb 1872, Argentina: Catamarca: in dem Hgelland in der Umgebung von Yacutla bei Belin (GOET; IST: CORD, US-76281).

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

Derivation (Clifford & Bostock 2007): L. folium, leaf. Leaf-blades morphologically resemble those of *Nardus*..

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 7–15 cm long, 1 -noded. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 2.5–3 mm long, pubescent on abaxial surface, acuminate. Leaf-blades curved, filiform, involute, 2–5 cm long, 0.5 mm wide. Leaf-blade surface scaberulous, glabrous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 1–5 cm long, 0.8–1 cm wide. Primary panicle branches spreading, whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

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, 5–6.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 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, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume lanceolate, 5–6.8 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 lanceolate, 4.5–5.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, geniculate, 5.5 mm long overall, with twisted column. Palea 4–5 mm long. Rhachilla extension 1 mm long, 0.66 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp, lanceolate, 1.8 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, Tucuman. Tarapaca, Antofagasta, Atacama, Coquimbo.

Calamagrostis nitakayamensis Honda. *Bot. Mag., Tokyo*, 40: 326 (1926).

Not on *GrassBase*.

Accepted by: T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Niitaka Yama, Taiwan, known as Yu Shan to the Chinese (see Yushania) and as Mt. Morrison to the English (see *morrisonensis*).

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–80 cm long, 2–3 -noded. Culm-internodes smooth. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades involute, 20–40 cm long, 3–7 mm wide. Leaf-blade surface scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above. Panicle open, ovate, 10–30 cm long, 2–5 cm wide. Primary panicle branches 5–10 cm long. Panicle branches scabrous. 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 lanceolate, laterally compressed, 4–5 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, reaching apex of florets or exceeding apex of florets, firmer than fertile lemma. 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 apex acuminate. Upper glume lanceolate, membranous, 1-keeled. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 3.5–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.5 way up back of lemma, geniculate, 5–6 mm long overall, with a straight or slightly twisted column. Palea 1 length of lemma.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Japan, Taiwan. Japan Honshu, or Kyushu.

Calamagrostis nitidula Pilger. *Engl. Jahrb.* 42: 69 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Weberbauer 960*, 7 May 1902, Peru: Puno: Sandia Prov.: inter Potto et Ananea, alt. 4400–4500 m (B; IT: BAA-3576 (fragm. ex B), US-81647).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (206, Fig. 44 as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *L. niteo*, shine; -ula, exhibiting tendency. Spikelets glossy.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes short. Culms erect, 27–50 cm long. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 5–9 mm long, acuminate. Leaf-blades conduplicate, 7–12 cm long, 1–2 mm wide, coriaceous, stiff. Leaf-blade surface scabrous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, straight, 9–13 cm long, 1.5–2.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, glabrous or puberulous.

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, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 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, 7–9 mm long, 1.2 length of adjacent fertile lemma, membranous, light green or purple, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 6–7.5 mm long, membranous, without keel, more than 3-veined. Lemma surface scaberulous. Lemma apex entire or dentate, 2 -fid, obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 5.5–7 mm long overall, with twisted column. Rhachilla extension 2–2.6 mm long, villous, with 3–4.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Calamagrostis nuda (Pilg.) Pilger. *Bot. Jahrb. Engler* 42:60 (1908).

Regarded by K as a synonym (*C. bogotensis*).

Basionym or Replaced Name: *Deyeuxia nuda* Pilg., *Engl. Jahrb.* 27: 29. (1899). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.J. Triana* 323, 19 Mar 1892, Colombia (B; IT: BAA (fragm. ex B), US-81872).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (116, Fig. 36).

Derivation (Clifford & Bostock 2007): L. bare. Lemmas glabrous.

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, 45–95 cm long, 1.5–2 mm diam. Culm-internodes thin-walled, scaberulous. Culm-nodes purple. Lateral branches lacking. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3.5–5 mm long. Leaf-blades involute, 2–5 mm wide, stiff. Leaf-blade surface ribbed, smooth or scaberulous, rough abaxially, puberulous, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 12–15 cm long, 1–1.5 cm wide. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 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, 3.7–4.1 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, gaping. Lower glume ovate, 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 ovate, 1.1–1.2 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 ovate, 3.3–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 3.3–3.4 mm long overall, not or scarcely exerted from spikelet, with a straight or slightly twisted column. Palea 2.8–3.3 mm long. Rhachilla extension 0.7–1 mm long, glabrous or sparsely hairy.

Flower and Fruit. Lodicules 2. Anthers 1, 1.2–1.5 mm long, yellow or purple. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 70$ (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Western South America. Colombia.

Calamagrostis nutkaensis (Presl) Steud. *Syn. Pl. Gram.* 190 (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), N.Tsvelev, *Grasses of the Soviet Union* (1983).

Basionym or Replaced Name: *Deyeuxia nutkaensis* J. Presl, *Rel. Haenk.* 1: 250. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Haenke, Archipel. [Montgravfe] (PR; IT: GH (fragm.), US-866017 (fragm. ex PR)).

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

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. Of Nootka Sound, Western Canada.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes short. Culms robust, 80–160 cm long. Lateral branches lacking. Ligule a ciliolate membrane, 6–8 mm long, truncate. Collar glabrous. Leaf-blades erect, flat or involute, 6–12 mm wide, coriaceous. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 12–20 cm long, 1.5–2 cm wide. 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 lanceolate, laterally compressed, 4.5–6.5 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, reaching apex of florets, firmer than fertile lemma. 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, 4.5–6.5 mm long, 1.1–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or geniculate, 0.5–2 mm long overall, not or scarcely exerted from spikelet, with a straight or slightly twisted column. Palea 1 length of lemma. Rhachilla extension 1 mm long, 0.25 length of fertile floret, pubescent.

Flower and Fruit. Lodicules 2, 0.8 mm long. Anthers 3, 3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

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

Country /Province /State. Russian far east. Kamchatka. **Subarctic America, Western Canada, Northwest USA, Southwestern USA.** Alaska. British Columbia.

TDWG4.

Calamagrostis obtusata Turcz., in syn. *Bull. Soc. Nat. Mosc.* 29, 1: 26 (1856).

Accepted by: W.D. Clayton & K. Harman, *GrassBase* (2008) and online, T.G. Tutin et al, *Flora Europaea* 5 (1980), N. Tsvetlev, *Grasses of the Soviet Union* (1983).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia: V. spp. Tobolsk,.

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

Derivation (Clifford & Bostock 2007): *L. obtusus*, blunt; *-ata*, possessing. Lemmas truncate.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 60–150 cm long, 4-noded. Culm-internodes smooth. Lateral branches sparse. Ligule an eciliate membrane, 2–4 mm long, obtuse. Leaf-blades 20–30 cm long, 3–7 mm wide. Leaf-blade surface pilose, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 10–25 cm long. Primary panicle branches bearing spikelets almost to the base. 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 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. 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, 3–4 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma oblong, 2.5–3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0–0.1 way up back of lemma, geniculate, 2.5–3 mm long overall, with twisted column. Rhachilla extension 0.5 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

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

Region. Eastern Europe.

Country /Province /State. Central European Russia, East European Russia, North European Russia. Siberia, Russian far east, **Mongolia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Khabarovsk, Primorye.

TDWG4.

Calamagrostis ophitidis (Howell) Nygren. *Hereditas*, 40: 388 (1954).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Calamagrostis purpurascens* var. *ophitidis* J.T. Howell, *Leafl. West. Bot.* 4:246 (1946). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.T. Howell 16334*, 29 Jun 1941, USA: California: Marin Co., Mt. Tamalpais (CAS-324946; IT: MO, US-2947287).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (713).

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

Derivation (Clifford & Bostock 2007): Gk. ophis, snake. Growing on serpentine derived soils.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes absent or short. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 30–90 cm long. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth or antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 2–4 mm long, glabrous on abaxial surface, erose, truncate. Collar pubescent. Leaf-blades erect, flat or involute, 2–4 mm wide, indurate, stiff. Leaf-blade surface scabrous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 4–10 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, 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, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.5 mm long, 0.33 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 lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 5–8 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 6–10 mm long overall, clearly exerted from spikelet, with twisted column. Palea 1 length of lemma. Rhachilla extension pilose, with 1 mm long hairs.

Flower and Fruit. Lodicules 2, 0.6 mm long. Anthers 3, 2.5–2.8 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southwestern USA. California.

Calamagrostis orbignyana (Wedd.) Wedd. ex Pilg. *Bot. Jahrb. Syst.* 49: 184. (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).

Basionym or Replaced Name: *Deyeuxia orbignyana* Wedd., *Bull. Soc. Bot. Fr.* 22: 178, 180. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.D. Orbigny 217*, Bolivia: Carangan (P; IT: US-91116 frag, US-3099607 frag.).

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

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Alcide Dessalines d'Orbigny (1802–1857) French biologist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 40–80 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades filiform, involute, 15–30 cm long, 1 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 10–20 cm long. 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, 5.5–6 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. 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, 5.5–6 mm long, 1.1–1.4 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–5.5 mm long, membranous, without keel, more than 3-veined. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 6 mm long overall, with twisted column. Rhachilla extension 0.33 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest.

TDWG4. Jujuy.

Calamagrostis orizabae (Fourn.) Beal. *Gr. N Amer.* 2:340 (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).

Basionym or Replaced Name: *Deyeuxia orizabae* Rupr. ex E. Fourn., *Mex. Pl.* 2:105 (1886). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Galeotti* 5780, 6 Oct 1840, Mexico: Veracruz: Mount Orizaba (BR; IT: LE, US-866018 (fragm.)).

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

Derivation (Clifford & Bostock 2007): From Orizaba Valley, Mexico.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 100–150 cm long. Ligule an eciliate membrane. Leaf-blades erect, involute, 20–50 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or pyramidal, 15–20 cm long. Primary panicle branches 5–10 cm long. Panicle branches capillary, flexuous. 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 lanceolate, laterally compressed, 4–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.5 mm long.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–6.5 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, 4–6.5 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 acute.

Florets. Fertile lemma lanceolate, 4–6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or scaberulous, glabrous to pubescent. Lemma apex dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus or dorsal, arising 0.5 way up back of lemma, straight or geniculate, 0–5 mm long overall, without a column or with twisted column. Rhachilla extension 2–2.5 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

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

Distrito Federal, Mexico State, Morelos, Puebla. Veracruz. Oaxaca.

Calamagrostis ovata (Presl) Steud. *Nom. ed.* 2, 1: 251 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia ovata* J. Presl, *Rel. Haenk.* 1: 246. (1830). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Haenke s.n.*, In montanis Peruviae huanoccensibus (PR; IT: PRC).

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. Perennial, caespitose. Culms erect, 12–40 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 6–15 mm long, acuminate. Leaf-blades flat or involute, 3–10 cm long, 1.3–4.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle capitate, ovate, 0.2–0.6 cm long, 0.2–0.3 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

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, 7.8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Floret callus bearded. Floret callus hairs 3–4 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume linear, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 7.8–13 mm long, 2.1–2.3 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3.3–4.3 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth or scaberulous, rough below. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight, 3–5 mm long overall. Rhachilla extension 0.8–1.3 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 0.6 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG), Continent. South America.

Country /Province /State. Western South America. Bolivia, Ecuador, Peru.

Calamagrostis parsana (Bor) M. Dogan. *Notes Roy. Bot. Gard. Edinburgh*, 40(1): 86 (1982).

Accepted by: W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Deyeuxia parsana* Bor, *Kew Bull.* 1948, 42 (1948).

Illustrations (Books): N.L. Bor, *Gramineae* in K.H. Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 41 as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of Ahmad Parsa (1907–) Iranian botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes absent. Culms erect or geniculately ascending, 15–30 cm long. Lateral branches lacking. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, erose or lacerate. Leaf-blades 4–16 cm long, 1.2–1.8 mm wide. Leaf-blade surface smooth or scaberulous, glabrous, hairless throughout. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 2–6 cm long, 0.5–1 cm wide. Primary panicle branches ascending, 0.3–0.6 cm long. 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 lanceolate, laterally compressed, 5–5.5 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, gaping. Lower glume lanceolate, 4–4.5 mm long, 0.75–0.8 length of upper glume, membranous, purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 1–1.5 mm long. Upper glume lanceolate, 5–5.5 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume apex acuminate, awned, 1 -awned, awn 1–1.5 mm long.

Florets. Fertile lemma oblong, 3.5–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 5.5–7.5 mm long overall, with twisted column. Palea hyaline, 2 -veined. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2.2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Iran.

Calamagrostis patagonica (Speg.) Macl. *Rep. Princeton Univ. Exped. Patag.* 8: 195 (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).

Basionym or Replaced Name: *Deyeuxia patagonica* Speg., *Anal. Mus. Buenos Aires*, 7: 191. (1902). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Illin s.n.*, Jan 1901, Argentina: Chubut: "Hab. secus Caren-leofu" (LP; ILT: BAA, US-1939846 (fragm. ex LP-STUCKERT hb. no. 122631 & fig. by Parodi)). LT designated by Parodi, *Darwinia* 8: 415. 1949.

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (355, Fig. 236 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 45–80 cm long, 3–4 -noded. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades 5–20 cm long, 3–5 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, equilateral, 9–20 cm long. 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, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.25 mm long. Floret callus bearded. Floret callus hairs 1 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5–6 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, 1.4 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–4.5 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, geniculate, 4–4.6 mm long overall, with twisted column. Palea 2.8–3.3 mm long. Palea keels scabrous. Rhachilla extension 2 mm long, pilose, hairy at tip.

Flower and Fruit. Lodicules 2, 0.5–0.6 mm long, glabrous. Anthers 3, 0.5–0.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, fusiform, 2.5–2.8 mm long. Hilum punctiform. Endosperm liquid. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina South, Chile Central.

TDWG4. Chubut. La Araucania.

Calamagrostis pavlovii Roshev. *Bull. Jard. Bot. Acad. Sc. URSS*, . 295 (1932).

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

Basionym or Replaced Name: *Calamagrostis chalybaea* var. *sibirica* Litv., *Spis. Rast. Gerb. Russ. Fl.* 8:173 (1922).

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

Derivation (Clifford & Bostock 2007): in honor of Nikolai Vasil'evich Pavlov (1893–1971) Russian botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 100–170 cm long. Ligule an eciliate membrane, 5–8 mm long. Leaf-blades 25–40 cm long, 7–13 mm wide, glaucous. Leaf-blade surface scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or oblong, dense, 18–20 cm long, 5 cm wide. Primary panicle branches 5–10 cm long. 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 lanceolate, laterally compressed, 5.5–7 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. Lower glume lanceolate, 5–7 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 acuminate. Upper glume lanceolate, 4–6 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 lanceolate, 3.5–5.5 mm long, membranous, without keel, 5 -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, 3–6 mm long overall, with twisted column. Rhachilla extension 1 mm long, pilose, with 2–4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, **Middle Asia, Mongolia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva, Kazakhstan.

TDWG4.

Calamagrostis perplexa Scribn. *U.S. Dept. Agric. Circ. Agrost.* . 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, 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) (727).

Derivation (Clifford & Bostock 2007): *L. confused*. A new name for a species described under a later homonym.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 60–120 cm long, 2–4 -noded. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades spreading, 4–8 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, equilateral or nodding, 15–20 cm long. Primary panicle branches appressed or ascending, 2–5 cm long. Panicle axis scabrous. Panicle branches scabrous. 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 lanceolate, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.75 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 lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 4–6 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–5.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 3–5 mm long overall, not or scarcely exerted from spikelet, with a straight or slightly twisted column. Palea 0.75 length of lemma. Rhachilla extension pilose, with 3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 70$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America.

Country /Province /State. **Northeast USA.** New York.

Calamagrostis pickeringii A. Gray. *Man. Bot. U. St. ed. I.* 547 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *W. Oakes s.n.*, Sep 1842, USA: New Hampshire (GH; IT: MO, US-865761 (fragm. ex GH)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (725).

Derivation (Clifford & Bostock 2007): in honor of Charles Pickering (1805–1878) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, culms solitary. Rhizomes elongated. Culms 30–60 cm long. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades erect, 10–15 cm long, 4–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle contracted, linear, 7–12 cm long. Primary panicle branches 1–2 cm long. Panicle axis 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 lanceolate, laterally compressed, 4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5 mm long, 0.1–0.15 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4–4.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 2–3 mm long overall, not or scarcely exerted from spikelet, with a straight or slightly twisted column. Rhachilla extension 1 mm long, pubescent.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America.

Country /Province /State. Eastern Canada, Northeast USA. New Brunswick, Newfoundland. Maine, Massachusetts, New Hampshire, New York.

Calamagrostis pinetorum Swallen. *Contrib. U. S. Nat. Herb.* 29: 406 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J.A. Steyermark 43454*, 4 Feb 1942, Guatemala: El Progreso (US-1914760).

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

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 120 cm long. Culm-internodes distally glabrous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 4.5 mm long, obtuse. Leaf-blades 26–33 cm long, 5–6 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, interrupted, dense, 16 cm long, 3 cm wide. Primary panicle branches ascending. Spikelets solitary. 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, 5.5–6 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. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 5.5–6 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, more than 3-veined. Lemma apex awned, 5 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 3 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 1 mm long. Rhachilla extension 1 mm long, pubescent, with 0.5 mm long hairs. Apical sterile florets 1 in number, linear (bristle-like), 2 mm long.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Guatemala.

Calamagrostis pisinna Swallen. *Contrib. U. S. Nat. Herb.* 29 : 257 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Pittier 13277–1/2*, 25 Jan 1929, Venezuela: Mirida (US-1387801).

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

Derivation (Clifford & Bostock 2007): L. little. Tiny in comparison with related species.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 10–17 cm long. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades 2–4 cm long, 1–2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, loose, 3–5 cm long, 1–1.5 cm wide. 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, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2–0.5 mm long, 0.1 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.5–4 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 1–3 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 3.5–4 mm long, 1.1–1.3 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 6 mm long overall, with a straight or slightly twisted column. Palea 0.9 length of lemma. Rhachilla extension 1 mm long, villous, with 3 mm long hairs.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America. Venezuela.

Calamagrostis pittieri Hack. *Oesterr. Bot. Zeitschr.* 52: 108 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Tonduz 3359*, Jan 1891, Costa Rica: Valle du General (W; IT: B, BAA-4646 (fragm. ex B)).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (116, Fig. 36).

Derivation (Clifford & Bostock 2007): in honor of Henry Frangois de Fabrega Pittier (1857–1950) Swiss botanist and civil engineer.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending or decumbent, 30–100 cm long, 1–3 mm diam. Culm-internodes distally glabrous. Culm-nodes pallid or purple, glabrous. Lateral branches lacking. Leaf-sheaths smooth, glabrous on surface or pilose, with reflexed hairs. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades flat or conduplicate, 10–30 cm long, 3–6 mm wide. Leaf-blade surface ribbed, pilose, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 10–25 cm long. Primary panicle branches ascending. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 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, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, acute. Floret callus hairs 0.5–1 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, 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 attenuate. Upper glume lanceolate, 1.3 length of

adjacent fertile lemma, membranous, purple, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins obscure. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 3.8–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 2 -fid, with lobes 1.2–1.7 mm long, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.66 way up back of lemma, geniculate, 4.2–5.7 mm long overall, with twisted column. Palea 2.8–3.5 mm long. Rhachilla extension 1.3–2.1 mm long, villous, with 2–5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 2, 1.2–1.4 mm long. Stigmas 2. Caryopsis with adherent pericarp, fusiform, 2 mm long. Hilum punctiform. Endosperm soft. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Northern South America, Western South America. Costa Rica. Venezuela. Colombia, Ecuador.

Calamagrostis planifolia (HBK) Trin. ex Steud. *Nom. ed.* 2, 1: 251 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia planifolia* H. B. & K., *Nov. Gen. et Sp.* 1: 145. (1815). T:<Type of Basionym>; *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, Peru (P; IT: LE-TRIN-1801.01 (fragm. ex hrbr. Willd. 1768 & illust.)). 17[?]9. *Pteropodium planifolium* Willd. herb. 1768 (*D. planifolia* Kth).

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

Derivation (Clifford & Bostock 2007): *L. planus*, flat; folium, leaf. Leaf-blades flat.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 72 cm long. Culm-internodes smooth or scaberulous. Leaf-sheaths antrorsely scabrous, glabrous on surface or pilose. Ligule a ciliate membrane, 0.8 mm long, erose, truncate. Leaf-blades flat, 20–40 cm long, 2–2.5 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 20 cm long, 4 cm wide. Primary panicle branches 9 cm long. Panicle axis scabrous, glabrous or hispidulous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.8–4 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 lanceolate, laterally compressed, 3.8–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.6 mm long, 0.15 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3.6–4.6 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 surface smooth or asperulous. Lower glume apex acute. Upper glume lanceolate, 3.8–5 mm long, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface smooth or asperulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.4–4.2 mm long, membranous, purple, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid or 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, geniculate, 5–6.6 mm long overall, clearly exerted from spikelet, with twisted column. Palea 2.4–3.2 mm long. Rhachilla extension 1–1.8 mm long, villous, with 3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 2, linear, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Bolivia, Colombia, Ecuador, Peru.

Calamagrostis poaeoides Steud. *Syn. Pl. Gram.* 423 (1854).

Regarded by K as a synonym (*C. purpurea*).

T:<Type of Basionym>; *fide* TROPICOS and Kew Synonymy Database: HT: *W. Lechler 1234*, no date, Chile: Magallanes (P; IT: LE, US-1126769 (ex W), US-865759 (fragm. ex P), US-863448 (fragm. ex LE on 1126769)).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (355, Fig. 238).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. The inflorescence resembles that of *Poa*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 30–100 cm long, 2–3 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades 1.5–5 mm wide. Leaf-blade surface glabrous or puberulous, hairy abaxially.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Peduncle antrorsely scabrous above. Panicle contracted, linear, interrupted, 7–20 cm long, 1–3 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

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 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.5–0.75 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 lateral veins absent. Lower glume surface scabrous, rough on veins. Lower glume apex acute. Upper glume lanceolate, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2.5–3.8 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous, rough on veins. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 2.5–4 mm long overall. Palea 2–2.2 mm long. Palea keels scaberulous. Rhachilla extension 0.5 mm long, pilose.

Flower and Fruit. Lodicules 2, 0.6–0.8 mm long. Anthers 3, 1.4–2 mm long. Stigmas 2. Caryopsis with adherent pericarp, 1.2–1.5 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Europe, Temperate Asia, South America.

Region. Northern Europe, Eastern Europe.

Country /Province /State. : Great Britain. Belarus, Estonia, Latvia, Lithuania, Central European Russia, East European Russia, South European Russia. Siberia, Russian far east. Buryatiya, Chita. Amur, Kamchatka. **Western South America, Southern South America.** Bolivia. Argentina South, Chile South.

TDWG4. Chubut, Río Negro, Santa Cruz, Tierra del Fuego. Chiloe, Aisen, Magallanes. Magallanes.

Calamagrostis podophora Pilger. *Engl. Jahrb.* 42: 66 (1908).

Regarded by K as a synonym (*C. ligulata*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A. *Weberbauer* 2231, 18 Jan 1903, Peru: Junmn: Tarma Prov.: Berge weslich von Huacapistana, 3500 m (B; IT: BAA-4647 (fragm. ex B), US-2947284).

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

Derivation (Clifford & Bostock 2007): Gk. pous, foot; phero, bear. Distal sterile floret borne on a long rhachilla extension.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Basal innovations extravaginal. Culms erect, 20–40 cm long. Leaf-sheath auricles erect. Ligule an eciliate membrane, 10 mm long. Leaf-blades conduplicate or involute, 5–7.5 cm long, 2–3 mm wide.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, ovate, dense, 12–14 cm long, contracted about secondary branches. Primary panicle branches 5–6 cm long. Panicle axis scabrous. 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 lanceolate, laterally compressed, 5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.5 mm long. Floret callus bearded. Floret callus hairs 0.66 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 scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5.5 mm long,

1.5 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5 mm long, membranous, without keel, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, straight, 3–5 mm long overall. Rhachilla extension 0.5 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia, Ecuador, Peru.

Calamagrostis poluninii T. Sorensen. *Meddel. Gronl.* 100, 6 No. 8, 11 (1954).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Greenlan, S: Tunugdliarfik: Kiagtut: 15 Jul 1947, *T. Sorensen 188* (HT: C).

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

Derivation (Clifford & Bostock 2007): in honor of Nicholas Vladimir (1909-) English botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 35–60 cm long. Culm-internodes smooth. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 4–8 mm long, pubescent on abaxial surface, acute. Leaf-blades 2.2–3.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough abaxially, pubescent, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, continuous or interrupted, 5–8 cm long. Primary panicle branches bearing 2–8 fertile spikelets on each lower branch. Panicle branches pubescent. 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, 4.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2–0.5 mm long, 0.1 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.5–6 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.3–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 4 mm long overall, clearly exerted from spikelet, with twisted column. Palea 4.3–5.2 mm long.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Subarctic America. Greenland.

Calamagrostis polygama Griseb. *Pl. Loentz.* :208 (1874).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Cinnagrostis polygama* Griseb., *Goett. Abh.* 19: 257 (1874). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Lorentz 497*, 22 Mar 1872, Argentina: Tucuman: auf Wiesen der Ostseite des Cuesta swischen Junta y Anfama, Sierra de Tucuman (GOET; IT: CORD, US (fragm. ex GOET & photo)).

ST: *Lorentz 76*, 23 Mar 1872, Argentina: Cuesta de Anfama in den Alisowaldungen an Berghdngen (GOET; IT: CORD, US (fragm. ex GOET & photo, pl. on rt)).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (191, Fig. 54 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): Gk. polys, several; gamos, marriage. Florets numerous per inflorescence.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 90–100 cm long, 4-noded. Leaf-sheaths scaberulous, pubescent. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades filiform, convolute, 40–45 cm long, 6–8 mm wide, flaccid. Leaf-blade midrib indistinct. Leaf-blade surface scabrous, rough adaxially, pilose, hairy abaxially.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 20–25 cm long. Primary panicle branches spreading, whorled at most nodes. 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, 3–3.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 1–1.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 2.5–3 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 acute.

Florets. Fertile lemma lanceolate, 3–3.2 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above or at base. Lemma apex dentate, 2 -fid, acuminate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 2.5–3 mm long overall, with twisted column. Palea 3 mm long, 1 length of lemma. Rhachilla extension 1 mm long, 0.66 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5–2 mm long. Stigmas 2. Caryopsis with adherent pericarp, lanceolate, 1.8–2 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest.

TDWG4. Catamarca, Jujuy, Salta, Tucuman.

Calamagrostis porteri A. Gray. *Proc. Am. Acad.* 6: 79 (1862).

Accepted by: R.J.Soreng et al., *Catalogue of 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>: *vide* TROPICOS and Kew Synonymy Database: HT: *T.C. Porter s.n.*, Aug 1862, USA: Pennsylvania: Huntingdon Co.: (GH; IT: MO, PH, US-867562 (fragm. ex GH)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (722).

Derivation (Clifford & Bostock 2007): in honor of Thomas Conrad Porter (1822–1901) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 60–120 cm long, 2–4-noded. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades spreading, 4–8 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, equilateral or nodding, 10–15 cm long. Primary panicle branches appressed or ascending, 2–5 cm long. Panicle axis scabrous. Panicle branches scabrous. 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 lanceolate, laterally compressed, 4–6 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. Lower glume lanceolate, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 4–6 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–5.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 3–5 mm long overall, not or scarcely exerted from spikelet, with a straight or slightly twisted column. Palea 1 length of lemma. Rhachilla extension pilose, with 3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. North-central USA, Northeast USA, Southeastern USA. Missouri. Ohio, New York, Pennsylvania. Kentucky, North Carolina, Virginia.

Calamagrostis preslii (Kunth) Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 370 (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).

Basionym or Replaced Name: *Agrostis preslii* Kunth, *Enum. Pl.* 1: 225. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: Peru ? Chile ? (LE-TRIN-1634.01 (fragm. & fig.)).

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

Derivation (Clifford & Bostock 2007): in honor of Karel Borivoj Presl (1794–1852) Bohemian botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 4–10 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.4–0.8 mm long. Leaf-blades conduplicate, 1–3 cm long, 1 mm wide, herbaceous or coriaceous. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 1.5–2.5 cm long, 0.6–0.8 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 4.7–5.4 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.7–5.4 mm long, 2.4–3 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–4 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 2–3 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 4–4.5 mm long overall, with twisted column. Rhachilla extension 0.4–0.5 mm long, glabrous.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Calamagrostis pringlei Beal. *Grasses N. Amer.* 2: 345 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.G. Pringle 1422*, 1 Oct 1887, Mexico: Chihuahua: Sierra Madre, 9000 ft (MSC; IT: CM, LL, MO, US-844932).

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

Derivation (Clifford & Bostock 2007): in honor of Cyrus Guernsey Pringle (1838–1911) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose. Rhizomes elongated. Culms erect, 50–90 cm long. Culm-internodes smooth. Leaves cauline. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 10–15 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear or lanceolate, nodding, 6–10 cm long. Primary panicle branches naked below or bearing spikelets almost to the base. Panicle axis scaberulous. Panicle branches capillary, scabrous. 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 lanceolate, laterally compressed, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1 mm long, 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 lateral veins absent. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume surface scabrous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.4–0.5 way up back of lemma, geniculate, 6 mm long overall, clearly exerted from spikelet, with a straight or slightly twisted column. Rhachilla extension 1.5 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

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

Country /Province /State. Mexico. Northeast Mexico, Southwest Mexico.

Aguascalientes, Coahuila, Chihuahua, Durango, Hidalgo, Zacatecas. Michoacan.

Calamagrostis przewalskyi Tsvelev. *Akad. Nauk SSSR Bot. Inst. Komarova, Rast. Tsentral. Azii, Fasc. 4, 8* (1968).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Xizang: 'Ssian-sibei' mts., ca. 4000 m, stream, 17–29 May 1880, *N.M. Przewalski 153* (HT: LE).

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

Derivation (Clifford & Bostock 2007): in honor of Nikolai Michailowicz Przewalsky (1839–1888) Russian botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Rhizomes short. Culms 4–10 cm long. Lateral branches lacking. Ligule an eciliate membrane. Leaf-blades 1.5–3.5 mm wide, glaucous. Leaf-blade surface scabrous, rough abaxially.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, oblong or ovate, 1.5–2.5 cm long, 1–1.5 cm wide. 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, 4.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. 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, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acuminate. Upper glume lanceolate, 4.5–6.5 mm long, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 5–6 mm long overall, with twisted column.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

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

Country /Province /State. China. Qinghai, Tibet.

Calamagrostis pseudophragmites (Hall.) Koel. *Desc. Gram.* 106 (1802).

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), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

Basionym or Replaced Name: *Arundo pseudophragmites* Haller f., *Roem. Arch.* 1(2) 11 (1796).

Recent Synonyms: *Calamagrostis nepalensis* Nees ex Steud., *Syn. Pl. Gram.* 193 (1854).

Illustrations (Books): G.Hegi, *Flora von Mitteleuropa* 1 (1909), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (301, Pl. 108), H.J.Noltie, *The Grasses of Bhutan* (2000) (611, Fig. 27), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 502).

Derivation (Clifford & Bostock 2007): Gk. pseudos, false. Fossil genus resembling *Phragmites*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 20–150 cm long. Ligule an eciliate membrane, 4–10 mm long, acute. Leaf-blades flat or conduplicate, 15–35 cm long, 2–10 mm wide. Leaf-blade surface smooth or scabrous, glabrous. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle, without bracts or bracteate at branch bases. Peduncle antrorsely scabrous above. Panicle open or contracted, lanceolate or oblong, 4–40 cm long. Primary panicle branches

ascending or spreading, 3–7 -nate, 4–8 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, 5–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 2–3 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 5–9 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, 5–9 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein smooth or scaberulous. Upper glume apex acute or acuminate.

Florets. Fertile lemma elliptic or oblong, 2.5–4.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn subapical, straight, 1–3 mm long overall, not or scarcely exerted from spikelet.

Flower and Fruit. Lodicules 2, membranous. Anthers 3, 2 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 14$ (2 refs TROPICOS). $2n = 28$ (2 refs TROPICOS).

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

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

Country /Province /State. : Austria, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : France, Spain. : Albania, Bulgaria, Italy, Romania, Turkey Europe, Yugoslavia. Central European Russia, East 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. Primorye. Kazakhstan, Kirgizistan, Turkmenistan, Tadzhikistan, Uzbekistan. Iran, Iraq. China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, Tibet, Xinjiang. Mongolia. Japan, Korea. Japan Hokkaido, or Honshu. **Indian Subcontinent.** Eastern Himalaya, India, Pakistan, West Himalaya.

TDWG4. Gansu. Guizhou, Hubei, Sichuan. Darjeeling, Bhutan, Sikkim. Uttah Pradesh, West Bengal. Himachal Pradesh, Jammu Kashmir.

Calamagrostis pseudopoa (Jansen) R. Govaerts. *World Checklist Seed Plants*, 3(1): 11 : (1999).

Basionym or Replaced Name: *Deyeuxia pseudopoa* Jansen, *Acta Bot. Neerl.* 2: 363 (1953). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indonesia: Sumatra: Aceh, summit Gob Lembuy, 3000 m, 21–22 Feb. 1937, *Van Steenis 9135* (HT: BO; IT: L).

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

Derivation (Clifford & Bostock 2007): Gk. pseudos, false. Resembling *Poa*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–120 cm long, 3–4 mm diam., 4–6 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 5 mm long, lacerate, acute. Leaf-blades 20–40 cm long, 5–8 mm wide. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Peduncle 30–45 cm long. Panicle open, oblong, 15–25 cm long. Primary panicle branches 4–5 -nate, whorled at most nodes, 6–8 cm long. Panicle branches capillary, flexuous, scabrous. 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 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous or pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume lanceolate, 2–3 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 surface scabrous. Lower glume apex acuminate or setaceously acuminate, muticous or mucronate. Upper glume lanceolate, 3–4 mm long, 0.66–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface scabrous. Upper glume apex acuminate or setaceously acuminate, muticous or mucronate.

Florets. Fertile lemma lanceolate, 4.5–5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins with distinct primaries but obscure intermediates. Lemma surface scabrous. Lemma apex entire, awned, 1 -awned. Principal lemma awn apical, straight, 1.5–2 mm long overall. Palea hyaline, 2 -veined. Palea keels approximate. Rhachilla extension glabrous.

Flower and Fruit. Lodicules 2, membranous. Anthers 3, 1 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Endosperm farinose. Disseminule comprising a floret.

Distribution (TDWG). Continent. Tropical Asia.
Country /Province /State. Malesia. Sumatra.

Calamagrostis pubescens (Pilg.) Pilg. *Bot. Jahrb.* 42:60 (1908).

Regarded by K as a synonym (*C. ligulata*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Deyeuxia pubescens* Pilg., *Engl. Jahrb.* 25: 712. (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Stbel 389b*, Sep-Dec 1869, Colombia: Volcan de Pasto, alt. 3400 m (B; IT: BAA-4653 (fragm. ex B)).

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

Derivation (Clifford & Bostock 2007): *L. pubesco*, become hairy. Plant whole or in part hairy.

Classification. Subfamily Pooideae. Tribe: Poeae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Calamagrostis pungens Tovar. *Mem. Mus. Hist. Nat. Javier Prado*, No. 11, 61 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Salaverry 106*, Mar 1955, Peru: Huancavelica: Tayacaja Prov. (US-2183146).

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. Perennial, caespitose. Culms erect, 22–25 cm long. Leaves mostly basal. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Leaf-blades straight, conduplicate, 3–7 cm long, 1–2 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex acute, pungent.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle contracted, linear or oblong, interrupted, 7–8 cm long, 1–1.3 cm wide. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

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, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 mm long.

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 ciliolate. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 5.5–6.5 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume primary vein ciliolate. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.5–4.7 mm long, membranous, without keel, more than 3-veined. Lemma surface puberulous. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 6–6.5 mm long overall, with twisted column. Rhachilla extension 2.5–2.8 mm long, pubescent, with 0.6–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Calamagrostis purpurascens R. Br. *Richards. App. Frankl. Journ.* 3 (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), N.Tsvelev, *Grasses of the Soviet Union* (1983) (& as *C. arctica*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Sir John Richardson 62*, 1819–1822, Canada: Seacoast of the Arctic regions (NY-29600).

ST: *Sir John Richardson 67*, 1819–1822, Canada: Seacoast of the Arctic regions (NY-29602).

ST: *Sir John Richardson 59*, 1819–1822, Canada: Seacoast of the Arctic regions (NY-29601).

ST: *David Douglas 240*, no date, Canada: Alpinaboine (NY-346283).

ST: *David Douglas 239*, no date, Canada: Plains of the Alpinaboine (NY-346284).

Recent Synonyms: *Deschampsia congestiformis* W. E. Booth, *Rhodora*, 45: 414 (1943).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (711).

Derivation (Clifford & Bostock 2007): *L. purpurasco*, become purple. Inflorescences reddish-purple.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes absent or short. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 30–90 cm long. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths smooth or antrorsely scabrous. Ligule an eciliate membrane, 2–4 mm long, erose, truncate. Collar pubescent. Leaf-blades erect, flat or involute, 2–4 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 4–10 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, 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, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.5 mm long, 0.33 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 lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 5–8 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2 way up back of lemma, geniculate, 6–10 mm long overall, clearly exerted from spikelet, with twisted column. Palea 1 length of lemma. Rhachilla extension pilose, with 1 mm long hairs.

Flower and Fruit. Lodicules 2, 0.6 mm long. Anthers 3, 2.5–2.8 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 42$ (4 refs TROPICOS).

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

Country /Province /State. Siberia, Russian far east, **Eastern Asia**. Krasnoyarsk. Kamchatka, Kuril Is, Magadan. Japan. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, Mexico**. Aleutian Is, Alaska, Greenland, Northwest Territories, Yukon. Alberta, British Columbia, Manitoba, Saskatchewan. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. South Dakota. California, Nevada, Utah. Northeast Mexico.

TDWG4. Coahuila, Neuvo Leon.

Calamagrostis pusilla Reeder. *Journ. Arn. Arb.* 1: 322 (1950).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, *Poaceae* ms (*Flora Malesiana*) (as *Deyeuxia*).

Basionym or Replaced Name: *Deyeuxia pusilla* (Reeder) Jansen, *Acta Bot. Neerl.* 1: 472 (1952). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *M.S. Clemens 9995*, 7 March 1939, Papua New Guinea: New Guinea, Morobe, Sarawaket (L).

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, caespitose. Culms erect, 2–5 cm long, 0.5 mm diam., 2 -noded. Culm-internodes striate, distally glabrous. Leaf-sheaths longer than adjacent culm internode, striately veined, papillose, glabrous on surface. Ligule an eciliate membrane, 0.5 mm long, entire or erose, truncate or obtuse. Leaf-blades straight or curved, filiform, conduplicate, 1–2.8 cm long, 0.4–0.6 mm wide, stiff. Leaf-blade venation with 4 secondary veins. Leaf-blade surface papillose, glabrous. Leaf-blade apex obtuse, callose.

Inflorescence. Inflorescence a panicle, shorter than basal leaves. Panicle open, oblong, 1.5–1.8 cm long, bearing few spikelets. Primary panicle branches ascending, simple. Panicle axis scabrous. Panicle branches stiff, angular, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 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 ovate, laterally compressed, 1.8–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.2–0.3 mm long, 0.1–0.2 length of lemma.

Glumes. Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma, shiny. Lower glume lanceolate, 1.2–1.3 mm long, 1 length of upper glume, coriaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.2–1.5 mm long, 0.75 length of adjacent fertile lemma, coriaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 1.8–2 mm long, chartaceous, without keel or keeled, lightly keeled, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, straight, 1.3 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels contiguous above a sulcus. Rhachilla extension 1 mm long, pilose.

Flower and Fruit. Lodicules 2, 0.8 mm long. Anthers 3, 0.6 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG), Continent. Tropical Asia.

Country /Province /State. Malesia, Papuasias. New Guinea PNG, or West Papua (Irian Jaya). New Guinea.

Calamagrostis ramonae F.D. Escalona. *Phytologia*, 65(5): 342 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: J.A. Steyermark 55903, 15 Apr 1944, Venezuela: Mirida (F-1206466; IT: US-1869496).

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

Derivation (Clifford & Bostock 2007): a contraction of paramo at the limits of which the species grows in Venezuela.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations intravaginal. Culms 30–50 cm long. Leaf-sheaths 8–11 cm long, antrorsely scabrous. Ligule an eciliate membrane, 0.5 mm long, truncate. Leaf-blades 8–19 cm long, 3–4 mm wide.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above. Panicle open, linear, nodding, 46–65 cm long, 1.5 cm wide. 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, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.5 mm long. Floret callus pilose. Floret callus hairs 0.5–1 mm long, 0.2–0.33 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume lanceolate, 3–4 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 lanceolate, 3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 5 mm long overall, with twisted column. Palea 3 mm long. Palea keels scabrous. Rhachilla extension 3 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Anthers 3, 0.5 mm long. Caryopsis with adherent pericarp, 1 mm long. Endosperm soft.

Distribution (TDWG), Continent. South America.

Country /Province /State. Northern South America, Western South America, Southern South America. Venezuela. Ecuador.

Calamagrostis rauhii Tovar. *Mem. Mus. Hist. Nat. Javier Prado*, No. 11, 78 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: W. Rauh & G. Hirsch P1724, no date, Peru: Junin: Puna Prov. (US-2180786).

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

Derivation (Clifford & Bostock 2007): in honor of Ambrosius Rauh (1784–1830) German botanist and mineralogist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 63 cm long. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long, erose. Leaf-blades conduplicate or involute, 15–25 cm long, 2–3 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough abaxially, pubescent, densely hairy, hairy adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 18 cm long. Primary panicle branches ascending. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

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, 5.5–6.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 mm long.

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 surface asperulous. Lower glume apex acute. Upper glume lanceolate, 5.5–6.2 mm long, 1.2 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.5–5 mm long, membranous, without keel, more than 3-veined. Lemma surface hispidulous. Lemma apex dentate, 3–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.05 way up back of lemma, geniculate, 7–7.5 mm long overall, with twisted column. Rhachilla extension 1.7–2 mm long, pubescent, with 0.5–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Calamagrostis recta (Kunth) Trin. ex Steud. *Nom. ed.* 2, 1: 251 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia recta* Kunth, *Nov. Gen. et Sp.* 1: 144. (1815). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.W.H.A. von Humboldt & A.J.A. Bonpland s.n.*, May, Ecuador: Pichincha (P-Bonpl.; US-866021 (fragm. ex P-Bonpl.)).

Recent Synonyms: *Calamagrostis naiguatensis* Swallen, *Contrib. U. S. Nat. Herb.* 29: 262 (1948).

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

Derivation (Clifford & Bostock 2007): L. upright. Panicle branches erect or spike-like.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 35–90 cm long. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades involute, 15–40 cm long, 2–4 mm wide, stiff. Leaf-blade surface scaberulous or scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, continuous or interrupted, 11–25 cm long, 1.8–2.8 cm wide. Primary panicle branches appressed, 4–8 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

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, 6–6.75 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–6.75 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.8–5.4 mm long, membranous, without keel, more than 3-veined. Lemma surface scaberulous or scabrous, rough above. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.5 way up back of lemma, geniculate, 7–8.5 mm long overall, with twisted column. Rhachilla extension 2–3 mm long, pubescent, with 1–1.3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Colombia, Ecuador, Peru. Argentina Northwest.
TDWG4. Jujuy.

Calamagrostis reitzii Swallen. *Sellowia*, No. 7, 11 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Reitz* 2390, 16 Dec 1948, Brazil: Santa Catarina (US-2011896).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102).

Derivation (Clifford & Bostock 2007): in honor of Raulino Reitz (1919-) Brazilian botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending, 40–60 cm long, 3–4-noded, rooting from lower nodes. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface or pubescent. Ligule an eciliate membrane, 1–2 mm long, acute. Leaf-blades 5–10 cm long, 2–4 mm wide. Leaf-blade surface glabrous or pilose.

Inflorescence. Inflorescence a panicle. Panicle open, linear, dense, 8–10 cm long. Primary panicle branches 1–3 cm long. 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, 6–7 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, 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, 6–7 mm long, 1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5.5–6.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 9–13 mm long overall. Rhachilla extension 1.5–2 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Catarina, Rio Grande do Sul.

Calamagrostis rigescens (J. Presl) Scribn. *10th Ann. Rep. Missouri Bot. Gard.* 37 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, no date, Peru (PR; IT: B, BAA-4383 (fragm. ex B), US-76288 (fragm.)).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*), *Ruizia* (13:186, Fig 20i-j (1993)).

Derivation (Clifford & Bostock 2007): *L. rigesco*, become rigid. Leaf-blades stiff and erect.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms 10–30 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades flat or involute, 4–10 cm long, 1–3 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle spiciform, linear, 4–10 cm long, 0.5–0.8 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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 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. 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, 4–5 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4.3 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth or scaberulous, rough above. Lemma apex entire or dentate, 2-fid, obtuse, awned, 1-awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 2–3.5 mm long overall. Rhachilla extension 0.5–0.8 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Gulf (Mexico). **Western South America, Southern South America.** Bolivia, Ecuador, Peru. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, San Juan, Tucuman. Tarapaca, Antofagasta. Veracruz.

Calamagrostis rigida (Kunth) Trin. ex Steud. *Nom. ed.* 2, 1: 251 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia rigida* Kunth, *Nov. Gen. et Sp.* 1: 144. (1815). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, May, Ecuador: Pichincha: 3960 m (B-W; IT: LE-TRIN-1804.01 (fragm. ex hrbr. Humb.), P). 174. *Pteropodium rigidum* Willd. herb. 1767. Humb. (*Deyeuxia rigida* Kth).

Recent Synonyms: *Calamagrostis antoniana* (Griseb.) Hitchc., *Contrib. US Nat. Herb.* 24:178 (1927).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (350, Fig 235 as *Deyeuxia antoniana*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*), *Ruizia* (13:186, Fig 20g-h (1993) as *C. antoniana*).

Derivation (Clifford & Bostock 2007): L. stiff. Culms, spikelets or inflorescence branches held stiffly erect.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 40–70 cm long. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 4–7 mm long. Leaf-blades involute, 13–30 cm long, 2–3 mm wide, coriaceous, stiff. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 12–20 cm long, 1.5–2.3 cm wide. Primary panicle branches appressed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

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, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.8 mm long.

Glumes. Glumes persistent, similar, reaching apex of florets or 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 smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5.5–6.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein smooth or scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5.3–6.3 mm long, membranous, without keel, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 3–4-fid, awned, 1-awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 5–6 mm long overall, with twisted column. Rhachilla extension 1.7–2.5 mm long, pilose, with 2.5–3.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Western South America, Southern South America.** Bolivia, Colombia, Ecuador, Peru. Argentina South, Argentina Northwest, Chile South.

TDWG4. Jujuy, Salta. Santa Cruz, Tierra del Fuego. Chiloe, Aisen, Magallanes. Magallanes.

Calamagrostis rosea (Griseb.) Hack. ex Stuck. *Anal. Mus. Buenos Aires*, 11: 109 (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.

Basionym or Replaced Name: *Agrostis rosea* Griseb., *Goett. Abh.* 19: 253. (1874). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P.G. Lorentz 655*, Feb 1872, Argentina: Catamarca: Yacutula, in der Umgebung von Yacutula nahe Belin Belin (GOET; IT: B, BAA-4414 (fragm. ex B), COR, US-1645154 (ex Mez hb., GOET)).

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

Derivation (Clifford & Bostock 2007): L. pink. Inflorescences pink.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 15–30 cm long, 1–4-noded. Culm-internodes antrorsely scabrous. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule a ciliolate membrane, 0.5–0.8 mm long, acuminate. Leaf-blades filiform, convolute, 8–25 cm long, 0.5 mm wide, stiff. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 5–10 cm long. Primary panicle branches spreading, whorled at most nodes. 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, 4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 1–1.5 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 surface asperulous. Lower glume apex obtuse. Upper glume lanceolate, 4–4.5 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 asperulous. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate, 3–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, acuminate, mucronate or awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, straight, 0.5 mm long overall. Palea 1 length of lemma. Rhachilla extension 1 mm long, 0.66 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp, lanceolate, 2 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America and Southern South America. Bolivia.

TDWG4. Catamarca, Jujuy, Tucuman. Cordoba.

Calamagrostis rubescens Buckl. *Proc. Acad. Sc. Philad.* 1862: 92 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Nuttall s.n.*, no date, USA: Oregon (PH; IT: GH (fragm.), US-865763 (fragm.)).

Illustrations (Books): K.F.Best, et al, *Prairie Grasses* (1971) (89), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (725).

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 50–110 cm long. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths smooth. Ligule an eciliate membrane, 1–3 mm long, lacerate, obtuse or acute. Collar pubescent. Leaf-blades 2–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 4–15 cm long, 1–2.5 cm wide. 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, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 1 mm long, 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 smooth. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4–5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein smooth. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3.5–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 5–6 mm long overall, clearly exerted from spikelet, with twisted column. Palea 1 length of lemma. Rhachilla extension 1.2 mm long, villous, with 2 mm long hairs.

Flower and Fruit. Lodicules 2, 0.6 mm long. Anthers 3, 2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

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

Calamagrostis rupestris Trin. *Gram. Pan.* :28 (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).

Basionym or Replaced Name: *Calamagrostis longearistata* (Wedd.) Hack. ex Sodiro, *Gram. Ecuador*. (Anal. Univ. Quito, 1889) 8 (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.H. von Langsdorff s.n.*, Brazil: in fissuris rupium Estrella (LE-TRIN-1805.01 (fragm. & fig.); IT: US-3099613 ((fragm.)).

Recent Synonyms: *Calamagrostis longearistata* (Wedd.) Hack. ex Sodiro, *Gram. Ecuador*. (Anal. Univ. Quito, 1889) 8 (1889).

Illustrations (Books): R.M.Phill, F.T.E.A., *Gramineae* (2:338, Fig. 96 as *Chloris longiaristata*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102 as *C. longiaristata*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (24, Fig. 4 as *C. longiaristata*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *L. rupestris*, rock; -estre, place of growth; Growing amongst rocks.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending or decumbent, 40–80 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–4 mm long, lacerate. Leaf-blades 8–20 cm long, 3–7 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 10–25 cm long, 3–5 cm wide. Primary panicle branches ascending, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1 length of fertile spikelet, pubescent.

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, 3.8–4.2 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, 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 eciliate or ciliolate. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.8–4.2 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein eciliate or ciliolate. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.4–3.6 mm long, membranous, without keel, more than 3-veined. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 4.5–8 mm long overall. Rhachilla extension 1.3–1.8 mm long, pilose, hairy above, with 2–2.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America, Brazil, Southern South America. Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Southeast, Brazil South. Uruguay.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

Calamagrostis sachalinensis F. Schmidt. *Reisen Amurl.* 202. (1868).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Sakhalin Island, Siberia.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Cataphylls evident. Rhizomes short. Culms erect, 30–60 cm long, 0.8–1.2 mm diam., 4–5 -noded. Culm-internodes antrorsely scabrous. Leaves cauline. Leaf-sheaths tight, smooth, glabrous on surface. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades 10–30 cm long, 3–6 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above. Panicle open, lanceolate, 5–10 cm long, 1.5–2.5 cm wide. Primary panicle branches 2–6 -nate, 1–3.5 cm long. Panicle branches scabrous. 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 lanceolate, laterally compressed, 3.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.66–0.75 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, recurved at apex or gaping. Lower glume lanceolate, 3–5 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 acuminate. Upper glume lanceolate, 3.5–5.5 mm long, 1.4–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 2.5–3 mm long, membranous, without keel, 3–5-veined, 0–3-veined or more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex entire, obtuse, awned, 1-awned. Principal lemma awn dorsal, arising 0.25–0.5 way up back of lemma, straight, 2–3 mm long overall, without a column.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (2 refs TROPICOS), or 42 (2 refs TROPICOS), or 56 (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russian far east, **Eastern Asia.** Kamchatka, Kuril Is, Sakhalin. Japan. Japan Hokkaido, or Honshu, or Shikoku.

TDWG4.

Calamagrostis sajanensis Malyshev. *Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS*, 21: 452 (1961).

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

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From the Sajan Mountains, Irkutsk Province, Russia.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes elongated. Culms erect, 30–60 cm long, 2–3-noded. Culm-internodes smooth, distally glabrous. Lateral branches lacking. Ligule an eciliate membrane, 0.5–2.5 mm long, entire or lacerate, truncate. Leaf-blades convolute, 2–3 mm wide, stiff. Leaf-blade surface scabrous, glabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 5–8 cm long, 1–2 cm wide. 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 lanceolate, laterally compressed, 5–6 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, gaping. Lower glume lanceolate, 0.75 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, 5–6 mm long, 1.6 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3.1–3.6 mm long, membranous, without keel. Lemma lateral veins with distinct primaries but obscure intermediates. Lemma apex awned, 1-awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 2 mm long overall. Palea 0.66 length of lemma, hyaline, 2-veined. Rhachilla extension 0.7–1 mm long, villous, with 2.5–3 mm long hairs.

Flower and Fruit. Lodicules 2, lanceolate, membranous. Anthers 3, 1.7–1.9 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, **Mongolia.** Buryatiya, Chita, Irkutsk, Tuva.

TDWG4.

Calamagrostis salina Tzvelev. *Novit. Syst. Pl. Vasc., Acad. Sci. URSS*, 1965, 27 (1965).

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

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

Derivation (Clifford & Bostock 2007): growing in saline soils.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Culms 30–70 cm long. Leaf-sheaths smooth. Ligule an eciliate membrane, 1.5–3.5 mm long, scaberulous on abaxial surface, obtuse. Leaf-blades flat or conduplicate, 1–3.5 mm wide, grey-green. Leaf-blade surface scabrous, rough adaxially or on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 4–12 cm long, 0.5–2 cm wide. 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 lanceolate, laterally compressed, 3.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.5–0.66 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 lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate, 3–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, straight, 2–3 mm long overall, without a column. Rhachilla extension 1.5–2.5 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5–2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, **Mongolia.** Buryatiya, Chita.

TDWG4.

Calamagrostis scaberula Swallen. *Contrib. U. S. Nat. Herb.* 29: 261 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Espinosa 1093*, 24 Nov 1946, Ecuador: Loja: Namanda, 2900 m (US-1910934).

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

Derivation (Clifford & Bostock 2007): *L. scaber*, rough; -ula, diminutive. Somewhat scabrous, usually referring to the lemma.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 85 cm long. Culm-internodes scaberulous. Leaf-sheaths 8–10 cm long, narrower than blade at the collar, smooth or scaberulous. Ligule an eciliate membrane, 1.5 mm long, truncate. Leaf-blades conduplicate, 50 cm long.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 32 cm long, 4 cm wide. Primary panicle branches ascending or spreading, whorled at most nodes, naked below or 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 lanceolate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.1 mm long, 0.05 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 5–6 mm long, 1 length of upper glume, membranous, mid-green and purple, 1-keeled. Lower glume apex acuminate. Upper glume lanceolate, 5–6 mm long, 1 length of adjacent fertile lemma, membranous, mid-green and purple, 1-keeled. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scabrous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, curved, 4.5 mm long overall. Palea 1 length of lemma. Palea keels approximate. Rhachilla extension 2 mm long, sparsely hairy.

Flower and Fruit. Anthers 3, 2.3 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Western South America.** Ecuador.

Calamagrostis scabriflora Swallen. *Contrib. U. S. Nat. Herb.* 29 : 260 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J.A. Steyermark 57231*, 14 Jul 1944, Venezuela: Tachira (US-1911639).

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

Derivation (Clifford & Bostock 2007): *L. scaber*, rough; flos, flower. Spikelets with scabrous glumes and/or lemmas.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 120 cm long. Culm-internodes distally glabrous or pubescent. Leaf-sheaths subequal to internodes, without keel, smooth or scaberulous. Ligule a ciliolate membrane, 2 mm long. Leaf-blades tapering towards sheath or parallel-sided, 30–60 cm long, 5 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, dense, 25 cm long, 1–1.5 cm wide. Primary panicle branches appressed, whorled at most nodes, 4–8 cm long. Spikelets solitary. Fertile spikelets sessile or sessile and pedicelled. Pedicels absent or 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, 3–3.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5 mm long, 0.15 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3–3.22 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, 3–3.2 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 lanceolate, 3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight, 1.7 mm long overall, with twisted column. Palea 1 length of lemma. Rhachilla extension 0.8 mm long, pilose.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America. Venezuela.

Calamagrostis sclerantha Hack. *Oesterr. Bot. Zeitschr.* 52 :108 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *G. Hieronymus & P.G. Lorentz 60*, 19–23 Mar 1873, Argentina: Salta (B; IT: BAA-4417, US-1127175 (fragm. ex B), US-3048361).

Recent Synonyms: *Calamagrostis spiciformis* Hackel ex Stuckert, *Anal. Mus. Buenos Aires, Ser.* 3, 6: 481 (1906).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *Gk. skleros*, hard; anthos, flower. Lemmas cartilagenous.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 16–65 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long, erose, truncate. Leaf-blades 3–17 cm long, 2–3 mm wide. Leaf-blade surface smooth or scaberulous, rough abaxially, glabrous. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, continuous or interrupted, 4–15 cm long, 0.7–1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or scaberulous, glabrous.

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 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.8 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 scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.5–5 mm long, 1.4–1.5 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.3 mm long, cartilaginous, shiny, without keel, more than 3-veined. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 4–4.3 mm long overall, with a straight or slightly twisted column. Rhachilla extension 1–1.2 mm long, pubescent, with 0.5–0.9 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northeast, Argentina Northwest, Chile North.

TDWG4. Jujuy, Salta, Tucuman.

Calamagrostis sclerophylla (Stapf) Hitchcock. *Brittonia*, 2: 117 (1936).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Deyeuxia macgregorii* & *D. sclerophylla*).

Basionym or Replaced Name: *Deyeuxia sclerophylla* Stapf, *Hook. Ic. Pl.* t. 2605. (1899). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. *Giuleanetti s.n.*, 1890, Papua New Guinea: Mount Scratchley, 12,200 ft (K; IT: US-1612419).

T: A. *Giulianetti s.n.*, 1896, Papua New Guinea: New Guinea: Central: Scratchley, [3719 m] (L).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.2605 (1899) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): Gk. skleros, hard; phyllon, leaf. Leaf-blades indurate or coriaceous.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Basal innovations intravaginal. Culms erect, 30–75 cm long, 2 -noded. Ligule an eciliate membrane, 3–4 mm long, acute. Leaf-blades conduplicate, 15–22 cm long, 1.5–2 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 10–15 cm long. Primary panicle branches simple or sparsely divided, 2–5 cm long, bearing spikelets almost to the base. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 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 lanceolate, laterally compressed, 7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.25–0.33 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 7 mm long, 1 length of upper glume, coriaceous, 1-keeled, 3 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 7 mm long, 1.4 length of adjacent fertile lemma, coriaceous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 5 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 2 -fid, with lateral lobes bidentate, incised 0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, curved, 4–6 mm long overall. Palea 1 length of lemma. Rhachilla extension 2 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuasia. New Guinea PNG. New Guinea.

Calamagrostis scopulorum M. E. Jones. *Proc. Calif. Acad. Ser.* 11. v. 722. (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *M.E. Jones 6075*, 25 Sep 1894, USA: Utah: Springdale, Virgin River, base of sandstone cliffs, 4000 ft (POM?; IT: MO, US-236678).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (715).

Derivation (Clifford & Bostock 2007): L. scopulus, cliff. Growing amongst rocks or at the bases of cliffs.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 40–80 cm long. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 3–8 mm long, erose or lacerate, obtuse. Collar glabrous. Leaf-blades erect, 3–7 mm wide, stiff. Leaf-blade surface scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 4–15 cm long, 1–1.5 cm wide. 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, 4.5–5.5 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. Lower glume lanceolate, 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, 4.5–5.5 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight, 2–2.5 mm long overall, not or scarcely exerted from spikelet. Palea 1 length of lemma. Rhachilla extension 0.5 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2, 0.8 mm long. Anthers 3, 2.5–3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

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

Calamagrostis scotica (Druce) Druce. *Brit. Pl. List, ed. 2*, 127 (1928).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (278).

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Scotia, now Scotland.

Classification. Subfamily Pooideae. Tribe: Poaeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 50–90 cm long, 2–3 -noded. Culm-internodes smooth. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–3 mm long, obtuse. Leaf-blades flat or involute, 15–30 cm long, 3–5 mm wide. Leaf-blade venation prominent. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or oblong, dense, 7–16 cm long, 1–3 cm wide. Primary panicle branches appressed, 3–6 cm long. Panicle axis scabrous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 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, 4.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.75 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4.5–6 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 apex acuminate. Upper glume lanceolate, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 3.5–5.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight, 2.5–3 mm long overall, without a column. Palea 0.66 length of lemma. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp, 2 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Europe.

Region. Northern Europe.

Country /Province /State. : Great Britain.

Calamagrostis secunda (Pilg.) Pilg. *Bot. Jahrb. Syst.* 42: 60. (1908).

Regarded by K as a synonym (*C. intermedia*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Deyeuxia secunda* Pilg., *Engl. Jahrb.* 25: 712. (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Stbel* 257, Apr 1872, Ecuador: Morona-Santiago: Cerro Sangay, en las cenizas, 4000 m (B; IT: BAA-4654 (fragm. ex B), US-81874).

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

Derivation (Clifford & Bostock 2007): L. bent to one side. Branches restricted to one side of inflorescence.

Classification. Subfamily Pooideae. Tribe: Poeae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Calamagrostis sesquiflora (Trin.) Tzvelev. *Fl. Arct. URSS, Fasc.* 2, 74 (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), N.Tsvelev, *Grasses of the Soviet Union* (1983).

Basionym or Replaced Name: *Trisetum sesquiflorum* Trin., *Bull. Sc. Acad. Petersb.* 1: 66 (1836). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IST: *D. Mertens s.n.*, Unalashka (LE-TRIN-1905.03). *Trisetum sesquiflorum* Trin.: *Acad. Sc. Petrop. mis.* 8.br.1835.

ST: *D. Peters s.n.*, 1831, Kamtschatka (LE-TRIN-1905.02; IST: US (fragm. ex LE)).

ST: *D. Mertens s.n.*, 1829, Unalashka (LE-TRIN-1905.01). *Trisetum sesquiflorum* m..

ST: *Mertens*, no date, USA: Alaska (US-81780).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (715).

Derivation (Clifford & Bostock 2007): L. sesqui, one and a half; flos, flower. Spikelets with one fertile floret and a second sterile or male floret.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 15–40 cm long. Lateral branches lacking. Leaf-sheaths smooth. Ligule an eciliate membrane, 3–6 mm long, scaberulous on abaxial surface, erose, obtuse. Collar glabrous. Leaf-blades erect, involute, 1.5–3 mm wide. Leaf-blade surface scaberulous, rough abaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or lanceolate, interrupted, 4–12 cm long, 1.5–2 cm wide. 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 2–3 mm long, 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, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein smooth or scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 6–7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25 way up back of lemma, geniculate, 8–10 mm long overall, with twisted column. Rhachilla extension villous.

Flower and Fruit. Lodicules 2, 0.8 mm long. Anthers 3, 2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (2 refs TROPICOS).

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

Country /Province /State. Russian far east, **Eastern Asia.** Kamchatka, Kuril Is, Sakhalin. **Subarctic America, Western Canada, Northwest USA.** Yukon. British Columbia. Washington.

TDWG4.

Calamagrostis setiflora (Wedd.) Pilger. *Bot. Jahrb.* 42:61 (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).

Basionym or Replaced Name: *Deyeuxia setiflora* Wedd., *Bull. Soc. Bot. Fr.* 22: 176 , 180. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *H.A. Weddell* 31, 1851, Bolivia: La Paz: ravin de Chuquiaguillo, La Lancha, 5000 meters. (IT: US-3048353 (fragm.)).

Illustrations (Journals): *Darwiniana* (44(1)) (2006) as *Deyeuxia*.

Derivation (Clifford & Bostock 2007): L. seta, bristle; flos, flower.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 9–12 cm long. Ligule an eciliate membrane, 3–4.5 mm long. Leaf-blades conduplicate or involute, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 3–4 cm long, 0.8–1 cm wide. 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, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.5 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–5.5 mm long, 1.6–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.5 mm long, membranous, without keel, more than 3-veined. Lemma apex lobed, 4 -fid, awned, 5 -awned. Principal lemma awn dorsal, geniculate, 6–7 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 1.5–2 mm long. Rhachilla extension 2 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America and Southern South America. Bolivia, Ecuador, Peru. Argentina Northwest.

TDWG4. Jujuy.

Calamagrostis spicigera (Presl) Steud. *Nom. ed. 2*, 1: 251 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia spicigera* J. Presl, *Rel. Haenk.* 1: 247. (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. in Peruviae montanis huanoccensibus, *Haenke s.n.*

Illustrations (Journals): *Darwiniana* 44(1) (2006) as *Deyeuxia*.

Derivation (Clifford & Bostock 2007): L. spica, thorn; gero, carry. Inflorescence a spicate panicle.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms 12–50 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long. Leaf-blades curved or flexuous, involute, 3–9 cm long, 2–3 mm wide. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade margins pubescent.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, linear, 2–6 cm long, 0.8–1.5 cm wide. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 6–6.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.7–1.5 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 ciliate. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–6.6 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein ciliate. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–5.2 mm long, membranous, without keel, more than 3-veined. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 4–5 mm long overall, with twisted column. Rhachilla extension 2–2.3 mm long, villous, with 3.2–4.3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest.

TDWG4. Jujuy, La Rioja, Salta, Tucuman.

Calamagrostis spruceana Hack. ex Sodiro. *Gram. Ecuador. (Anal. Univ. Quito, 1889)* 8 (1889).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia spruceana* Wedd., *Bull. Soc. Bot. Fr.* 22: 178, 180. (1875).
T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ecuador: "Equateur", Jameson.

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

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Richard Spruce (1817–1893) English botanist in South America.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 30–60 cm long. Leaf-sheath auricles erect, 2–3 mm long. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades conduplicate, 10–25 cm long, 1.5–2 mm wide, indurate, stiff. Leaf-blade surface smooth. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle open or contracted, lanceolate, dense, 9–17 cm long. 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, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, exceeding apex of florets. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. 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 a straight or slightly twisted column. Rhachilla extension 3–3.5 mm long, 1 length of fertile floret, pilose, hairy throughout, with 0.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Calamagrostis srilankensis G. Davidse. *M.D. Dassanayake et al. (eds.), Revised Handb. Fl. Ceylon*, 8: 107 (1994).

Accepted by: 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: Ceylon: Central Province: Nuwara Eliya District: Horton Plains, behind Farr In, *Davidse 7618* (HT: US; IT: CAL, CANB, K, KLU, L, MO, PDA, TAES).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Sri Lanka.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 35–70 cm long. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3.5 mm long, scaberulous on abaxial surface. Leaf-blades 4–8 cm long, 2–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or ovate, 5–13 cm long, 2–3.5 cm wide. Primary panicle branches spreading, whorled at lower nodes, 3–6 cm long. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–7 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, 2.7–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 0.6–1.5 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 2.7–3.5 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 acuminate. Upper glume lanceolate, 2.5–3 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma elliptic or ovate, 2.1–2.8 mm long, membranous, without keel, 5(–7) -veined, more than 3-veined. Lemma apex dentate, emarginate or truncate, muticous or awned, 1 -awned. Principal lemma awn

dorsal, arising 0.33 way up back of lemma, 1–2 mm long overall, not or scarcely exerted from spikelet. Palea 1.8–2.3 mm long, hyaline, 2 -veined. Rhachilla extension 0.3–0.7 mm long, pilose, with 0.6–1.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 1–1.3 mm long. Stigmas 2. Caryopsis with adherent pericarp, oblong, 1.3 mm long. Hilum punctiform.

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

Country /Province /State. **Indian Subcontinent.** Sri Lanka.

Calamagrostis steyermarkii Swallen. *Contrib. U. S. Nat. Herb.* 29: 258 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Steyermark 53195*, 15 Jun 1943, Ecuador: Azuay: 3810–3930 m (US-1911637).

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

Derivation (Clifford & Bostock 2007): in honor of Julian Alfred Steyermark (1909–1988) United States botanist who worked principally in Venezuela.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 65 cm long. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 2 mm long, obtuse. Leaf-blades erect, involute, 15–25 cm long, stiff. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 18 cm long. Primary panicle branches ascending, whorled at most nodes, rebranched above middle, 5–11 cm long. Panicle branches capillary, straight or 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 lanceolate, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose. Floret callus hairs 1–1.5 mm long, 0.5–0.75 length of lemma.

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, purple, 1-keeled. Lower glume primary vein scaberulous. Lower glume apex acute. Upper glume lanceolate, 3–3.5 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex erose, acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, straight, 4 mm long overall, with twisted column. Rhachilla extension 0.4 mm long, villous, with 2 mm long hairs.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

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

Country /Province /State. **Western South America.** Ecuador.

Calamagrostis stoliczkai Hook. f. *Fl. Brit. Ind.* 7: 262 (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).

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

Derivation (Clifford & Bostock 2007): in honor of Ferdinand Stoliczka (1838–1874) geologist who collected in Kashmir.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 30–70 cm long. Lateral branches lacking. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2.4–6 mm long, lacerate. Leaf-blades convolute, 15–30 cm long, 3.5–6 mm wide, stiff, glaucous. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle open, lanceolate, 7–15 cm long. 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 lanceolate, laterally compressed, 4–7 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, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–7 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, 4–7 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 2.5–4.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, truncate, awned, 5 -awned. Principal lemma awn from a sinus, 2.5–4.5 mm long overall. Lateral lemma awns present, arising on apex of lobes, 0.5–1 mm long. Palea 1 length of lemma, hyaline, 2 -veined. Rhachilla extension pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. $N = 14$ (1 ref TROPICOS).

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

Country /Province /State. China. Tibet. **Indian Subcontinent.** Pakistan, West Himalaya.

TDWG4. Sikkim.

Calamagrostis stricta (Timm.) Koel. *Desc. Gram.* 105 (1802).

Accepted by: R.J.Soreng et al., *Catalogue of 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).

Basionym or Replaced Name: *Arundo stricta* Timm, *Siemss. Meklenb. Mag.* 49: 235 (1775). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *C.L. Willdenow s.n.*, Unknown (L). IT: Mecklinburg. prope Malchin (LE).

Recent Synonyms: *Calamagrostis neglecta* (Ehr.) Gaertn. Mey. & Scherb., *Fl. Wett.* 1: 94 (1799). *Calamagrostis californica* Kearns., *U.S. Dept. Agric. Bull. Agrost.* 11: 37 (1898).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (280), N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (437 (295), Pl.5 as *C. neglecta*), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (355, Fig. 238as *Deyeuxia poaeoides*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (731 as subsp. *stricta* & subsp. *inexpansa*).

Derivation (Clifford & Bostock 2007): L. erect. Inflorescence branches erect.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 30–100 cm long, 2–3 -noded. Leaf-sheaths without keel, smooth, glabrous on surface. Ligule an eciliate membrane, 1–3 mm long, entire, truncate. Leaf-blades flat or involute, 30–60 cm long, 1.5–5 mm wide, stiff. Leaf-blade surface ribbed, pubescent, hairy adaxially. Leaf-blade margins scaberulous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Peduncle smooth or antrorsely scabrous above. Panicle contracted, lanceolate to oblong, 7–20 cm long, 1–3 cm wide. Primary panicle branches appressed, 3–6 cm long. Panicle branches terete, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, 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 lanceolate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.6–0.75 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume elliptic, 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 elliptic, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma oblong, 2.5–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.5 way up back of lemma, straight, 1–2 mm long overall, not or scarcely exerted from spikelet. Palea elliptic, 0.6–0.7 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.2 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2, lanceolate. Anthers 3, 2–2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, fusiform. Hilum punctiform. Endosperm farinose. Disseminule comprising a floret.

$N = 14$ (1 ref TROPICOS). $2n = 28$ (3 refs TROPICOS), or 84 (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe, Temperate Asia, North America, South America.

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

Country /Province /State. : Denmark, Finland, Great Britain, Iceland, Norway, Svalbard, Sweden. : Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : France. : Romania. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, North European Russia, South

European Russia, Northwest European Russia, Ukraine. Siberia, Russian far east, **Middle Asia, Caucasus, China, Mongolia, Eastern Asia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Kamchatka, Khabarovsk, Kuril Is, Magadan, Primorye, Sakhalin. Turkmenistan. Japan. Japan Hokkaido, or Honshu. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA.** 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, Washington. Illinois, Kansas, North Dakota. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. **Western South America, Southern South America.** Chile South.

TDWG4. Chubut, Río Negro, Santa Cruz, Tierra del Fuego.

Calamagrostis subacrochaeta Nakai. *Bot. Mag., Tokyo*, 40: 490 (1926).

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

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

Derivation (Clifford & Bostock 2007): L. sub, approaching; Gk. akros, sharp; chaete, bristle. Lemma very shortly aristate.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms 70–150 cm long. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades 25 cm long, 5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong. 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 lanceolate, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 3–4 mm long, 1–1.2 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. 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, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 2.7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.75 way up back of lemma, straight, 1 mm long overall, not or scarcely exerted from spikelet. Palea 1.8 mm long. Rhachilla extension villous.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Korea.

Calamagrostis subchalybaea Tzvelev. *Novit. Syst. Pl. Vasc., Acad. Sci. URSS*, 1965, 45 (1965).

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

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

Derivation (Clifford & Bostock 2007): L. sub, approaching. Similar to *Calamagrostis chalybaea*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–120 cm long, 2–3 -noded, with 0.5 of their length below uppermost node. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blades 30–60 cm long, 3–8 mm wide, stiff, grey-green. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate to oblong, 8–20 cm long. Primary panicle branches appressed. 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 lanceolate, laterally compressed, 4–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.5–0.66 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume elliptic, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent.

Lower glume apex acute. Upper glume elliptic, 1.2–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 3.5–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 4 -fid, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.3–0.5 way up back of lemma, geniculate, 1–2 mm long overall, not or scarcely exerted from spikelet, with twisted column. Palea elliptic, 0.66–0.75 length of lemma, hyaline, 2 -veined. Rhachilla extension 0.2 length of fertile floret, pilose.

Flower and Fruit. Lodicules 2, lanceolate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Endosperm farinose. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. North Caucasus.

TDWG4.

Calamagrostis suka Speg. *Anal. Mus. Buenos Aires*, 5: 85 (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).

Basionym or Replaced Name: *Deyeuxia suka* (Speg.) L. Parodi, *Rev. Argent. Agron.* 20: 14 (1953). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Spegazinni s.n.*, Apr. 1882 [as 1582], Chile: Sarmiento Bay (LP; ILT: BAA). LT designated by Rzgolo de Agrasar, *Darwiniana* 21: 436 (1978).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (360, Fig 240 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): vernacular name for the species in Chile.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 40–60 cm long, 2–3 -noded. Culm-nodes brown, glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 4.5–5 mm long, erose, acute. Leaf-blades conduplicate or involute, 5–20 cm long, 2–3 mm wide, stiff. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 7–11 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, smooth or scaberulous.

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, 5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.5 mm long. Floret callus bearded. Floret callus hairs 1 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 lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 1.7–1.8 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.5 mm long, membranous, without keel, more than 3-veined. Lemma surface scaberulous. Lemma apex erose, obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33–0.66 way up back of lemma, straight or geniculate, 3–4.5 mm long overall, without a column or with a straight or slightly twisted column. Palea 2.6–2.8 mm long. Palea keels scabrous. Rhachilla extension 3–4.5 mm long, pilose.

Flower and Fruit. Lodicules 2, 0.9–1.3 mm long. Anthers 3, 0.9–1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, sulcate on hilar side, 2 mm long. Embryo 0.25 length of caryopsis. Hilum punctiform. Endosperm farinose. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina South, Chile South.

TDWG4. Santa Cruz, Tierra del Fuego. Chiloe, Aisen, Magellanes. Los Lagos, Magellanes.

Calamagrostis swallenii Tovar. *Mem. Mus. Hist. Nat. Javier Prado*, No. 11, 66 (1960).

Regarded by K as a synonym (*C. heterophylla*).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O. Tovar 1168*, 31 Mar 1953, Peru: Huancavelica: Prov. Huancavelica: Tausiri, cerca a Manta, panojal de Puna, alt. 4500 m (US-2118445; IT: MO-2932895).

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

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 7–14 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long, erose, truncate. Leaf-blades 2–4 cm long, 1.5–2 mm wide. Leaf-blade surface scaberulous, rough on both sides, glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath. Panicle spiciform, linear, 3–5.5 cm long, 0.8–2.2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

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, 3.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.3–0.7 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.5–6.5 mm long, 1.1–1.8 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.2–3.5 mm long, membranous, dull, without keel, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 2–3 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 4.5–5 mm long overall, with a straight or slightly twisted column. Rhachilla extension 0.5–0.7 mm long, pubescent, with 0.5–1 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Calamagrostis tacomensis K.L. Marr & Hebda. *Madroño* 53(3): 293, f. 5. (2006).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (715).

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped moderately or densely. Rhizomes absent or short. Culms (20–)30–55(–95) cm long, (1–)2(–5) -noded. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths smooth. Ligule an eciliate membrane, (3–)3.5–5.5(–6) mm long, entire or lacerate, truncate or obtuse. Leaf-blades (6–)7–14(–30) cm long, 1.5–4 mm wide. Leaf-blade surface smooth or scaberulous, rough abaxially or on both sides, pubescent, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle open or contracted, linear or lanceolate, equilateral or nodding, (5–)7–10(–18) cm long, (0.5–)1–2(–3) cm wide. Primary panicle branches (2–)2.3–4(–6) cm long, 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, 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–)6–6.5(–7) mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.2–2.5 mm long, 0.3–0.6 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 lateral veins absent. Lower glume surface smooth or asperulous. Lower glume apex acute. Upper glume lanceolate, (4–)6–6.5(–7) mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or prominent. Upper glume surface smooth or asperulous, rough above. Upper glume apex acute.

Florets. Fertile lemma lanceolate, (3.5–)4–5(–5.5) mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.33 way up back of lemma, geniculate, (5.5–)7–8.5(–10) mm long overall, clearly exerted from spikelet, with twisted column. Rhachilla extension 1.5–2(–2.5) mm long, pilose, with 1.5–3 mm long hairs.

Flower and Fruit. Anthers 3, (1–)2–3(–3.5) mm long.

Distribution (TDWG). Continent. North America.

Country /Province /State. Subarctic America. Greenland.

Calamagrostis tarmensis Pilger. *Engl. Jahrb.* 42 : 70 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A. *Weberbauer 2460*, 12 Feb 1902, Peru: Junin: Prov. Tarma: prope Palca, 2700–3100 m (B; IT: BAA-4649 (fragm. ex B), US-2949280).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Tarma Province, Peru.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal or intravaginal. Culms 50–90 cm long. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades filiform, involute, 10–40 cm long, 0.4–0.7 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 10–20 cm long. Primary panicle branches appressed, 7–9 cm long. Panicle axis scaberulous. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, pubescent.

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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.8 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 smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 6–7 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein smooth or scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4.5–5 mm long, membranous, without keel, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 6.5–7.5 mm long overall, with twisted column. Palea 4.75 mm long. Rhachilla extension 1.5–3 mm long, 0.66 length of fertile floret, pubescent, with 1.5–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 3 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Ecuador, Peru. Argentina Northwest.

TDWG4. Jujuy, Salta, Tucuman.

Calamagrostis tashiroi Ohwi. *Bot. Mag. Tokyo* 44:570 (1930).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (180, Fig. 63).

Derivation (Clifford & Bostock 2007): in honor of Zentaro Tashiro (1921–1924) Japanese botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Cataphylls inconspicuous. Rhizomes short. Culms 20–40 cm long, 0.7–1 mm diam., 4–5 -noded. Culm-internodes 2–5 cm long. Leaves cauline. Leaf-sheaths mostly shorter than adjacent culm internode, smooth, glabrous on surface. Leaf-sheath oral hairs lacking or pubescent. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades linear or lanceolate, 8–13 cm long, 4–10 mm wide, pruinose. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 5–8 cm long, 1.5–2.5 cm wide. Primary panicle branches 2–3 -nate, 1–3 cm long. 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 lanceolate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.25–0.66 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma. 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 acuminate. Upper glume lanceolate, 5–6 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 4.5–5.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins extending close to apex. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 1–2 mm long overall, with twisted column.

Flower and Fruit. Lodicules 2. Anthers 3, 2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Japan. Japan Shikoku, or Kyushu.

Calamagrostis teberdensis Litwinow. *Sched. Herb. Fl. Ross.* 7 : 83 (1911).

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

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Teberda River, Kuban Province, Caucasus, former Soviet Union.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 70–130 cm long, 4–5 -noded. Lateral branches lacking or sparse. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades 4–7 mm wide. Leaf-blade surface scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle open, oblong, dense, 10–25 cm long. Primary panicle branches 3–7 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 lanceolate, laterally compressed, 6.5 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, exceeding apex of florets, firmer than fertile lemma. 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, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 4–5 mm long overall, with a straight or slightly twisted column. Rhachilla extension 1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, Middle Asia, Caucasus, Mongolia. Irkutsk, Tuva. Kazakhstan.

TDWG4.

Calamagrostis teretifolia S. Laegaard. *Novon*, 8(1): 27 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Laegaard 102798*, 11 May 1992, Ecuador: Chimborazo: 4840 m (AAU!; IT: QCA!).

Illustrations (Journals): *Novon* (8: 24 Fig.1E (1998)).

Derivation (Clifford & Bostock 2007): L. teres, narrow; folium, leaf. Leaf-blades narrow and generally rigid.

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 15–30 cm long, 0.7–1 mm diam. Culm-internodes striate, distally glabrous. Leaves mostly basal. Leaf-sheaths striately veined, glabrous on surface. Ligule an eciliate membrane, 6–10 mm long, acute. Leaf-blades aciculate, involute, 3–5 cm long, 0.5–0.8 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 5–6 cm long, 1 cm wide. Primary panicle branches appressed, bearing spikelets almost to the base. Panicle axis with scattered hairs. Panicle branches with scattered hairs. 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, 6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus 0.5 mm long, pilose, disarticulating obliquely. Floret callus hairs 1–2 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, 1 length of upper glume, membranous, much thinner on margins, purple, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex erose, acute. Upper glume lanceolate, 6 mm long, 1.7 length of adjacent fertile lemma, membranous, with membranous margins, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex erose, acute.

Florets. Fertile lemma lanceolate, 3.5 mm long, membranous, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface smooth, glabrous. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, straight, 4 mm long overall. Palea 2.3 mm long. Rhachilla extension 2 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, 1.2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Calamagrostis tolucensis (HBK) Trin. ex Steud. *Nom. ed.* 2; 1: 250 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia tolucensis* Kunth, *Nov. Gen. et Sp.* 1: 143. (1815). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Ex herb. Humboldt a*, Sep, Mexico: prope Toluca (LE-TRIN-1814.03 a (fragm. ex hrbr. Humb. & fig.)). dt Kunth 1836: *D. tolucensis* H. & Kth.

T: *Humb.*, [Mexico]: Toluca (LE-TRIN-1814.02 (fragm. ex hrbr. Willd. & illust no. 162)). 162. *Agrostis cuspidata* W. herb.: 1708.: Toluca.: Humb.: (*D. tolucensis* Hb Kth!): *Calamagrostis tolucensis* m..

HT: *F.W.H.A. von Humboldt & A.J.A. Bonpland s.n.*, Sep, Mexico: Toluca (P-Bonpl.; IT: MSC (fragm. ex P), US-866025 (fragm. ex P-Bonpl.)).

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

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, 20–40 cm long. Culm-internodes smooth. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades erect, involute, 20–30 cm long, 1–1.5 mm wide. Leaf-blade surface smooth or scaberulous, rough abaxially, hirsute, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 10–15 cm long. Primary panicle branches spreading, 3–6 cm long. Panicle branches smooth. 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 lanceolate, laterally compressed, 6 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, reaching 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, rough above. Lower glume apex acuminate. Upper glume lanceolate, 6 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume surface asperulous, rough above. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 6–7 mm long overall, clearly exerted from spikelet, with twisted column. Column of lemma awn hispidulous. Rhachilla extension 1.5 mm long, pilose, with 1–2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Central Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. Mesoamerica, Western South America. Guatemala, Honduras.

Distrito Federal, Mexico State, Puebla, Tlaxcala. Veracruz. Guerrero, Jalisco, Michoacan, Oaxaca. Chiapas.

Calamagrostis trichodonta (Wedd.) Soreng. *Contr. U. S. Natl. Herb.* 48: 223 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Deyeuxia trichodonta* Wedd., *Bull. Soc. Bot. Fr.* 22: 176 (err. typ. 156), 180. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.A. Weddell 4645*, Jun 1847-Jul 1847, [Ecuador?]: Ameriq merid. Pirou, prov de Carabaya (P; IT: US-81876 (fragm. ex P & photo)).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): Gk. *thrix*, hair; *odous*, tooth. Lemma lobes thread-like.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths yellow, glabrous. Basal innovations intravaginal. Culms erect or geniculately ascending, 15–38 cm long, 3-noded, with 0.5 of their length below uppermost node, without nodal roots. Culm-internodes similar in length, terete, yellow, concolorous, striate, smooth. Culm-nodes flush with internodes, without obvious supra-nodal ridge, pallid, glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths loose, unthickened at base, open for most of their length, without keel, striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 1 mm long, membranous, lacerate. Collar concolorous, glabrous. Leaf-blade base symmetrical. Leaf-blades tapering towards tip, involute, 1.5–2.5 mm wide, concolorous. Leaf-blade midrib indistinct, scarcely raised beneath. Leaf-blade venation distinct. Leaf-blade surface smooth, glabrous, hairless throughout. Leaf-blade margins scaberulous. Leaf-blade apex acute, hooded.

Inflorescence. Inflorescence a panicle. Peduncle terete. Panicle open, oblong or ovate, continuous, effuse, straight, 6–10 cm long, 2–3 cm wide, 0.33 of culm length. Primary panicle branches spreading, moderately spaced, 3-nate, whorled at most nodes, 0.8–2 cm long, with lower 0.1–0.2 length of panicle, bearing 4–6 fertile spikelets on each lower branch. Panicle axis dominant or distinct, 6–10 noded, with lower internodes 2.5 cm long, with rounded ribs, glandular, smooth. Panicle branches terete, multilateral, bearing approximate spikelets, glandular, with occasional prickles. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present, linear, 0.2–0.5 length of fertile spikelet, tip widened.

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, with obtuse base, laterally compressed, compressed moderately, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, hairy on the margins and in 2 tufts, with subequal hairs. Floret callus hairs 0.5–1 mm long, 0.2–0.4 length of lemma (the two specimens available for inspection had callus hairs of this dimension. The original description however indicated that the hairs were two thirds the length of the lemma, but this has been found to refer to rhachilla extension).

Glumes. Glumes persistent, similar, subequal in width, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, symmetrical, not clasping, 5.5 mm long, 1.1 length of upper glume, 1 length of spikelet, membranous, purple, 1-keeled, 1-veined. Lower glume primary vein extending to apex, pectinately ciliate. Lower glume lateral veins absent. Lower glume inner surface glabrous. Lower glume margins flat. Lower glume apex acute. Upper glume lanceolate, symmetrical, dorsally convex in profile, 3.8–5 mm long, 1–1.1 length of adjacent fertile lemma, 1 length of spikelet, narrower than lemma, pallid or yellow, eglandular, 1-keeled, 3-veined. Upper glume primary vein obscure, smooth. Upper glume lateral veins absent. Upper glume surface smooth, inner surface glabrous. Upper glume margins smooth. Upper glume apex acute.

Florets. Fertile lemma lanceolate, widest at 0.33 of its length from base, symmetrical, laterally compressed, dorsally convex along back, lanceolate in profile, 3.75–4.5 mm long, 1 mm wide, membranous, yellow, concolorous, without keel, rounded throughout, 0-veined, more than 3-veined. Lemma midvein simple. Lemma lateral veins obscure, absent or obscure below. Lemma surface scabrous, rough above, unwrinkled or rugulose, with basal hair tufts near margin, inner surface glabrous. Lemma apex dentate, 5-fid, with simple equal lobes, with filiform lobes, with lobes 0.5–0.8 mm long, incised 0.2 of lemma length, acuminate, awned, 1-awned. Principal lemma awn median, dorsal, arising 0.35–0.4 way up back of lemma, geniculate, ascending, simple at base, subterete below, stiff, attenuate, 5 mm long overall, 1.3 length of lemma, with 3 mm long limb, clearly exerted from spikelet, with twisted column, persistent, limb scaberulous or scabrous. Column of lemma awn 2 mm long, 0.4 length of limb, scabrous. Lateral lemma awns absent. Palea present, free, embraced by lemma, linear, with flaps narrower than body, 2.5–3.2 mm long, 0.8 length of lemma, membranous, of uniform consistency, 2-keeled. Palea keels extending to apex, 0.7–1 mm apart, scaberulous. Palea surface scaberulous. Palea apex erose, truncate. Rhachilla extension 1.6 mm long, 0.3–0.4 length of fertile floret, approximately straight, pubescent, hairy throughout, with 0.5–3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 3 mm long, eventually exerted, dehiscent by a longitudinal slit, pallid, anther tip smooth. Stigmas 2, retained within floret, white. Styles 1 mm long. Ovary glabrous. Disseminule comprising a caryopsis.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Western South America** and **Southern South America.** Ecuador, Peru. Argentina Northwest.

TDWG4. Jujuy, La Rioja, Salta.

Calamagrostis turkestanica Hackel. *Act. Hort. Petrop.* 26: 57 (1906).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Newessky s.n.*, 21 1878, Turkestan (W; IT: US-865767 (fragm. ex W)).

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

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Turkestan, former Soviet Union.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 30–65 cm long. Lateral branches lacking. Ligule an eciliate membrane, 4 mm long. Leaf-blades 2–5 mm wide, stiff, glaucous. Leaf-blade surface scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, interrupted, 6–12 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, laterally compressed, 6 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, 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 acuminate. Upper glume lanceolate, 1.5–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex erose, awned, 1 -awned. Principal lemma awn subapical, straight, 2 mm long overall, without a column. Palea 0.75 length of lemma.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, **Middle Asia, China.** Altay. Turkmenistan.

TDWG4.

Calamagrostis tweedyi (Scribn.) Scribn. *Contrib. U. S. Nat. Herb.* 1: 249; t. 3 (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).

Basionym or Replaced Name: *Deyeuxia tweedyi* Scribn., *Bull. Torrey Bot. Club*, 10: 64. (1883). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *F. Tweedy s.n.*, 1882, USA: Washington: Yakima Co.: Cascade Mountains (US-866030 (fragm.)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (713).

Derivation (Clifford & Bostock 2007): in honor of Frank Tweedy (1854–1937) United States surveyor and plant collector.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 60–150 cm long. Lateral branches lacking. Leaves basal and cauline. Ligule an eciliate membrane, 6–15 mm long, erose or lacerate. Leaf-blades 5–20 cm long, 7–13 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or lanceolate, continuous or interrupted, 8–16 cm long, 2 cm wide. 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, 5.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–1 mm long, 0.1 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 lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5.5–7 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–6.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 10–12 mm long overall, clearly exerted from spikelet, with twisted column. Palea 1 length of lemma. Rhachilla extension 2–4 mm long, villous.

Flower and Fruit. Lodicules 2, 1–1.5 mm long. Anthers 3, 4 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northwest USA. Washington, Wyoming.

Calamagrostis tzvelevii Husseinov. *Bot. Zhurn. (Moscow & Leningrad)* 73 (12): 1742 (1988).

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

TYPE from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Sh. A. Gussejnov s. n.*, 26 Jul 1971, Caucasus: Dagestan: Dist. Levashinskij: Karekadani: elev. 1100 m (LE). Orig. label: Dagestanskaya ASSR, Levashinskij r-n, s. Karekadani (Pjasoti), v promoinakh i lozhbinakh izvestnjakovykh sclonov, po beregam ruch'ev, h-1100 m..

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 130–160 cm long. Culm-internodes distally glabrous. Leaf-sheaths smooth. Ligule an eciliate membrane, 3–5 mm long, entire. Leaf-blades 3–6 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 14–17 cm long. 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 lanceolate, laterally compressed, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.66 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 lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.6–1.7 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins distinct. Lemma surface asperulous. Lemma apex erose, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 5–5.5 mm long overall, with a straight or slightly twisted column. Rhachilla extension 1 mm long, pilose, with 2–2.5 mm long hairs.

Flower and Fruit. Anthers 3, 2 mm long, yellow.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. North Caucasus.

Calamagrostis uralensis Litw. *Not. Syst. Herb. Hort. Petrop.* 2:113 (1921).

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

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

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Ural Mountains, former Soviet Union.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 80–120 cm long. Ligule an eciliate membrane, 2–4 mm long, lacerate, obtuse. Leaf-blades 4–5 mm wide. Leaf-blade surface scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 10–20 cm long. 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 lanceolate, laterally compressed, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 4 mm long, 0.9–1 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 lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.3–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, straight, 5–6 mm long overall, without a column. Rhachilla extension 1 mm long, pilose, with 4–4.5 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. Europe.

Region. Eastern Europe.

Country /Province /State. East European Russia.

TDWG4.

Calamagrostis valida Sohns. *Journ. Wash. Acad. Sci.* 46: 385 (1957).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R. McVaugh 13410*, 10 Oct 1952, Mexico: Jalisco: NE slopes of Nevada de Colima, head of Barranca de la Roasa, 2800 m (US-2118491; IT: TEX).

Recent Synonyms: *Calamagrostis mcvaughei* Sohns, *Journ. Wash. Acad. Sci.* 46: 382 (1957).

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

Derivation (Clifford & Bostock 2007): *L. robust.* Culms erect, stout.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms 60–100 cm long. Ligule an eciliate membrane. Leaf-blades erect, involute, 10–30 cm long, 4–8 mm wide, stiff. Leaf-blade surface pilose, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or pyramidal, 10–20 cm long. Primary panicle branches 2–5 cm long. Panicle branches flexuous. 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 lanceolate, laterally compressed, 5.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.5–3.5 mm long.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 5.5–6.5 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 5.5–6.5 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate, 3.5–5 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 5–10 mm long overall, with twisted column. Rhachilla extension 1–2 mm long, pilose, with 1.5–3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Northwest Mexico, Southwest Mexico.

TDWG4. Sinaloa. Colima, Jalisco, Michoacan.

Calamagrostis varia (Schrad.) Host. *Gram.* 4, t. 47 (1809).

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).

Basionym or Replaced Name: *Arundo varia* Schrad., *Fl. Germ.* 216 (1806).

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

Derivation (Clifford & Bostock 2007): *L. variable*. Species polymorphic and usually with many varieties.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 30–120 cm long, 3-noded. Culm-internodes smooth. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane, 2–4 mm long, lacerate, obtuse. Leaf-blades 10–25 cm long, 4–9 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, dense, 5–20 cm long. Primary panicle branches bearing spikelets almost to the base. 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 lanceolate, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.5–0.75 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4–6 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 acuminate. Upper glume lanceolate, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein smooth or scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 4–6 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0–0.1 way up back of lemma, geniculate, 1–3 mm long overall, with twisted column. Palea 1 length of lemma. Rhachilla extension 1 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5 mm long, dehiscent by a longitudinal slit. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (2 refs TROPICOS).

Distribution (TDWG). Continent. Europe.

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

Country /Province /State. : Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Poland, Switzerland. : Corsica, France, Sardinia. : Greece, Italy, Romania, Yugoslavia. Northwest European Russia, Ukraine.

TDWG4.

Calamagrostis velutina Hauman. *Nom. Bot.* ed. 2, 1:251 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia velutina* Nees & Meyen, *Reise*, 1: 349; et in *Nov. Act. Nat. Cur.* 19: Suppl.1: 147. (1843). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ad Rmo Maipz in republica Chilensi alt. 11000', Martio, F.J.F. Meyen s.n.D. *velutina* Meyen, *Reis. Erd.* 1: 349. 1834, nom. nud.

Recent Synonyms: *Calamagrostis chilensis* (Desv.) R. Fries, non Phil.(1858), *Nov. Act. Soc. Sci. Upsal.* Ser. 4(1) no. 1, 176 (1906).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (360, Fig. 242 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *L. velvety*. Plant in whole or in part covered with dense short hairs.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 10–30 cm long. Leaf-sheaths 3.5–5 cm long, smooth, glabrous on surface. Ligule an eciliate membrane, 2 mm long, pubescent on abaxial surface, acute. Leaf-blades curved, filiform, conduplicate, 4–8 cm long, 1 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear or lanceolate, 1.5–5 cm long, 0.7–1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, bearing a few hairs or glabrous.

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, 4–4.6 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. Lower glume lanceolate, 1 length of upper glume, membranous, yellow, 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, 1.3 length of adjacent fertile lemma, membranous, yellow, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–3.6 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous, rough above or on veins. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.25–0.33 way up back of lemma, geniculate, 5–7 mm long overall, clearly exerted from spikelet, with twisted column. Palea 1 length of lemma. Rhachilla extension 1.1–1.5 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 2 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp, fusiform, 2.5 mm long. Hilum punctiform. Dissemínule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina South, Chile North, Chile Central, Chile South.

TDWG4. La Rioja, Mendoza, San Juan. Neuquén, Río Negro. Tarapaca, Antofagasta, Atacama. Coquimbo, Santiago. Los Lagos.

Calamagrostis veresczaginii Zolot. *Novosti Sist. Vyssh. Rast.* 21: 225 (1984).

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, Altai, Lake Dzulucul: *Zolotuchin & Machatkov* (LE holo).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect, 50–80 cm long, 4 mm diam., (1–)2 -noded. Culm-internodes smooth, distally glabrous. Culm-nodes glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule a ciliolate membrane, 3–5 mm long, scaberulous on abaxial surface. Leaf-blades flat or conduplicate, 2–5(–7) mm wide, stiff, grey-green. Leaf-blade surface ribbed, grooved adaxially, scabrous, rough abaxially.

Inflorescence. Inflorescence a panicle. Panicle open or contracted, linear or lanceolate, 8–12 cm long, 1.5–3 cm wide. 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, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.66–0.75 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–6 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex attenuate. Upper glume lanceolate, 4–6 mm long, membranous, 1-keeled. Upper glume surface scabrous. Upper glume apex attenuate.

Florets. Fertile lemma lanceolate or ovate, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, obtuse, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, straight, 2–4 mm long overall. Rhachilla extension 0.5–1 mm long, pilose.

Flower and Fruit. Anthers 3, 1.8–2 mm long.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia. Altay.

Calamagrostis vicunarum (Wedd.) Pilger. *Engl. Jahrb.* 42 : 62 (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).

Basionym or Replaced Name: *Deyeuxia vicunarum* Wedd., *Bull. Soc. Bot. Fr.* 22: 177, 180. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IST: *A.D. Orbigny* 222, Bolivia: Oruro: Carangas (US-1126725).

IST: *A.D. Orbigny* 185, Bolivia: Oruro: Carangas (US-1126726).

Recent Synonyms: *Calamagrostis pulvinata* Hackel, *An. Mus. Nac. Buenos Aires*, 21: 104 (1911).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (208, Fig. 45 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*), *Ruizia* (13:197, Fig 21c-d (1993)).

Derivation (Clifford & Bostock 2007): Sp. vicuna. Of the vicunas, that is a constituent of their pastures.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 5–25 cm long. Culm-internodes smooth or scaberulous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–2 mm long. Leaf-blades curved or flexuous, filiform, involute, 2–4.5 cm long, 1 mm wide. Leaf-blade surface scaberulous. Leaf-blade margins scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear or oblong, 2–6 cm long, 0.7–1.1 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous, glabrous.

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, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.5–0.7 mm long.

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 surface scabrous. Lower glume apex acute. Upper glume lanceolate, 5.5–6.5 mm long, 1.6 length of adjacent fertile lemma, membranous, purple, 1-keeled. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, membranous, without keel, more than 3-veined. Lemma apex dentate, 3–4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.2–0.25 way up back of lemma, geniculate, 5.5–6 mm long overall, with twisted column. Rhachilla extension 0.5 mm long, pubescent, with 0.8–1.3 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Ecuador, Peru. Argentina Northwest, Chile North.

TDWG4. Catamarca, Jujuy, Salta, Tucuman. Tarapaca.

Calamagrostis villosa (Chaix) J. F. Gmel. *Syst.* 172 (1791).

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).

Basionym or Replaced Name: *Agrostis villosa* Chaix, Vill., *Hist. Pl. Dauph.* 1: 378 (1786).

Illustrations (Books): G.Hegi, *Flora von Mitteleuropa* 1 (1909).

Derivation (Clifford & Bostock 2007): L. villi, long weak hairs; -osa, abundance. The plant in whole or in part covered with long hairs.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Rhizomes elongated. Culms geniculately ascending, 50–150 cm long, 4–5 -noded. Culm-internodes smooth. Lateral branches lacking. Ligule an eciliate membrane, 3–5 mm long, lacerate. Leaf-blades flat or convolute, 3–8 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, linear, dense or loose, 8–20 cm long, 3–6 cm wide. Primary panicle branches bearing spikelets almost to the base. 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 cuneate, laterally compressed, 4–6 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, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 4–6 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.6–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 2.5–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5–0.6 way up back of lemma, straight, 1–2 mm long overall, without a column. Rhachilla extension 0.5 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

$2n = 28$ (1 ref TROPICOS), or 70 (2 refs TROPICOS).

Distribution (TDWG). Continent. Europe.

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

Country /Province /State. : Austria, Czechoslovakia, Germany, Poland, Switzerland. : France. : Bulgaria, Italy, Romania, Yugoslavia. Northwest European Russia, Ukraine.

TDWG4.

Calamagrostis violacea (Wedd.) Hackel. *Buchtien, Contrib. Fl. Boliv.* 1, 75 (1910).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia violacea* Wedd., *Bull. Soc. Bot. Fr.* 22: 179, 180. (1875). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *H.A. Weddell s.n.*, 1851, Bolivia (US-866026 (fragm. ex P)).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): L. violet. Spikelets, stigmas or anthers violet-colored.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms erect, 6–25 cm long. Culm-internodes smooth. Leaf-sheaths smooth. Ligule an eciliate membrane or a ciliolate membrane, 1.6–3.2 mm long, obtuse or acute. Leaf-blades conduplicate, 1.5–13 cm long, 2–3 mm wide. Leaf-blade venation with subepidermal sclerenchyma attached to veins below. Leaf-blade surface scabrous, rough on both sides, glabrous or puberulous. Leaf-blade margins scabrous. Leaf-blade apex acute or acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 2–5.5 cm long, 0.5–0.8 cm wide. Primary panicle branches 0.8–1 cm long. Panicle axis smooth or scaberulous, with scattered hairs or glabrous. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.8–4.2 mm long, smooth or scaberulous, pubescent.

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, 5.5–6.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent. Floret callus hairs 0.8–1.6 mm long, 0.25 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5.5–6.8 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 surface smooth or scabrous. Lower glume apex obtuse to acuminate. Upper glume lanceolate, 5–6.2 mm long, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface smooth or scabrous. Upper glume apex obtuse to acuminate.

Florets. Fertile lemma lanceolate, 3.8–5.8 mm long, membranous, purple, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.33 way up back of lemma, geniculate, 5–8.8 mm long overall, clearly exerted from spikelet, with twisted column. Palea 3–4 mm long. Rhachilla extension 1.4–2.2 mm long, villous, with 2–2.4 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3, linear, 1.6–2 mm long. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northeast, Argentina Northwest.

TDWG4. Jujuy, Salta, Tucuman.

Calamagrostis viridiflavescens (Poir.) Steud. *Nom. ed.* 2, 1: 251 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Deyeuxia viridiflavescens* (Poir.) Kunth, *Rev. Gram.* 1: 77. (1829), *Calamagrostis montevidensis* Nees, *Mart. Fl. Bras.* 2: 401. (1829), *Arundo viridiflavescens* Poir., *Encyc.* 6: 271 (1804). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *P. Commerson s.n.*, 1767, Uruguay: Montevideo (P-JU; IT: US-3099602 (fragm.)).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (476, Fig. 102 & 499, Fig. 106), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (119, Fig. 37 & 121, Fig 38 as *C. montevidensis*), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (220, Fig. 57 as *Deyeuxia viridiflavescens* var. *montevidensis*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (24, Fig. 4 & 28, Fig. 5 as *C. montevidensis*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *L. viridis*, green; *flavesco*, become yellow.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Basal innovations extravaginal. Culms erect, 60–130 cm long, 2–3 -noded. Leaf-sheaths glabrous on surface or pubescent. Ligule an eciliate membrane, erose. Leaf-blades 4–6 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, nodding, 15–30 cm long. 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, 5–6.5 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, exceeding apex of florets, firmer than fertile lemma. 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, 1.3–1.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 3–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight, 1–3 mm long overall. Rhachilla extension 0.2–2 mm long, pilose.

Flower and Fruit. Lodicules 2. Anthers 3, 0.3–0.8 mm long. Stigmas 2. Caryopsis with adherent pericarp, oblong, 2–3 mm long. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southeast Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Bolivia, Colombia, Ecuador, Peru. Brazil Southeast, Brazil South. Argentina Northeast, Argentina Northwest, Chile Central, Paraguay, Uruguay.

TDWG4. Goiás, Minas Gerais, Rio de Janeiro, Espírito Santo, São Paulo Paraná, Catarina, Rio Grande do Sul. Jujuy, La Rioja, Salta, Tucuman. Buenos Aires, Chaco, Córdoba, Corrientes, Entre Ríos, Formosa, La Pampa, Misiones, Santa Fe. Biobío. Chiapas.

Calamagrostis viridis (Phil.) Soreng. *Contr. U. S. Natl. Herb.* 48: 225 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Deyeuxia viridis* Phil., *Linnaea*, 33: 288. (1865). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: T: *Krause s.n.*, Jan 1865, Chile: Prope Corral (SGO-63084, SGO-37282).

HT: Jan 1865, Chile: Cordil. de la costa, prov. Valdivia (HT:SGO-PHIL-132; IT:US-556422 (fragm. ex SGO-PHIL-132 & photo)).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (355, Fig. 237 as *Deyeuxia*).

Illustrations (Journals): *Darwiniana* (44(1) (2006) as *Deyeuxia*).

Derivation (Clifford & Bostock 2007): *L.* green. Widely applied but especially to species with green spikelets.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 70–100 cm long, 3–5 -noded. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades 5–15 cm long, 2–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, equilateral, 10–22 cm long. 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, 7–8.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.25 mm long. Floret callus 0.3–0.5 mm long, bearded. Floret callus hairs 0.66 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5.6–6.5 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, 1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5.5–8 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal,

arising 0.66 way up back of lemma, geniculate, 6.5–7 mm long overall, with twisted column. Palea 4–4.5 mm long. Palea keels scabrous. Rhachilla extension 2–2.5 mm long, pilose, hairy throughout.

Flower and Fruit. Lodicules 2, 1–1.3 mm long, ciliate. Anthers 3, 1.25–1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, fusiform, 2.5–3.2 mm long. Hilum punctiform. Endosperm liquid. Disseminule comprising a floret.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina South, Chile Central, Chile South.

TDWG4. Chubut, Neuquén, Río Negro. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Biobio, La Araucania. Aisen, Magellanes.

Calamagrostis vulcanica Swallen. *Phytologia*, 4: 424 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F. Skutch 836*, 26 Jul 1934, Guatemala: Quezaltenango: Volcan de Santa MArma (US-1637886).

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

Derivation (Clifford & Bostock 2007): *L. vulcanus*, volcano; -ica, belonging to. Growing on the slopes of volcanoes.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 40–80 cm long. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades curved, aciculate, convolute, 20–40 cm long, 2–3 mm wide, coriaceous, stiff. Leaf-blade surface ribbed, smooth or scaberulous, rough abaxially, pilose, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 8–14 cm long. Primary panicle branches spreading or reflexed, 3–7 cm long. 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 lanceolate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 2 mm long, 0.4 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, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 6–7 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5 mm long, membranous, much thinner above, without keel, 5 -veined, more than 3-veined. Lemma lateral veins excurrent. Lemma surface scabrous. Lemma apex dentate, 4 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, geniculate, 10 mm long overall, clearly exerted from spikelet, with twisted column. Column of lemma awn puberulous. Rhachilla extension 2 mm long, pilose, with 2 mm long hairs.

Flower and Fruit. Lodicules 2. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp. Hilum punctiform. Disseminule comprising a floret.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southeast Mexico. **Mesoamerica.** Guatemala.

Chiapas.

Calamagrostis zenkeri (Trin.) Davidse. M.D. Dassanayake et al. (eds.), *Revised Handb. Fl. Ceylon*, 8: 107 (1994).

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:** *Agrostis zenkeri* Trin., *Mem. Acad. Petersb. Ser.6* (6) 363. (1845). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Zenker*, India: Tamil Nadu: Nilagiri [Nilgiris] (LE-TRIN-1669.01 (fragm. & fig.; photo, K)).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, 30–60 cm long. Culm-internodes smooth or scaberulous, distally glabrous. Lateral branches sparse or ample. Leaf-sheaths tight, striately veined, scaberulous, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long, scaberulous

on abaxial surface. Leaf-blades 5–11 cm long, 3–5 mm wide. Leaf-blade surface scaberulous or scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or ovate, 15–32 cm long, 10 cm wide. Primary panicle branches spreading, 3–4-nate. Panicle axis smooth, glabrous. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous, tip widened.

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, 2–2.5 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, with lower wider than upper, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2.5 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 acuminate. Upper glume lanceolate, 2 mm long, 0.9 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 or ovate, 2.5 mm long, 2 mm wide, chartaceous, without keel, 3-veined, 0–3-veined. Lemma lateral veins prominent. Lemma surface scaberulous. Lemma apex muticous or awned, 1-awned. Principal lemma awn subapical, 0.5 mm long overall, not or scarcely exerted from spikelet. Palea 0.75 length of lemma, hyaline, 2-veined. Rhachilla extension pilose.

Flower and Fruit. Anthers 3, 0.5–0.8 mm long. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Assam.

Calamagrostis x acutiflora (Schrad.) DC. *Fl. Franc. (ed. 3) 5: 255 (1815).*

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 Germany. **Basionym or Replaced Name:** *Arundo acutiflora* Schrad., *Fl. Germ.* 1: 217 (1806). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: In nemorosis humidis, paludosis, ad rivulorum ripas, imprimis Germaniae australis,.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (722).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Distribution (TDWG). Continent. Europe.

Region. Middle Europe.

Country /Province /State. : Germany.

xCalammophila don-hensonii Reznicek & E.J.Judziewicz. *Mich. Bot.*, 35(2): 36 (1997).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from USA. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: USA: Michigan: Alger Co.: Grand Island, Williams Landing, along shore in section 22, T47N, R19W, south shore of Island ca. 5 1/4 km NW of Munising, low dunes above upper beach of Lake Superior, with sparse Ammophila in essentially bare sand, 9 Jul 1991, A.A. Reznicek, D. Henson, J. Henson & D. Tiller 8827 (HT: MICH).

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

Derivation (Clifford & Bostock 2007): In honor of Don Clifford Henson (1945-) United States artist and field botanist.

Classification. Subfamily Pooideae. Tribe: Aveneae.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northeast USA. Michigan.

Calamovilfa arcuata K. E. Rogers. *Rhodora*, 72: 72 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Rogers, Sharp, Delgadillo & Meijer 42409*, 3 Oct 1968, USA: Tennessee: Cumberland Co.: ca. 8 mi NNE of Crab Orchard, off of old grave 1 road from Crab Orchard to Rockwood, downstream about 600–800 ft from Antioch Bridge over Daddy's Creek, in a shrub-dominated community (US-281796; IT: ISC, LAF, TAES, TENN, US-74241).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (144).

Derivation (Clifford & Bostock 2007): *L. arcus*, curve; -ata, possessing. Inflorescence branches curved.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms 75–150 cm long, 2–5 mm diam. Culm-internodes smooth or scaberulous. Culm-nodes bearded. Lateral branches lacking. Leaf-sheaths 6–15 cm long, mostly shorter than adjacent culm internode, glabrous on surface or pilose, with tubercle-based hairs, outer margin hairy. Ligule a ciliate membrane, 0.2–0.7 mm long. Collar ciliate. Leaf-blades 30–85 cm long, 1.5–6.5 mm wide. Leaf-blade surface pilose, hairy adaxially. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Peduncle 15–38 cm long. Panicle open, ovate, 15–45 cm long, 8–40 cm wide. Primary panicle branches ascending or spreading, 1–2 -nate. Panicle branches scabrous, pubescent in axils. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, 1–8 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 lanceolate, laterally compressed, 6–7.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 2–2.5 mm long, 0.3–0.4 length of lemma.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2.7–4.1 mm long, 0.66–0.75 length of upper glume, membranous, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume ovate, 4.2–5.4 mm long, 0.75 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate or attenuate.

Florets. Fertile lemma lanceolate, 5.5–7.1 mm long, membranous, 1 -veined, 0–3 -veined, one-veined. Lemma midvein pubescent. Lemma surface glabrous. Lemma apex attenuate. Palea 5.4–6.2 mm long, 2 -veined. Palea surface pubescent, hairy on back. Palea apex dentate, 2 -fid.

Flower and Fruit. Anthers 3, 3 mm long. Caryopsis with free soft pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. North-central USA, South-central USA, and Southeastern USA. Oklahoma, Alabama, Arkansas, Tennessee.

Calamovilfa brevipilis (Torr.) Scribn. *True Grasses* 113 (1890).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Arundo brevipilis* Torr., *Fl. U. St.* 95 (1823). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Anonymous s.n.*, 1820, USA: New Jersey (IT: US-A865368 (fragm. ex herb. Torrey), US-78850 (fragm. ex herb. Torrey)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (144).

Derivation (Clifford & Bostock 2007): *L. brevis*, short, pilum, hair. Lemmas or glumes bearing short hairs.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Butt sheaths coriaceous, glossy, persistent and investing base of culm, with compacted dead sheaths. Culms 100–150 cm long. Leaf-sheaths 15–30 cm long. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades persistent or deciduous at the ligule, 25–50 cm long, 2–5 mm wide. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, 8–40 cm long, 4–20 cm wide. Primary panicle branches ascending or spreading, 8–17 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous or ciliate, hairy at tip.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 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, 4–5.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1.5 mm long, 0.25–0.5 length of lemma.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.7–4.1 mm long, 0.5–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3.3–5 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma obovate, 4–5.4 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma surface pubescent. Lemma apex acute. Palea oblong, 1.1 length of lemma, 2 -veined. Palea keels distant but flanking a median depression, pubescent.

Flower and Fruit. Anthers 3, 2.4–3.2 mm long. Caryopsis with free soft pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northeast USA, Southeastern USA. New Jersey. North Carolina, South Carolina, Virginia.

Calamovilfa curtissii (Vasey.) Scribn. *U.S. Dept. Agr. Div. Agrost. Bull.* 17:199.f.495. (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).

Basionym or Replaced Name: *Ammophila curtissii* Vasey, *Torrey Bot. Club*, 11: 7. (1884). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.H. Curtiss 3412*, Jul 1879, USA: Florida: Brevard Co. (US-76420; IT: MO).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (144).

Derivation (Clifford & Bostock 2007): in honor of William Curtis (1746–1799) English botanist and entomologist.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms 100–200 cm long. Leaf-sheaths 15–30 cm long. Ligule a fringe of hairs, 0.3–0.4 mm long. Leaf-blades persistent or deciduous at the ligule, 25–50 cm long, 2–5 mm wide. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 15–60 cm long, 1–3.5 cm wide. Primary panicle branches appressed, 10–20 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 lanceolate, laterally compressed, 3.7–5.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 1–1.5 mm long, 0.25–0.5 length of lemma.

Glumes. Glumes persistent, similar, reaching apex of florets. Lower glume ovate, 2–4.7 mm long, 0.6–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3.5–5.4 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 obovate, 3.5–5.2 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma surface pubescent. Lemma apex acute. Palea oblong, 1.1 length of lemma, 2 -veined. Palea keels distant but flanking a median depression, pubescent.

Flower and Fruit. Anthers 3, 2.5–3.1 mm long. Caryopsis with free soft pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southeastern USA. Florida.

Calamovilfa gigantea (Nutt.) Scribn. & Merrill. *U.S. Dept. Agr. Div. Agrost. Cir.* 35:2 (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).

Basionym or Replaced Name: *Calamagrostis gigantea* Nutt., *Amer. Phil. Soc. Trans.* (n.s.) 5:143 (1837). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Nuttall s.n.*, USA: Oklahoma: Hab. on the sandy banks of Great Salt River of the Arkansas. (BM?; IT: PH, US-865774 (fragm. ex BM), US-A865773 (fragm. ex PH)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (143), F.W.Gould, *The Grasses of Texas* (1975) (244, Fig. 130).

Derivation (Clifford & Bostock 2007): L. very large. Culms tall compared with those of related species.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 100–200 cm long, 4–15 mm diam. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades flat or conduplicate, 30–60 cm long, 5–12 mm wide. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 30–60 cm long, contracted about secondary branches. Primary panicle branches ascending or spreading, 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, laterally compressed, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus bearded. Spikelet callus hairs 0.5 length of spikelet.

Glumes. Glumes persistent, similar, exceeding apex of florets or reaching apex of florets. Lower glume ovate, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma obovate, 7–10 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma surface pubescent, hairy below. Lemma apex acute. Palea oblong, 1.1 length of lemma, 2 -veined. Palea keels distant but flanking a median depression, pubescent, adorned below.

Flower and Fruit. Caryopsis with free soft pericarp.

$2n = 40$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America.

Country /Province /State. Northwest USA, North-central USA, Southwestern USA, South-central USA. Idaho. Kansas, Nebraska, Oklahoma. Arizona, Utah. New Mexico, Texas.

Calamovilfa longifolia (Hook.) Scribn. *A. Gray, Man. N. Am. Bot. ed.* 6 651 (1890).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Calamagrostis longifolia* Hook., *Fl. Bor. An* 2: 241 (1840). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Drummond s.n.*, no date, Canada: Saskatchewan (K; IT: US-3168581 (fragm. ex K)).

Illustrations (Books): K.F.Best, et al, *Prairie Grasses* (1971) (91), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (143 as var. *longifolia* & *magna*).

Derivation (Clifford & Bostock 2007): L. longus, long; folium, leaf. With long leaf-blades.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated, scaly. Culms 150–230 cm long. Leaf-sheaths 8–15 cm long, glabrous on surface or pubescent. Ligule a fringe of hairs, 0.75–1 mm long. Leaf-blades flat or involute, 30–65 cm long, 5–12 mm wide. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Panicle open or contracted, linear or lanceolate or ovate, 15–78 cm long, 1.7–26 cm wide. Primary panicle branches appressed or spreading or reflexed, 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, 5–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded. Floret callus hairs 0.6–0.9 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets. Lower glume ovate, 3.5–6.5 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 ovate, 5–8.2 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma obovate, 4.5–7.1 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma surface glabrous. Lemma apex acute. Palea oblong, 1.1 length of lemma, 2 -veined. Palea keels distant but flanking a median depression, eciliate.

Flower and Fruit. Anthers 3, 3–5 mm long. Caryopsis with free soft pericarp.

$2n = 40$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America.

Country /Province /State. Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, South-central USA, Southeastern USA. Alberta, British Columbia, Manitoba, Saskatchewan. Colorado, Montana, Wyoming. Kansas, Missouri, North Dakota, Nebraska, South Dakota. New Mexico. Arkansas.

Calotheca brizoides (Lam.) Desv. *Nouv. Bull. Sci. Soc. Philom. Paris* 2: 190 (1810).

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 (as *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Briza brizoides* (Lam.) Kuntze, *Rev. Gen.* 3, 2: 341 (1893). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uruguay: E. Monte-Video, *Commerson*.

Recent Synonyms: *Bromus brizoides* (Lam.) Kuntze, *Rev. Gen.* 3(2) :341 (1893).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (290, Fig. 95), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (75, Fig. 19 as *Briza*), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (95, Fig. 31 & 98, Fig. 33 as *Briza*), H.M. Longhi-Wagner, *Flora Ilustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza*).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Inflorescences or spikelets resemble those of *Briza*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 20–70 cm long. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades flat or convolute, 7–15 cm long, 0.5–2 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 5–55 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

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 oblong or cuneate, laterally compressed, 7–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas. Floret callus pilose.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4.5–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 4.5–5 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume apex acute.

Florets. Fertile lemma oblate, 5.2–5.7 mm long, chartaceous, much thinner above, keeled, lightly keeled, winged on margins, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 2–3 mm long overall. Palea 0.9 length of lemma, 2 -veined. Palea keels ciliolate. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.8–1 mm long. Anthers 3, 1.8 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, 1.5–2.3 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil South. Argentina Northeast, Chile Central, Uruguay.

TDWG4. Buenos Aires. O'Higgins, Maule, La Araucania.

Calyplochloa gracillima C. E. Hubbard. *Hook. Ic. Pl.* 33, t. 3210 (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: HT: *H.S. Blosome s.n.*, 1931, Australia: Queensland (K; IT: US-1539929 (fragm. ex K)).

Illustrations (Books): J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (144), 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).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3210 (1933)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. very delicate. Of slender habit.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe NEURACHNINAE.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 10–30 cm long, wiry, disarticulating at the nodes. Culm-internodes ridged, distally pilose, with tubercle-based hairs. Culm-nodes pubescent. Lateral branches sparse. Leaves cauline. Leaf-sheaths wider than blade at the collar, ribbed, pilose, with tubercle-based hairs, outer margin hairy. Ligule a fringe of hairs, 0.25 mm long. Collar pubescent. Leaf-blades linear to lanceolate, 1.5–3.5 cm long, 2–4.5 mm wide. Leaf-blade surface pilose, with tubercle-based hairs. Leaf-blade margins cartilaginous. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Peduncle pilose above. Racemes 1, single, paucilateral, 1–1.5 cm long, bearing few fertile spikelets, bearing 5–7 fertile spikelets on each. Rhachis subterete, pubescent on surface. Spikelet packing adaxial, lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, semiterete, 0.3–0.4 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, dorsally compressed, acute, 3–4.5 mm long, falling entire. Spikelet callus pubescent, base obtuse.

Glumes. Glumes one the lower absent or obscure, exceeding apex of florets, thinner than fertile lemma. Upper glume ovate, 1.3 length of adjacent fertile lemma, herbaceous, without keels, 7 -veined. Upper glume surface tuberculate, pilose. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 1.3 length of fertile lemma, herbaceous, 5 -veined, tuberculate, pilose, obtuse. Fertile lemma elliptic, dorsally compressed, lanceolate in profile, 2.5–3.5 mm long, chartaceous, pallid, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins flat, exposing palea. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 1.5–2.5 mm long overall, not or scarcely exerted from spikelet, limb smooth. Palea elliptic, involute, 1 length of lemma, chartaceous, 2 -veined, without keels. Palea apex obtuse or acute.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 0.5–1 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, 1.6–1.8 mm long. Embryo 0.3 length of caryopsis. Hilum punctiform. Endosperm farinose. Disseminule comprising a spikelet.

Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

TDWG4. North, Central, South East, Inland.

Calypochloa cylindrosperma E.J.Thomps. & B.K.Simon. *Austrobaileya* 8 (4): 644 (2012).

TYPE from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: **Typus:** Queensland. North Kennedy District: 16 km SW of Charters Towers on edge of road, 7.5 km W of Black Jack, 30 March 2011, *E.J.Thompson CHA769, B.K.Simon & M.Edginton* (holo: BRI; iso: CANB, K, L, MO, NSW, SI, US).

Illustrations (Journals): *Austrobaileya* 8 (4): 646, Fig.5 and 647, Fig.6 (2012)).

Derivation (Clifford & Bostock 2007): derived from the Greek *cylindro-* (cylindrical) and *-sperma* (seed) in reference to the shape of the cleistogamous caryopses.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe NEURACHNINAE.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

Calypochloa johnsoniana E.J.Thomps. & B.K.Simon. *Austrobaileya* 8 (4): 645 (2012).

TYPE from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: **Typus:** Queensland. Leichhardt District: Duaringa, December 1976, *R.W.Strickland s.n.* (holo: BRI [AQ670557]).

Illustrations (Journals): *Austrobaileya* 8 (4): 650, Fig.7 and 651, Fig.8 (2012)).

Cambajuva ulei

Classification. Tribe: Bambuseae.

Cambajuva Genus

Classification. Tribe: Bambuseae.

Campeiostrachys schrenkiana (Fisch. & C. A. Mey.) Drobow. *Fl. Uzbekistan.* 1: 300, 540 (1941).

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 *Agropyron*), N.Tsvelev, *Grasses of the Soviet Union* (1983).

TYPE from Russia. **Basionym or Replaced Name:** *Triticum schrenkianum* Fisch. & C.A. Mey., *Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg* 3: 305 (1845)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Fergana: Skobelev.

Recent Synonyms: *Agropyron schrenkianum* (Fisch. & Mey. ex Schrenk) P. Candargy, *Archiv. Biol. Veg., Athenes, Fasc.* 1: 22 (1901). *Elymus schrenkianus* (Fisch. & C. A. Mey.) Tzvelev, *Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS*, 20: 428 (1960).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (631, Fig. 29).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Alexander Gustav Schrenk (1816–1876) Russian botanist.

Classification. Subfamily Pooideae. Tribe: Triticeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, (20–)35–90 cm long. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades flat or convolute, 4.5–15 cm long, 1.5–4 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, straight or arcuate, unilateral, 5–11 cm long. Rhachis flattened, smooth on margins or scabrous on margins. Spikelet packing broadside to rhachis (as to glumes), crowded. Rhachis internodes oblong, 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 elliptic to oblong, laterally compressed, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes lateral, persistent, similar, shorter than spikelet. Lower glume elliptic, 3–4.5 mm long, 1 length of upper glume, coriaceous, without keels, 3 -veined. Lower glume lateral veins ribbed. Lower glume apex acute, awned, 1 -awned, awn 2–3 mm long. Upper glume elliptic, 3–4.5 mm long, 0.3–0.4 length of adjacent fertile lemma, coriaceous, without keels, 3 -veined. Upper glume lateral veins ribbed. Upper glume apex acute, awned, 1 -awned, awn 2–5 mm long.

Florets. Fertile lemma elliptic, 9–11 mm long, coriaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acute, awned, 1 -awned. Principal lemma awn curved, reflexed, 15–25 mm long overall. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, elliptic, membranous. Anthers 3, 1.25–1.5 mm long. Stigmas 2. Ovary pubescent on apex. Caryopsis with adherent pericarp.

$2n = 42$ (2 refs TROPICOS).

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

Country /Province /State. Siberia, **Middle Asia, China, Mongolia, Russia.** Altay, Irkutsk, Tuva. Kazakhstan, Kirgizistan, Turkmenistan, Uzbekistan. Qinghai, Tibet, Xinjiang. Mongolia. **Indian Subcontinent.** Eastern Himalaya, Nepal, Pakistan, West Himalaya.

TDWG4. Bhutan, Sikkim. Himachal Pradesh, Jammu Kashmir.

Camusiella fiherenensis Bosser. *Adansonia* ser. 2, 6: 108, t. 1. (1966).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Setaria*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Madagascar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, Fiherenana: Bosser 14030 (P holo).

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

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, caespitose. Rhizomes elongated. Culms erect, 30–75 cm long, 2–3 mm diam., 3–4 -noded. Culm-internodes distally glabrous. Culm-nodes pubescent. Leaf-sheaths loose, striately veined, pilose. Ligule a ciliate membrane, 0.3–0.5 mm long. Leaf-blade base sagittate, with a false petiole, petiole 1–7 cm long, petiole pubescent. Leaf-blades 8–15 cm long, 10–20 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, linear or lanceolate, 15–35 cm long, contracted about primary branches. Primary panicle branches appressed, 1 -nate, 4–6 cm long, bearing spikelets almost to the base. Spikelets subtended by an involucre. Fertile spikelets pedicelled, 3–8 in the cluster. Involucre composed of bristles, 4–6 mm long. Involucral bristles persistent, in one whorl, 1 per spikelet, flexible, glabrous. Pedicels present, 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 ovate, laterally compressed, gibbous, 2.5–3 mm long, falling entire.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, clasping, 0.33 length of spikelet, membranous, without keels, 3–5 -veined. Lower glume apex obtuse. Upper glume ovate, 0.5 length of spikelet, membranous, without keels, 7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, indurate, much thinner on margins, 1-keeled (at tip), rugose. Fertile lemma ovate, laterally compressed, gibbous, 2.5–3 mm long, indurate, without keel. Lemma surface rugose. Lemma margins involute. Palea involute, indurate. Palea surface smooth or rugose.

Flower and Fruit. Lodicules 2. Anthers 3, 1.5 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. **Western Indian ocean.** Madagascar.

Camusiella vatkeana (K. Schum.) Bosser. *Adansonia, n. s.*, 6: 106 (1966).

More checking of status required.

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Setaria*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Madagascar. **Basionym or Replaced Name:** *Setaria vatkeana* K. Schum. *Abh. Naturh. Ver. Brem.* 9: 402. (1887). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *Rutenberg s.n.*, Feb 1878, Madagascar: ohne Standortsangabe

ST: *Hildebrandt 2927*, Apr 1879, Madagascar: Nossi-bi an sonnigen Stellen (L).

ST: *Parker s.n.*, [?Madagascar]: "von Vatke sind noch als fraglich notirt,..."

ST: *Lyll n. 331*, [?Madagascar]: "...von Vatke sind noch als fraglich notirt,..."

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (281, Fig. 103).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Georg Karl Wilhelm Vatky (1849–1889) German botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, caespitose. Culms 30–120 cm long. Ligule a fringe of hairs. Leaf-blade base with a false petiole, petiole 10–15 cm long. Leaf-blades linear or lanceolate, 10–30 cm long, 1–4 mm wide. Leaf-blade surface glabrous or pilose.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 7–30 cm long, contracted about primary branches. Primary panicle branches 10–20 in number, appressed, 1–4 cm long, bearing spikelets almost to the base, sterile at the tips. Panicle branches secund. Spikelets subtended by an involucre. Fertile spikelets pedicelled, 1 in the cluster. Involucre composed of bristles, 5–10 mm long. Involucral bristles persistent, 4–5 in principal whorl, flexible, antrorsely scaberulous, glabrous. Pedicels present, oblong.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, compressed slightly, gibbous, 3–3.5 mm long, falling entire.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.25–0.33 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex obtuse. Upper glume ovate, 0.5 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, coriaceous, much thinner on margins, winged on margins, 5 -veined, acute. Fertile lemma elliptic, laterally compressed, gibbous, 2.5–3 mm long, indurate, without keel. Lemma surface rugulose. Lemma margins involute. Lemma apex apiculate. Palea involute, indurate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Canastra aristella (Doell) Zuloaga & Morrone. *Syst. Bot.* 31: 502 (2006).

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

TYPE from Brazil. **Basionym or Replaced Name:** *Panicum aristellum* Doell, *Mart. Fl. Bras.2:* (2) 221 (1877). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J.F. Widgren 924*, 29 Nov 1845, Brazil: Minas Gerais: Jardin (S; IT: US-702302, US-80468 (fragm. ex M, S)).

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

Derivation (Clifford & Bostock 2007): L. *arista*, bristle; *-ella*, diminutive. Lemma shortly awned.

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

Habit, Vegetative Morphology. Perennial, caespitose. Culms 100–200 cm long. Leaf-sheaths as wide as blade at the collar. Ligule a ciliate membrane. Leaf-blades 30–50 cm long, 10–20 mm wide. Leaf-blade margins cartilaginous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 15–40 cm long, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Panicle branches scabrous, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 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, 2–2.8 mm long, falling entire.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.75 length of spikelet, membranous, without keels, 5 -veined. Lower glume surface puberulous. Lower glume apex acute, awned, 1 -awned, awn 0.5 mm long. Upper glume ovate, 1 length of spikelet, membranous, without keels, 7 -veined. Upper glume surface puberulous. Upper glume apex acute, awned, 1 -awned, awn 0.5–1 mm long.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 7 -veined, puberulous, acute. Fertile lemma oblong, dorsally compressed, 2–2.8 mm long, indurate, pallid, without keel, more than 3-veined. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

Canastra lanceolata (Filg.) Morrone, Zuloaga, Davidse, Filg. *Novon* 11(4): 429 (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).

Basionym or Replaced Name: *Arthropogon lanceolatus* T.S. Filgueiras, *Bradea*, 3(36): 307 (1982). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Legerunt Luiz Emydio, Aydil Andrade, Nobre de Lessa & F. Medeiros 2308*, 28 Jul 1966, Brazil: Minas Gerais: Furnas, Ribeirco das Pacas-Cascatas, na margem do rio sobre quartzito, inflorescencia roxa (R-116424; IT: IBGE-19804, MO-5102622 (fragm.), US-2979541, US-5102622).

Illustrations (Journals): *Novon* (11: 430 Fig.1 (2001)).

Derivation (Clifford & Bostock 2007): *L. lanceus*, lance; -ola, diminutive; -ata, possessing. Mostly a reference to lanceolate leaf-blades.

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

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms 40–80 cm long. Culm-nodes constricted, glabrous. Ligule a ciliate membrane, 2–3 mm long. Leaf-blades 5–30 cm long, 2–6 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or oblong, 5–17 cm long. Spikelets solitary or in pairs. Fertile spikelets pedicelled, 1–2 in the cluster. 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, 2–4 mm long, 1 mm wide, falling entire. Spikelet callus glabrous.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume linear, 3–7 mm long, 0.5 length of spikelet, coriaceous, without keels, 3 -veined. Lower glume apex awned, 1 -awned, awn 11 mm long. Upper glume oblong, 1 length of spikelet, coriaceous, without keels, 5 -veined. Upper glume awned, 1 -awned, awn 11–13 mm long.

Florets. Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, coriaceous, 5 -veined, obtuse. Fertile lemma linear, membranous, without keel, 5 -veined, more than 3-veined. Lemma apex obtuse. Palea hyaline, without keels.

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.

Capeochloa arundinacea (Bergius) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 326 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Rytidospermum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from South Africa. **Basionym or Replaced Name:** *Andropogon arundinaceus* Berg., *Desc. Pl. Cap.* 356 (1767). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa, Cape: Petiv. Mus. 89.

Merxmuellera arundinacea (Bergius) Conert, *Gr S Afr* 58: 215 (1990).

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

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): *L. arundo*, reed; -acea, like. Culm tall, thereby resembling a reed.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous. Culms reed-like, 100–120 cm long. Ligule a fringe of hairs. Leaf-blades convolute, 30–60 cm long, 4–7 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate or ovate, 15–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising (2–)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, (10–)13.5–16.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 10–15 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume surface puberulous. Lower glume apex attenuate. Upper glume lanceolate, 10–15 mm long, 1.7 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume surface puberulous. Upper glume apex attenuate.

Florets. Fertile lemma oblong, 6–8 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent, without hair tufts. Lemma hairs white. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 9–13 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 2–3 mm long. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, glabrous. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Northern Cape, Western Cape, Eastern Cape.

Capeochloa cincta (Nees) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 326 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Rytidospermum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from South Africa. **Basionym or Replaced Name:** *Danthonia cincta* Nees, *Fl. Afr. Austr.* 332 (1841). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: South Africa, Constantia: Ecklon ; South Africa, Cape: Reeves in Herb. Lindley (lecto, *vide* Conert) ; South Africa, Tulbagh: Worcester.

Merxmuellera cincta (Nees) Conert, *Senck. Biol.* li. 132 (1970).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (97: 325, Fig.4 (2010)).

Derivation (Clifford & Bostock 2007): *L. cinctus*, girdle. Lemma with a transverse band of hairs.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous. Culms reed-like, 100–200 cm long. Ligule a fringe of hairs. Leaf-blades convolute, 50–100 cm long, 5–15 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or lanceolate, 20–40 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, 14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 10–13 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume apex attenuate. Upper glume lanceolate, 10–13(–18) mm long, 1.5 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume apex attenuate.

Florets. Fertile lemma oblong, 7–8 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface glabrous, with a transverse row of hair tufts, bearing 8 hair tufts in all. Lemma hairs 5–7(–12) mm long. Lemma apex lobed, 2 -fid, with linear lobes, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, simple at base, 5–14 mm long overall, with a straight or slightly twisted column. Palea keels ciliolate. Palea surface pubescent, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, glabrous. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Western Cape, Eastern Cape.

Capeochloa setacea (N.P.Barker) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 327 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Rytidospermum*), 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: 3319 (Worcester): Groot Winterhoek Wilderness area, NW of Groen Mt., Suurvlaakte plateau, (-AA), 17 Nov 1987, *Ellis 5500* (HT: PRE).

Recent Synonyms: *Merxmuellera setacea* N.P. Barker, *Bothalia*, 21(1): 27 (1991).

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

Derivation (Clifford & Bostock 2007): *L. seta*, bristle; -acea, indicating resemblance. With bristle-like leaf-blades.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, slender, 15–60 cm long, 2–4 -noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface or hirsute, with tubercle-based hairs. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight or curved, filiform, involute, 5–20 cm long, 1 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially, glabrous or hirsute, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle. Peduncle glabrous or pubescent above. Panicle contracted, linear to elliptic, 3–9 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 cuneate, laterally compressed, 8–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–0.75 mm long, pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 8–14 mm long, 1 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acute or acuminate. Upper glume linear or lanceolate, 8–14 mm long, 2 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume apex acute or acuminate.

Florets. Fertile lemma lanceolate or elliptic, 4–6 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface with 2 transverse rows of hair tufts. Lemma hairs 2–3 mm long. Lemma apex lobed, 2-fid, with lobes 2–3 mm long, incised 0.5 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 5–9 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 4–6 mm long. Palea oblong or oblanceolate, 2.5 mm long. Palea keels ciliolate. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, fleshy, ciliate. Anthers 3, 0.75 mm long. Caryopsis with adherent pericarp, oblong, 1–1.5 mm long.

Distribution (TDWG). Continent. Africa.

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

Capillipedium annamense A. Camus. *Bull. Mus. Hist. Nat. Paris*, 1: 206 (1925).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Annam: Ca-na, pr. Phanrong, alt. 300 m, sol argileux rocheux, *Poilane 8487* (HT: P).

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

Derivation (Clifford & Bostock 2007): L. *-ense*, denoting origin. From Annam.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 40–60 cm long. Culm-internodes distally pilose. Culm-nodes bearded. Lateral branches ample. Leaf-sheaths smooth, outer margin hairy. Ligule a ciliolate membrane, truncate. Leaf-blades 11–12 cm long, 3–4 mm wide, stiff. Leaf-blade surface scaberulous, rough adaxially, hirsute. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 5–7 cm long. Primary panicle branches 1–2 -nate. Panicle branches capillary, bearded in axils. Racemes 1 cm long, bearing few fertile spikelets, bearing 2 fertile spikelets on each. Rhachis fragile at the nodes, subterete, plumose on margins. Rhachis internodes linear, 0.5 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, with a translucent median line (also present in internodes), villous.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, lanceolate, 4.5 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, scaberulous, ciliolate on margins, muticous. Companion sterile spikelet lemmas 1, enclosed by glumes, 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 elliptic, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, chartaceous, purple, 2-keeled, keeled obtusely, 7 -veined. Lower glume primary vein ciliate. Lower glume surface concave, asperulous. Lower glume apex obtuse. Upper glume lanceolate or oblong, chartaceous, 1-keeled. Upper glume surface puberulous. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2.5 mm long, hyaline. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex

entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 22–25 mm long overall, with twisted column. Column of lemma awn 5 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Thailand.

Capillipedium arachnoideum Henrard. *Blumea*, 3 : 458 (1940).

Regarded by K as a synonym (*C. parviflorum*).

Accepted by: U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

Basionym or Replaced Name: *Capillipedium parviflorum* (R.Br.) Stapf, Prain, *Fl. Trop. Afr.* 9: 169 (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *V.M.A. Beguin 184*, 2 Mar 1922, Indonesia: Java, Jawa Timur, Banjoewangi, 100 m (L).

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

Derivation (Clifford & Bostock 2007): as for *arachnoides*. Densely hairy as of internodes or leaf-sheaths.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuasia. Java, Sumatra. New Guinea.

Capillipedium assimile (Steud.) A. Camus. *Lecomte, Fl. Gen. Indo-Chine*, 7: 314 (1922).

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), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

Basionym or Replaced Name: *Andropogon assimilis* Steud., *Syn. Pl. Gram.* 397 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Zollinger 859*, no date, Indonesia: Java (IT: P; IT: US-76220 (fragm.)).

Illustrations (Books): C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (648), C-C Hsu, *Taiwan Grasses* (1975), H.J.Noltie, *The Grasses of Bhutan* (2000) (795, Fig. 56), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 848).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3085 (1922) as *C. glaucopsis*).

Derivation (Clifford & Bostock 2007): L. similar.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 150–300 cm long, woody, rooting from lower nodes. Culm-nodes bearded. Lateral branches suffrutescent. Ligule a ciliolate membrane. Leaf-blade base tapering to the midrib or simple. Leaf-blades linear or lanceolate, 6–20 cm long, 3–6(–12) mm wide, flaccid. Leaf-blade midrib widened.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 5–12 cm long, 3–4 cm wide. Primary panicle branches whorled at lower nodes. Panicle branches capillary, glabrous in axils or bearded in axils. Racemes bearing few fertile spikelets, 2–6 fertile spikelets on each. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, with a translucent median line (also present in internodes).

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 3–4.5 mm long, longer than fertile, separately deciduous. 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, 1.8–2.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, 2-keeled, keeled obtusely. Lower glume intercarinal veins distinct, 2–4 in number. Lower glume surface concave, scabrous, glabrous or puberulous. Upper glume ovate, 1-keeled, 3 -veined. Upper glume primary vein scaberulous.

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 linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 6–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

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

Country /Province /State. **China, Eastern Asia.** China South Central, Hainan, China North-Central, China Southeast, Tibet. Nansei-Shoto, Taiwan. **Indian Subcontinent, Indo-China, Malesia.** Assam, Bangladesh, Eastern Himalaya, India, Nepal, Pakistan, West Himalaya. Laos, Myanmar, Thailand, Vietnam. Java, Lesser Sunda Is, Malaya, Philippines, Sulawesi, Sumatra. **Northwestern Pacific.** Nauru.

TDWG4. Shandong, Fujian, Guangdong, Guangxi, Henan, Hunan, Jiangxi, Zhejiang, Guizhou, Hubei, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura. Andhra Pradesh, Bihar, Chandigarh, Chattisgarh, Dadra-Nagar-Haveli, Diu, Delhi, Daman, Goa, Gujarat, Haryana, Jharkhand, Kerala, Karaikal, Karnataka. Mahe, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Punjab, Rajasthan, Tamilnadu, Uttah Pradesh, West Bengal, Yanam. Himachal Pradesh, Jammu Kashmir, Uttaranchal.

Capillipedium duongii Nguyen. *Novosti Sist. Vyssh. Rast.* 6: 6 (1970).

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

TYPE from Vietnam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Vietnam, Thai-binh: *Duong huu Thoi* .

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms geniculately ascending, 50–60 cm long. Culm-internodes distally glabrous. Culm-nodes pubescent. Leaf-sheaths mostly shorter than adjacent culm internode, pubescent. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades linear or lanceolate, 5–6 mm wide. Leaf-blade surface pilose, hairy on both sides.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 12 cm long, 1–1.5 cm wide. Panicle branches capillary, pubescent, bearded in axils. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 1.7 mm long, with a translucent median line (also present in internodes), glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 2.1–2.3 mm long, as long as fertile, separately deciduous. 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 oblong, dorsally compressed, 2.2–2.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse. Spikelet callus hairs 0.3 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, 2-keeled, keeled obtusely, 7 -veined. Lower glume lateral veins obscure. Lower glume surface concave, pilose, hairy above. Upper glume ovate, 1-keeled, 3 -veined. Upper glume primary vein obscure. Upper glume surface pilose, hairy above.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma linear, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 11–12 mm long overall, with twisted column. Column of lemma awn scabrous, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.5 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. **Indo-China.** Vietnam.

Capillipedium filiculme (Hook.f.) Stapf. *Hook. Ic. Pl. sub t.* 3085 (1922).

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: *Andropogon filiculmis* Hook. f., *Fl. Brit. Ind.* 7: 181. (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Jacquemont n. 310*, India: "The Deccan; Poonah, in rocky places, ..."

ST: *Woodrow (herb. Bomb. n. 26)*, India: "Mawar; Dhomsha, ...".

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

Derivation (Clifford & Bostock 2007): L. filum, thread; culmus, stalk. Culms slender.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Annual. Culms rambling, weak, 30–80 cm long, rooting from lower nodes. Culm-nodes glabrous or bearded. Ligule an eciliate membrane, acute. Leaf-blades involute or convolute, 2–5 cm long, 4–6 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 3–10 cm long. Panicle branches capillary. Racemes bearing few fertile spikelets or many spikelets, 1–3 fertile spikelets on each. Rhachis evident or obsolete, fragile at the nodes, subterete, ciliate on margins. Rhachis internodes linear, 1–2 mm long. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, linear, 1–2 mm long, with a translucent median line (also present in internodes), ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, lanceolate, shorter than fertile, separately deciduous. 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, 2–3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 1 length of spikelet, chartaceous, 2-keeled, keeled obtusely, 7 -veined. Lower glume surface concave, glabrous or villous. Upper glume lanceolate or oblong, chartaceous, with hyaline margins, 1-keeled, 3–5 -veined.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1–1.5 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma linear, 1–2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 10–12 mm long overall, with twisted column. Column of lemma awn 5 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1–1.5 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Kerala. Maharashtra, Rajasthan, Tamilnadu, Uttah Pradesh. Jammu Kashmir.

Capillipedium huegelii (Hackel) A. Camus. *Rev. Bot. Appliq.* 1: 306 (1921).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

Basionym or Replaced Name: *Andropogon huegelii* Hack., *DC. Monog. Phan.* 6: 492. (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Asia, *Hugel 2243 "in h. Vind."*.

Illustrations (Books): K.M.Mathew, *Flora Palni Hills* (1996) (795, Pl. 795).

Derivation (Clifford & Bostock 2007): in honor of Carl Alexander Anselm Huegel (1794–1870) German botanist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Annual. Culms decumbent, 80–100 cm long, rooting from lower nodes. Culm-nodes bearded. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane. Leaf-blades 10–15 cm long, 8–12 mm wide. Leaf-blade surface scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 8–12 cm long. Racemes 0.7 cm long, bearing few fertile spikelets, bearing 2–3 fertile spikelets on each. Rhachis ciliate 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, 3 mm long, with a translucent median line (also present in internodes), ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 3–4 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes 9 -veined, pubescent. 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 oblong, dorsally compressed, 3–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, without keels, 7 -veined. Lower glume surface concave, pubescent, hairy below. Upper glume lanceolate, 1 length of spikelet, 1-keeled, 3 -veined.

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 linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned. Principal lemma awn geniculate, 14–16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.8 mm long.

N = 10 (2 refs TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Bihar, Kerala. Madhya Pradesh, Maharashtra.

Capillipedium kuoi L.B.Cai. *Acta Biol. Plat. Sin.* 12:34 (1994).

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): In honor of Pung (Pen) Chao Kuo (fl.1980–1987) Chinese botanist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Culms erect or geniculately ascending, 50–110 cm long, 1.5–2.3 mm diam., firm. Culm-nodes pubescent. Lateral branches sparse. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliate membrane, 1.6 mm long. Leaf-blades linear, 10–20 cm long, 5–8 mm wide. Leaf-blade surface glabrous or pubescent, sparsely hairy.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 10–18 cm long. Panicle branches capillary, bearded in axils. Racemes bearing few fertile spikelets, 2–4 fertile spikelets on each. Rhachis ciliate on margins. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, with a translucent median line (also present in internodes), ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, as long as fertile or longer than fertile, separately deciduous. 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 oblong, dorsally compressed, 3 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 lanceolate or elliptic, 1 length of spikelet, membranous, 2-keeled, keeled obtusely. Lower glume intercarinal veins distinct, 4–6 in number. Lower glume surface concave, pilose. Lower glume margins ciliate. Lower glume apex erose. Upper glume ovate, 1-keeled. Upper glume surface glabrous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma linear, hyaline, without keel. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 8–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central, Tibet.

TDWG4. Sichuan, Yunnan.

Capillipedium kwashotense (Hayata) C.C.Hsu. *Journ. Jap. Bot.* 37: 280 (1962).

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)* (as *Bothriochloa*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Bothriochloa*).

Basionym or Replaced Name: *Andropogon kwashotensis* Hayata, *Ic. Pl. Formos.* 7: 80 (1918). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Taiwan: Kwashoto, July 1915, *T. Soma s.n.* (HT: ?).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (439, Fig. 172 as *Bothriochloa*), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (650), C-C Hsu, *Taiwan Grasses* (1975) (628, Pl. 1457 as *C. kwashotensis*).

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 15–30 cm long. Lateral branches sparse. Ligule a ciliate membrane. Leaf-blades 6–10 cm long, 3–5 mm wide.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate or ovate, 4–8 cm long, 1–3 cm wide. Primary panicle branches 1–2 -nate, simple or sparsely divided. Panicle branches capillary. Racemes 1 cm long, bearing few fertile spikelets, bearing 3–5 fertile spikelets on each. Rhachis fragile at the nodes. Rhachis internodes linear. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion

sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, with a translucent median line (also present in internodes).

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, shorter than fertile, separately deciduous. 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 ovate, dorsally compressed, 3–3.2 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, 2-keeled, keeled obtusely. Lower glume surface flat. Lower glume apex truncate. Upper glume ovate, 1-keeled.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 10–16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China, Eastern Asia. Nansei-Shoto, Taiwan.

Capillipedium laoticum A. Camus. *Bull. Mus. Hist. Nat. Paris*, 1: 207 (1925).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Laos, *Massie s.n.* (HT: P).

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Annual. Culms 70–80 cm long. Culm-internodes distally glabrous. Culm-nodes bearded. Leaf-sheaths striately veined. Ligule a ciliate membrane. Leaf-blades 15–20 cm long, 2 mm wide.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 8–9 cm long. Panicle axis glabrous. Panicle branches hirsute (2–3mm hairs), hairy at tip. Racemes 8–10 cm long, bearing few fertile spikelets, bearing 2–3 fertile spikelets on each. Rhachis fragile at the nodes, subterete, 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, filiform, 0.75 length of fertile spikelet, with a translucent median line (also present in internodes), ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, oblong, 3 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 8–9 -veined, scaberulous, muticous. Companion sterile spikelet lemmas 1, enclosed by glumes, 1 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, 3.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus bearded, base obtuse, attached transversely. Spikelet callus hairs 0.33 length of spikelet.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, pallid, 2-keeled, keeled obtusely. Lower glume surface concave, asperulous, rough above. Lower glume margins ciliate. Lower glume apex truncate. Upper glume lanceolate or oblong, chartaceous, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 35–40 mm long overall, with twisted column. Column of lemma awn 5 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Thailand.

Capillipedium leucotrichum (A. Camus) M. Schmid ex J.F. Veldkamp. *Austrobaileya*, 5(3): 527 (1999).

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

Basionym or Replaced Name: *Chrysopogon leuchotrichus* A. Camus, *Journ. Agric. Trop. & Bot. Appliq.* 2: 200 (1955). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cambodia: Phnom, Som pou, environs de Battambang, *Schmid 2461* (HT: P).

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

Derivation (Clifford & Bostock 2007): *Gk leukos*, white; *thrix*, hair. Apex of lemma white with a ring of hairs about the base of the awn.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Culms erect, slender, 40–100 cm long. Culm-internodes distally pubescent. Lateral branches lacking. Leaf-sheaths obsolete on upper internodes, keeled, striately veined, glabrous on surface. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles erect. Ligule a ciliolate membrane, 1 mm long. Leaf-blades 16–20 cm long, 6–7 mm wide. Leaf-blade surface hirsute. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle contracted, oblong, 5–7 cm long, 1–1.5 cm wide. Primary panicle branches appressed. Panicle branches capillary, puberulous. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 4 mm long, with a translucent median line (also present in internodes), ciliate, with white hairs, with 1–1.5 mm long hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4–4.8 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, puberulous, 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, 5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose. Spikelet callus hairs white, 2 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, without keels. Lower glume surface concave, pubescent, hairy at apex. Lower glume apex acute. Upper glume lanceolate, chartaceous, 1-keeled.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline. Fertile lemma linear, hyaline, without keel. Lemma apex awned, 1 -awned. Principal lemma awn geniculate, 25 mm long overall, with twisted column. Palea absent or minute.

Flower and Fruit. Anthers 3.

Distribution (TDWG), Continent. Tropical Asia.

Country /Province /State. Indo-China. Cambodia.

Capillipedium longisetosum Bor. *Brittonia*, 16: 227 (1964).

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. longus*, long; seta, bristle; -osa, abundance. Lemma long-awned.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending or decumbent, 20–40 cm long. Culm-nodes bearded. Leaf-sheaths keeled, glabrous on surface or puberulous. Ligule a ciliolate membrane, 1.5 mm long. Leaf-blades flat or revolute, 5–10 cm long, 3 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, sparsely hairy, hairy adaxially, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 8 cm long, 4–5 cm wide. Panicle branches flexuous, bearded in axils. Racemes 0.7–1 cm long, bearing few fertile spikelets, bearing 3–4 fertile spikelets on each. Rhachis 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, with a translucent median line (also present in internodes), ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, lanceolate, 3–3.25 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes 9 -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 oblong, dorsally compressed, 3.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, without keels, 9 -veined. Lower glume surface concave, asperulous, rough at apex. Lower glume apex obtuse. Upper glume lanceolate, 1 length of spikelet, 1-keeled, 3 -veined.

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 linear, hyaline, without keel, 1 -veined,

0–3 -veined, one-veined. Lemma apex entire, acute, awned. Principal lemma awn bigeniculate, 40 mm long overall, with twisted column. Column of lemma awn 20 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.75 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Thailand.

Capillipedium magdalenii M. R. Almeida. *J. Bombay Nat. Hist. Soc.*, 72(3): 813 (1976).

Accepted by: 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: India, Karnataka, Agumbe: Almeida 2566 (BLAT holotype).

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Annual. Culms erect, 20 cm long. Culm-internodes 2–3 cm long. Culm-nodes glabrous. Lateral branches ample. Leaf-sheaths 3 cm long, mostly shorter than adjacent culm internode. Ligule a ciliolate membrane, acute. Leaf-blades conduplicate or involute, 2–4 cm long, 3 mm wide.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, 1–2 cm long. Panicle branches capillary. Racemes bearing a triad of spikelets or few fertile spikelets, 1–4 fertile spikelets on each. Rhachis evident or obsolete, fragile at the nodes, glabrous on margins. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, linear, 1 mm long, with a translucent median line (also present in internodes).

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, lanceolate, 3 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes 7–9 -veined. 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, 2 mm long, falling entire, deciduous with accessory branch structures.

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, keeled obtusely, 5 -veined. Lower glume surface concave, pubescent. Upper glume lanceolate, 1.5 mm long, chartaceous, 1-keeled, 3 -veined.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret linear, 1 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma linear, hyaline, 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. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.5 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Karnataka.

Capillipedium nagense Bor. *Brittonia*, 16: 228 (1964).

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. -ensis*, denoting origin. From Naga Hills, Assam.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 50–60 cm long. Culm-nodes bearded. Leaf-sheaths keeled, glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliolate membrane, 1 mm long. Leaf-blades 6–12 cm long, 2–4 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy on both sides, with tubercle-based hairs. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 8 cm long, 2 cm wide. Panicle branches bearded in axils. Racemes 1–1.5 cm long, bearing few fertile spikelets, bearing 4–6 fertile spikelets on each. Rhachis ciliate on margins. Rhachis internodes linear, 2.5 mm long. 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, with a translucent median line (also present in internodes), ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 5 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes 9 -veined. 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 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, without keels, 9 -veined. Lower glume surface concave. Lower glume apex obtuse. Upper glume lanceolate, 1 length of spikelet, 1-keeled, 3 -veined.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2.5–2.75 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned. Principal lemma awn geniculate, 19–20 mm long overall, with twisted column. Column of lemma awn 8 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 2.5 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Assam.

TDWG4. Nagaland.

Capillipedium parviflorum (R.Br.) Stapf. Prain, *Fl. Trop. Afr.* 9: 169 (1917).

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) (as *Bothriochloa*).

TYPE from Australia. **Basionym or Replaced Name:** *Holcus parviflorus* R. Br., *Prodr.* 199 (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia:.

Recent Synonyms: *Capillipedium arachnoideum* Henrard, *Blumea*, 3: 458 (1940). *Capillipedium cinctum* (Steud.) A.Camus, *Rev. Bot. Appliq.* i. 306 (1921).

Bothriochloa parviflorum (R.Br.) Ohwi, *Acta Phytotax. & Geobot.*, Kyoto, xi. 166 (1942).

Illustrations (Books): G.V.Pope et al., *Flora Zambesiaca* 10 (4(2002):43, t. 16), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (305, Fig. 122), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (439, Fig. 172 as *Bothriochloa parviflora*), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (652), C-C Hsu, *Taiwan Grasses* (1975) (629, Pl. 1458), H.J.Noltie, *The Grasses of Bhutan* (2000) (795, Fig. 56), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (45, Pl. 12), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (178), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1134, Fig. 327), 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. 848), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:25(1980)).

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 Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 50–150 cm long. Ligule a ciliolate membrane. Leaf-blades 10–30 cm long, 2–7 mm wide. Leaf-blade midrib widened.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 8–25 cm long. Primary panicle branches whorled at lower nodes. Panicle branches capillary, glabrous in axils or bearded in axils. Racemes bearing a triad of spikelets or few fertile spikelets, 1(–2) fertile spikelets on each. Rhachis obsolete or evident. Spikelets in threes or in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster or 1 in the cluster. Pedicels present, linear, 1.5 mm long, with a translucent median line (also present in internodes), glabrous or ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 2.5–3.5 mm long, shorter than fertile, separately deciduous. 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, 3–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, 2-keeled, keeled obtusely. Lower glume primary vein ciliate. Lower glume intercarinal veins distinct. Lower glume surface concave, scabrous. Upper glume ovate, 1-keeled, 3 -veined. Upper glume primary vein scaberulous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1–1.5 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma linear, hyaline, without

keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned. Principal lemma awn geniculate, 10–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

$N = 20$ (3 refs TROPICOS), or 40 (1 ref TROPICOS).

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

Country /Province /State. **Northeast tropical Africa, East tropical Africa, South tropical Africa.**

Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania. Malawi, Mozambique, Zambia, Zimbabwe. **Western Asia, Arabian Peninsula, China, Eastern Asia.** Oman. China South Central, Hainan, China North-Central, China Southeast, Tibet. Japan, Kazan-retto, Ogosawara-shoto, Taiwan. Japan Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, Eastern Himalaya, India, Nepal, Pakistan, West Himalaya. 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, New South Wales. New Caledonia.

TDWG4. Hebei, Shaanxi, Shandong. Anhui, Fujian, Guangdong, Guangxi, Henan, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan. Bhutan. Andhra Pradesh, Chattisgarh, Jharkhand. Orissa, West Bengal. Kimberley, Darwin & Gulf. North, Central, South East, Inland. Coast, Tablelands, Western Slopes.

Capillipedium planipedicellatum Bor. *Kew Bull.* 1949, 222 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *N.L. Bor 17059*, 10 Oct 1942, India: Manipur (US-3168635 (fragm.)).

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

Derivation (Clifford & Bostock 2007): *L. planus*, broad; pedicellus, short stalk; -atus, possessing. Pedicels oblanceolate.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE.**

Habit, Vegetative Morphology. Perennial. Culms 100–120 cm long. Culm-nodes glabrous. Ligule a ciliolate membrane. Leaf-blades 8 cm long, 3 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 10–20 cm long, 7–8 cm wide. Primary panicle branches whorled at most nodes, 6–7 cm long. Panicle branches capillary, flexuous. Racemes bearing few fertile spikelets, 3 fertile spikelets on each. Rhachis fragile at the nodes, flattened, glabrous on margins. Rhachis internodes oblong (oblanceolate), 1.5–2.25 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, narrowly elliptic, flattened, 1.5–2.25 mm long, with a translucent median line (also present in internodes), glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, lanceolate, 1.5 mm long, shorter than fertile, separately deciduous.

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, 3 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 ovate, 1 length of spikelet, chartaceous, without keels, 9 -veined. Lower glume surface concave. Upper glume lanceolate, 1-keeled, 3 -veined.

Florets. Basal sterile florets 1, with vestigial lower floret. Palea of fertile floret without accompanying lemma, oblong (1.5mm), hyaline.

Flower and Fruit. Anthers 3.

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

Country /Province /State. **Indian Subcontinent.** Assam.

Manipur.

Capillipedium pteropechys (Clarke) Stapf. *Hook. Ic. Pl. sub t.* 3085 (1922).

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: *Andropogon pteropechys* C.B. Clarke, *Journ. Linn.Soc.* 25: 88 t. 38. (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *C.B. Clarke n. 41187*, India: Kohima

ST: *C.B. Clarke n. 41896*, India: Jakpho.

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

Derivation (Clifford & Bostock 2007): Gk. pteron, wing; pechys, fore-arm.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial. Culms decumbent, slender, 40–60 cm long. Culm-nodes bearded. Lateral branches lacking or sparse. Ligule a fringe of hairs. Leaf-blades involute, 7.5–15 cm long, 3–4 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy abaxially, with tubercle-based hairs. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 5–7.5 cm long. Panicle branches capillary, pilose, hairy at tip. Racemes 1 cm long, bearing many spikelets, bearing 3–5 fertile spikelets on each. Rhachis fragile at the nodes, subterete, ciliate on margins. Rhachis internodes linear, 0.5 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, 1.5–2 mm long, with a translucent median line (also present in internodes), ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, shorter than fertile, separately deciduous. Companion sterile spikelet glumes 9–11 -veined. 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, 3.75–4.75 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, attached transversely. Spikelet callus hairs 0.25 length of spikelet.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled obtusely, 9 -veined. Lower glume primary vein pectinately ciliate. Lower glume lateral veins prominent. Lower glume surface concave. Lower glume apex obtuse. Upper glume oblong or ovate, chartaceous, 1-keeled, 3 -veined. Upper glume margins ciliate.

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 linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 15–20 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. Tropical Asia.

Country /Province /State. Indian Subcontinent. Assam, Bangladesh. Nagaland.

Capillipedium spicigerum S. T. Blake. *Univ. Queensl. Papers, Dept. Biol.*, 2, No. 3, 43 (1944).

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*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Bothriochloa*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from Australia, Queensland. **Basionym or Replaced Name:** *Bothriochloa spicigera* (Benth) T. Koyama, *Grasses of Japan & Neighbour. Regions*: 491 (1987). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Moreton Dist., 2 June 1940, *S.T. Blake 14267* (HT: ?; IT: L, US-1865562).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (178), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (146).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. spica, thorn; gero, carry. Inflorescence a spicate panicle.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 100–150 cm long. Ligule a ciliolate membrane. Leaf-blades 20–40 cm long, 5–7 mm wide.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate or ovate, 10–25 cm long, 5–7 cm wide. Primary panicle branches whorled at lower nodes. Panicle branches capillary, pubescent in axils. Racemes 0.8–2 cm long, bearing few fertile spikelets, bearing 3–8 fertile spikelets on each. Rhachis fragile at the nodes, glabrous on margins or 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, 1.5 mm long, with a translucent median line (also present in internodes), glabrous or ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 2.5–3.5 mm long, shorter than fertile, separately deciduous. 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, 3–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base obtuse, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, membranous, 2-keeled, keeled obtusely, 8–9 -veined. Lower glume primary vein scaberulous. Lower glume intercarinal veins distinct. Lower glume surface flat, pubescent. Lower glume apex truncate. Upper glume ovate, 1-keeled, 3 -veined. Upper glume primary vein smooth or scaberulous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2–2.8 mm long, 0.5–0.75 length of spikelet, hyaline, 0 -veined, without midvein, without lateral veins, obtuse or acute. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned. Principal lemma awn geniculate, 12–18 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.2–1.6 mm long.

Distribution (TDWG). Continent. Temperate Asia, Tropical Asia, Australasia, Pacific.

Country /Province /State. **China, Eastern Asia.** China Southeast. Nansei-Shoto, Ogosawara-shoto, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam. Lesser Sunda Is, Philippines. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is. **Australia.** Northern Territory, Queensland, New South Wales. **Southwestern Pacific.** New Caledonia. Caroline Is.

TDWG4. Hong Kong, Zhejiang. Darwin & Gulf. North, Central, South East. Coast, Western Slopes, Western Plains.

Capillipedium sulcatum Bor. *Bot. Tidsskr* 67(4): 324 (1973).

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): glume or glumes grooved.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Annual. Culms erect or decumbent, 50–100 cm long, with prop roots or rooting from lower nodes. Culm-nodes glabrous or pubescent. Lateral branches ample. Leaf-sheaths loose, keeled. Ligule a ciliolate membrane, 1–2 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades 25–50 cm long, 5–10 mm wide. Leaf-blade surface glabrous or puberulous. Leaf-blade margins scaberulous, glabrous or tuberculate-ciliate. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong, 6–10 cm long. Racemes bearing a triad of spikelets or few fertile spikelets, 1–3 fertile spikelets on each. Rhachis ciliate on margins. Rhachis hairs 3 mm long. Rhachis internodes linear, 3.5 mm long. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, linear, 3.5 mm long, with a translucent median line (also present in internodes), ciliate, with 3 mm long hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 6 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes 13 -veined. 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, 7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus 0.75 mm long, pilose, base obtuse, attached transversely. Spikelet callus hairs 2 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, coriaceous, 2-keeled, keeled above, 10 -veined. Lower glume primary vein ciliate. Lower glume surface with a longitudinal median groove. Upper glume lanceolate, 1 length of spikelet, 1-keeled, 3 -veined.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, acute, awned. Principal lemma awn geniculate, 30 mm long overall, with twisted column. Column of lemma awn 15 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 3 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. **Indo-China.** Thailand.

Castellia tuberculosa (Moris) Bor. *Indian Forester*, 74: 90 (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.G.Tutin et al, *Flora Europaea* 5 (1980).

TYPE from Sardinia. **Basionym or Replaced Name:** *Catapodium tuberculosum* Moris, *Atti Ada Riun. Sc. Ital.* 481 (1841). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Moris s.n.*, Italy: South Sardinia.

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (16, Fig. 8), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (154, Fig. 76).

Derivation (Clifford & Bostock 2007): L. tuberculus, wart; -osa, abundance. Lemmas or glumes bearing warty projections.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 50–100 cm long. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades filiform, 10–25 cm long, 1–7 mm wide. Leaf-blade surface scaberulous, rough on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes 1–5, single or borne along a central axis, unilateral, 3–10 cm long. Central inflorescence axis 0–12 cm long. Rhachis semiterete. Spikelet packing broadside to rhachis. Spikelets appressed, 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 oblong, laterally compressed, 4–5 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, 3–3.5 mm long, 0.6–0.7 length of upper glume, coriaceous, much thinner on margins, without keels, 3 -veined. Lower glume apex obtuse or acute. Upper glume elliptic, 4.5–5 mm long, 1–1.1 length of adjacent fertile lemma, coriaceous, with scarious margins, without keels, 3 -veined. Upper glume apex obtuse or acute.

Florets. Fertile lemma oblong, 4.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface tuberculate. Lemma apex obtuse or acute. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 0.3–0.6 mm long. Caryopsis with adherent pericarp, obovoid. Hilum linear, 0.75 length of caryopsis.

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

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

Country /Province /State. : GB Aliens (Ryves et al). : Sardinia, Spain. : Greece, Crete, Sicily. **Northern Africa, Macaronesia, Northeast tropical Africa.** Algeria, Libya, Morocco, Tunisia. Canary Is. Djibouti, Eritrea, Somalia, Sudan. **Western Asia, Arabian Peninsula.** Iran. Oman, Saudi Arabia. **Indian Subcontinent.** Pakistan.

Catabrosa aquatica (L.) Beauv. *Agrost.* 97. t. 19. f. 8. (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), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (& as *C. sikkimensis*), 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) (as *Glyceria*).

Basionym or Replaced Name: *Glyceria aquatica* (L.) J. & C. Presl, *Fl. Cech.* 25 (1819), *Catabrosa sikkimensis* Stapf, *Fl. Brit. Ind.* 7: 311. (1896), *Catabrosa capusii* Franch., *Ann. Sc. Nat. Ser.* (6) 18: 272. (1884), *Aira aquatica* L., *Sp. Pl.* 64 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: (LINN-85.6). LT designated by Sherif & Siddiqi, *Fl. Libya* 145: 84 (1988).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (222), G.Hegi, *Flora von Mitteleuropa* 1 (1909) (as *Glyceria aquatica*), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 324), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (59, Pl. 18), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (424, Fig 44), H.J.Noltie, *The Grasses of Bhutan* (2000) (575, Fig. 21 as *C. sikkimensis*), K.F.Best, et al, *Prairie Grasses* (1971) (93), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (611), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (282, Fig. 91), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (59, Fig. 25), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (as varieties *aquatica*, *angusta* in Figure 433).

Derivation (Clifford & Bostock 2007): L. aqua, water; -ica, belonging to. Growing in or close to water.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms erect or decumbent, 10–60 cm long, rooting from lower nodes. Leaf-sheaths open for most of their length. Ligule an eciliate membrane, 2–8 mm long. Leaf-blades flat or conduplicate, 4–14 cm long, 2–10 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or ovate, 5–30 cm long, 2.5–10 cm wide. Primary panicle branches whorled at most nodes. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear.

Fertile Spikelets. Spikelets comprising 1–3 fertile florets, without rachilla 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 ovate, laterally compressed, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume elliptic or ovate, 1–1.5 mm long, 0.66 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate or obtuse. Upper glume orbicular, 1.2–2.5 mm long, 0.5–0.66 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex truncate or obtuse.

Florets. Fertile lemma oblong, 2.5–3.5 mm long, membranous, much thinner above, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins ribbed. Lemma surface glabrous or puberulous, hairy on veins. Lemma apex truncate. Palea 1 length of lemma, 2 -veined. Palea keels eciliate or ciliolate.

Flower and Fruit. Lodicules 2, obovate, membranous, with a small lateral lobe. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp, ellipsoid. Embryo 0.25 length of caryopsis. Hilum elliptic.

$2n = 20$ (8 refs TROPICOS), or 30 (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. : 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. : Albania, 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.** Algeria, Libya, Morocco. Azores. Siberia, Russian far east, **Middle Asia, Caucasus, Western Asia, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Tuva, Sakhalin. Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan. Afghanistan, Iran, Iraq. China South Central, Inner Mongolia, China North-Central, Qinghai, Tibet, Xinjiang. Mongolia. Japan, Korea. **Indian Subcontinent.** Eastern Himalaya, Pakistan, West Himalaya. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA.** Greenland. Alberta, Manitoba, Saskatchewan. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Nebraska. Nevada, Utah. **Southern South America.** Argentina South, Chile South.

TDWG4. Gansu, Hebei, Guizhou, Hubei, Sichuan, Yunnan. Sikkim. Santa Cruz, Tierra del Fuego. Magellanes.

Catabrosa capusii Franch. *Ann. Sc. Nat. Ser. VI.* 18: 272 (1884).

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

Illustrations (Books): N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 3), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (61, Pl. 19), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 433).

Derivation (Clifford & Bostock 2007): In honor of Jean Guillaume Capus (1857–1931) Luxembourg-born French botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

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

Country /Province /State. **Middle Asia, Western Asia, China.** Kirgizistan, Tadjikistan, Uzbekistan. Iran, Iraq, Turkey. Inner Mongolia, Tibet.

Catabrosa drakensbergense (O. Hedberg & I. Hedberg) Soreng & Fish. *Kew Bulletin* 66 (1): 101–110 (2011).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Colpodium drakensbergense* O. Hedberg & I. Hedberg, *Nordic J. Bot.*, 14(6): 606 (1994). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Lesotho: Qacha's Nek Distr., Sani Pass lodge, 2860 m, in small dried-out pools, *Hedberg 82088* (HT: UPS, IT: EA, ETH, K, PRE, ROML).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Drakensberg, a range of mountains in South Africa.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 12–25 cm long, rooting from lower nodes. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades flat, 5–11 cm long, 2–5 mm wide.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, ovate, 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 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, similar to fertile lemma in texture, gaping. Lower glume elliptic, 0.75 length of upper glume, membranous, much thinner above, 1-keeled, keeled below. Lower glume lateral veins all falling short of apex. Lower glume apex obtuse. Upper glume elliptic, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 2.5–3.5 mm long, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface glabrous. Lemma apex erose, obtuse. Palea 1 length of lemma.

Flower and Fruit. $2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Kwazulu-Natal, Lesotho.

Catabrosa pseudairoides (J.C.G. Herrm.) Tzvelev. *Bot. Zhurn. SSSR* :50: 1633 (1965).

TYPE from Russia. **Basionym or Replaced Name:** *Aira aquatica* L., *Sp. Pl.* 64 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Astrakhan: *Blume* (LE holo).

Catabrosa werdermannii (Pilger) E.G. Nicora & Z.E. Rugolo de Agrasar. *Darwiniana*, 23(1): 182 (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).

Basionym or Replaced Name: *Phippsia werdermannii* Pilg., *Notizbl. Bot. Gart. Berlin*, 10: 759 (1929). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Werdermann 954*, Jan 1926, Chile: Antofagasta: Depto. Copiaps: Cordillera Rmo Turbio, Cerro Cadillal, 3000 m, (B; IT: BAA-2364 (fragm. ex B), K, MO-938154, SI, US-1474236, US (fragm. ex B)).

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

Derivation (Clifford & Bostock 2007): in honor of Erich Werdermann (1892–1959) German botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect or geniculately ascending, 3–20 cm long. Leaf-sheaths open for most of their length. Ligule an eciliate membrane, 1–3 mm long, obtuse. Leaf-blades flat or conduplicate, 1–10 cm long, 1–3 mm wide.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, oblong, 1–6 cm long. Primary panicle branches whorled at lower nodes, 0.5–3 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, 0.3–5 mm long.

Fertile Spikelets. Spikelets comprising 1–3 fertile florets, without rhachilla extension or with a barren rhachilla extension (when 1-flowered). 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 ovate, laterally compressed, 1.5–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume elliptic or obovate, 0.5–1 mm long, 0.66 length of upper glume, membranous, much thinner above, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous (papillose). Lower glume apex truncate or obtuse. Upper glume obovate, 0.7–1.2 mm long, 0.5 length of adjacent fertile lemma, membranous, much thinner above, without keels, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex truncate or obtuse.

Florets. Fertile lemma obovate, 1.5–2.5 mm long, membranous, much thinner above, much thinner on margins, purple, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins ribbed, less than two thirds length of lemma. Lemma apex erose, truncate. Palea elliptic, 1 length of lemma, 2 -veined. Palea apex truncate.

Flower and Fruit. Lodicules 2, obovate, 0.5–0.6 mm long, membranous. Anthers 3, 0.7–1 mm long. Caryopsis with adherent pericarp, ellipsoid, dark brown. Hilum elliptic.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest, Chile North, Chile Central.

TDWG4. Jujuy, La Rioja, Mendoza, Salta, San Juan. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca, Antofagasta, Atacama. Coquimbo.

Catalepis gracilis Stent & Stapf. *Kew Bull.* 1929, 11 (1929).

Accepted by: 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: *P. Potter s.n.*, 1927, South Africa: Transvaal (PRE; IT: K, US-865747 (fragm. ex K, PRE)).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (Plt. 4), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (78, Fig. 37).

Derivation (Clifford & Bostock 2007): *L. slender. Culms or inflorescences slender.*

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 5–40 cm long. Ligule a fringe of hairs. Leaf-blades involute, 3–8 cm long, 1–2 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, closely spaced, in a unilateral false spike, appressed, unilateral, 0.6–1.2 cm long, bearing few fertile spikelets, bearing 1–9 fertile spikelets on each, simple or secondarily branched, secondary branches racemulose. Central inflorescence axis 1.5–3 cm long. Rhachis deciduous from axis, with separately deciduous secondary branchlets, flattened, scabrous on surface. Spikelet packing broadside to rhachis, crowded, irregular. 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 cuneate, laterally compressed, 4–5 mm long, falling entire, deciduous from the base. Spikelet callus oblong, pubescent.

Glumes. Glumes dissimilar, reaching apex of florets, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 0.5–1 mm long, 0.1–0.2 length of upper glume, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Upper glume lanceolate, 4–5 mm long, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 3.5–4.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma surface with marginal hair tufts, bearing 2–4 hair tufts in all. Lemma apex acuminate. Palea 0.75 length of lemma, 2 -veined. Palea keels approximate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Gauteng, Mpumalanga, Free State, Kwazulu-Natal, Lesotho, Eastern Cape.

Catapodium demnatense (Murb.) Maire & Weiller. *Bull. Soc. Hist. Nat. Afr. Nord*, 3: 96 (1942).

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

Basionym or Replaced Name: *Festuca demnatensis* Murb., *Lunds Univ. Arsskrift*, n. s. (18) No. 3, 14 (1922). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Aire geogr.: region inferieure de Grand Atlas marocain. Pentes schisteuses-argileuses a Demnat, c. 900 m., *Murbeck s.n.*

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

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 6–25 cm long, 1–2 -noded, with 0.33 of their length below uppermost node. Culm-internodes distally glabrous. Leaf-sheaths without

keel, striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 1 mm long, erose, truncate. Leaf-blades convolute, 3–6 cm long, 1–2 mm wide. Leaf-blade venation with 5–7 secondary veins. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, straight or arcuate, unilateral, 5–10 cm long. Rhachis angular, scaberulous on margins. Spikelet packing broadside to rhachis, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

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 obovate or cuneate, laterally compressed, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes scaberulous.

Glumes. Glumes oblique, persistent, dissimilar, shorter than spikelet. Lower glume linear, 3–4 mm long, 0.9–1 length of upper glume, coriaceous, without keels, 3 -veined. Lower glume lateral veins ribbed. Lower glume margins inrolled. Lower glume apex setaceously acuminate. Upper glume lanceolate, 3–4 mm long, 1 length of adjacent fertile lemma, coriaceous, without keels, 3 -veined. Upper glume lateral veins ribbed. Upper glume apex acute.

Florets. Fertile lemma oblong, 3–4 mm long, coriaceous, without keel, rounded except near apex, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface glabrous. Lemma apex emarginate, muticous or mucronate. Palea 1 length of lemma, 2 -veined. Palea keels smooth. Palea surface pubescent, hairy on back. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.75 mm long. Anthers 3, 2.2–2.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp, 2 mm long. Hilum punctiform.

$2n = 14$.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northern Africa. Morocco.

Catapodium mamoraem (Maire) Maire & Weiller. *Bull. Soc. Hist. Nat. Afr. Nord*, 33: 96 (1942).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Nardurus mamoraem* Maire, *Bull. Soc. Hist. Nat. Afr. Nord*, 28: 386. (1937). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Dr. R. Maire*, 2 Apr 1936, Morocco: in arenosis subunbrosis in silva, Mamora (IST: US-1720656).

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

Derivation (Clifford & Bostock 2007): Gk *-eum*, belonging to. From Mamora, North Africa.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, culms solitary. Culms erect or geniculately ascending, 10–40 cm long. Culm-internodes smooth, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths without keel, striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 1 mm long, pubescent on abaxial surface, lacerate, truncate. Leaf-blades involute, 2–5 cm long, 0.5 mm wide. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, unilateral, 7–14 cm long. Rhachis angular, scaberulous on margins. Spikelet packing broadside to rhachis. Spikelets appressed, 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, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 5.5 mm long, 0.9–1 length of upper glume, coriaceous, much thinner on margins, without keels, 5 -veined. Lower glume lateral veins ribbed. Lower glume apex acute. Upper glume lanceolate, 6 mm long, 0.8–0.9 length of adjacent fertile lemma, coriaceous, with scarios margins, without keels, 7 -veined. Upper glume lateral veins ribbed. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface hirsute, hairy at base. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long. Anthers 3, 1.5–2 mm long. Ovary glabrous. Caryopsis with adherent pericarp, sulcate on hilar side. Embryo 0.25 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northern Africa. Morocco.

Catapodium marimum (L.) C. E. Hubbard. *Kew Bull.* 1954, 375 (1954).

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) (as *Desmazeria*).

Basionym or Replaced Name: *Festuca marina* L., *Amoen. Acad.* 4: 96 (1759). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Newton s.n.*, ex Herb. Plukenet in Herb. Sloane, Hortus Siccus 84: 87 verso (BM). LT designated by Stace & Jarvis, Bot. J. Linn. Soc. 91: 440 (1985).

Recent Synonyms: *Desmaziera marina* (L.) Druce, *Scot. Bot. Rev.* 1:156 (1912).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (208), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 309).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Derivation (Clifford & Bostock 2007): L. mare, sea; -inum, belonging to. Growing by the sea.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, culms solitary or caespitose. Culms erect or geniculately ascending or decumbent, 3–20 cm long. Ligule an eciliate membrane, 0.5–3 mm long, erose, acute. Leaf-blades 1–10 cm long, 1–3.5 mm wide. Leaf-blade surface scaberulous, rough adaxially.

Inflorescence. Inflorescence a panicle or composed of racemes (in weak plants). Panicle spiciform, linear, secund, 0.5–7 cm long, 0.4–1.2 cm wide. Primary panicle branches appressed, simple, 0–1 cm long, bearing 1–4 fertile spikelets on each lower branch. Panicle branches stiff, straight, angular. Racemes single, unilateral. Spikelet packing broadside to rachis. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.2–0.5 mm long.

Fertile Spikelets. Spikelets comprising 4–12 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, 4–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas, smooth.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 2–3.5 mm long, 0.9–1 length of upper glume, coriaceous, 1-keeled, 1–3 -veined. Lower glume lateral veins ribbed. Lower glume apex acute. Upper glume ovate, 2–3.5 mm long, 0.8–0.9 length of adjacent fertile lemma, coriaceous, 1-keeled, 3 -veined. Upper glume lateral veins ribbed. Upper glume apex acute.

Florets. Fertile florets imbricate to tip. Fertile lemma elliptic, elliptic in profile, 2.5–3.8 mm long, coriaceous, keeled, keeled above, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex obtuse. Palea 0.9 length of lemma, 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 0.5–1 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid. Embryo 0.2 length of caryopsis. Hilum elliptic.

$2n = 28$ (1 ref TROPICOS).

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

Region. Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe.

Country /Province /State. : Great Britain, Ireland. : Belgium, Germany, Netherlands. : Balears, Corsica, Portugal, Sardinia, Spain, Azores. : Italy, Crete, Sicily, Turkey Europe, Yugoslavia. **Northern Africa, Macaronesia.** Libya. Azores, Canary Is. **Western Asia.** Afghanistan, Cyprus, East Aegean Is, Lebanon-Syria, Turkey. **Australia.** Western Australia (*), South Australia (*), New South Wales (*), Victoria (*), Tasmania (*).

Catapodium rigidum (L.) C. E. Hubbard. *Dony, Fl. Bedfordshire*, 437 (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), 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) (as *Scleropoa*).

Basionym or Replaced Name: *Poa rigida* L., *Flora Anglica* 10 (1754). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Bauhin, C.*, *Prodr. icon.* 6 (1620), LT designated by Stace in Cafferty et al., *Taxon* 49(2): 256 (2000).

LT: *Anon.*, (LINN-87.37). LT designated by Stace & Jarvis, Bot. J. Linn. Soc. 91: 439 (1985), but this lectotypification is ineffective as the specimen is not original material [fide Cafferty et al., *Taxon* 49(2): 256 (2000)].

Recent Synonyms: *Desmaziera rigida* (L.) Tutin, *Flora of the British Isles* 1434 (1952).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (206), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (78, Fig. 38), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 308), L.Boulos, *Flora of Egypt* 4 (2005) (150, Fig. 42), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 4), N.L.Bor, *Gramineae* in *Flora of Iraq*

(1968) (63, Pl. 20), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (117, Fig. 76), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (101, Pl. 28 as *Scleropoa*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (437, Fig. 85), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (196 as *Desmazeria rigidum*), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (298, Fig. 40), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), K.F.Best, et al, *Prairie Grasses* (1971), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (683 as *Desmazeria*), F.W.Gould, *The Grasses of Texas* (1975) (110, Fig. 52), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (28, Fig. 9 as *Scleropoa*), S.A.Rennoize, *Gramineas de Bolivia* (1998) (127, Fig. 31), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (323, Fig. 110 as *Desmzeria*), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (80, Fig. 23), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (137, Fig. 35), B.Rosengurt, *Gramineas Uruguayas I* (1970) (114, Fig. 41), H.M. Longhi-Wagner, *Flora Ilustrada do Rio Grande do Sul, Gramineae, Poaeae* (1987), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:46(1980)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. stiff. Culms, spikelets or inflorescence branches held stiffly erect.

Classification. Subfamily Pooideae. Tribe: Poaeae.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 2–30 cm long, 2–5 -noded. Ligule an eciliate membrane, 1–3 mm long, obtuse. Leaf-blades 1–10 cm long, 0.5–2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence a panicle or composed of racemes (in weak plants). Panicle open or contracted, linear or lanceolate or ovate, dense or loose, secund, 1–8 cm long, 0.5–2.5 cm wide. Primary panicle branches simple, 0–2 cm long, bearing spikelets almost to the base. Panicle branches stiff, straight, angular. Racemes single or borne along a central axis, unilateral. Spikelet packing broadside to rhachis. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, cuneate, 0.5–1.5 mm long.

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 oblong, laterally compressed, 4–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas, scaberulous.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 1.5–2 mm long, 0.9 length of upper glume, coriaceous, 1-keeled, 1–3 -veined. Lower glume lateral veins ribbed. Lower glume apex acute. Upper glume elliptic, 0.75 length of adjacent fertile lemma, coriaceous, 1-keeled, 3 -veined. Upper glume lateral veins ribbed. Upper glume apex acute.

Florets. Fertile florets free at tip. Fertile lemma elliptic, oblong in profile, 2–2.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 0.3 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, concavo-convex. Embryo 0.2 length of caryopsis. Hilum elliptic.

$N = 7$ (1 ref TROPICOS), or 14 (1 ref 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, Ireland. : Belgium, Germany, Netherlands, Switzerland. : Balears, Corsica, France, Portugal, Sardinia, Azores. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym. **Northern Africa, Macaronesia, Southern Africa** (*). Algeria, Egypt, Libya, Morocco, Tunisia. Azores, Canary Is, Madeira. Western Cape, Eastern Cape. **Caucasus, Western Asia, Arabian Peninsula.** Iran, Iraq, Oman. **Australia** (*), **New Zealand.** Western Australia (*), South Australia (*), New South Wales (*), A.C.T. (*), Victoria (*), Tasmania (*), Lord Howe-Norfolk Is (*). New Zealand North I, New Zealand South I. **Northwest USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Oregon. California, Nevada. Texas. Florida, Louisiana. Northeast Mexico. **Caribbean, Western South America, Brazil, Southern South America.** Bermuda (as *Scleropoa rigida*). Bolivia. Brazil South. Argentina Northeast, Chile Central, Chile South, Uruguay.

TDWG4. South-West. Southern. Coast, Tablelands, Western Slopes. Buenos Aires, Entre Rios, La Pampa. Coquimbo, Valparaiso, Santiago, Biobio, La Araucania. Los Lagos, Magallanes. Neuvo Leon.

Cathariostachys capitata (Kunth) S.Dransfield. *Kew Bull.* 53:391 (1998).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Nastus capitatus* Kunth, *Rev. Gram.* 1: 325 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *du Petit Thouars s.n.*, no date, Madagascar: "Madagascaria (Aub. Du-Petit-Thouars.)." (P; ILT(probable): US-2876351). LT designated by Dransfield, *Kew Bull* 53: 378, 391 (1998).

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

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, woody bamboo, culms solitary. Rhizomes elongated, pachymorph. Butt sheaths absent. Culms erect, inclined at the tip, 700–1200 cm long, 40–50 mm diam., woody. Culm-internodes terete, thin-walled, 50–60 cm long, distally hispid (black hairs). Lateral branches dendroid. Bud complement 1. Branch complement several to many, apparently arising below the node, with 1 branch dominant. Culm-sheaths present, persistent. Leaves 7–21 per branch. Leaf-sheath oral hairs setose, 11–12 mm long. Leaf-sheath auricles falcate, 1–3 mm long. Ligule an eciliate membrane, 1 mm long, membranous. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 4–22 cm long, 11–25 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence bractiferous, globose, 1.5–3 cm long, with glumaceous subtending bracts, bracts 2.5–4 mm long, without axillary buds at base of spikelet, without prophylls.

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 one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 13–19 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 4 empty glumes, similar, shorter than spikelet. Lower glume ovate, 3–4 mm long, 3–5 -veined. Lower glume surface glabrous or puberulous. Lower glume apex setaceously acuminate. Upper glume elliptic, 5–7 mm long, 7 -veined. Upper glume surface pubescent. Upper glume hairs dark brown or black. Upper glume apex setaceously acuminate.

Florets. Basal sterile florets 1, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate, 7–11 mm long, 13–15 -veined, more than 3-veined. Lemma surface pilose, hairy above. Lemma hairs dark brown or black. Lemma apex attenuate. Palea tightly convolute around flower, 14–16 mm long, 8 -veined. Palea surface pilose, hairy above. Palea apex dentate. Rhachilla extension 2 mm long, pubescent.

Flower and Fruit. Lodicules absent. Anthers 6. Stigmas 3. Caryopsis with adherent pericarp, oblong, stipitate, 7 mm long. Embryo with basal plumule. Endosperm farinose.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cathariostachys madagascariensis (A.Camus) S.Dransfield. *Kew Bull.* 53:394 (1998).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Cephalostachyum madagascariense* A. Camus, *Bull. Soc. Bot. France*, 72: 88. (1925). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Perrier de la Bbthie 10917*, Madagascar: Analamazoatra, 800 m, fl. (P; ILT: K). LT designated by Dransfield, *Kew Bull* 53: 394 (1998).

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

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, culms solitary. Rhizomes elongated, pachymorph. Butt sheaths absent. Culms erect or arching or leaning, inclined at the tip or drooping at the tip, 1000–1500 cm long, 50–80(–120) mm diam., woody. Culm-internodes terete, thin-walled, 40–60 cm long, distally glabrous or hispid (black hairs). Lateral branches dendroid. Bud complement 1. Branch complement several to many, apparently arising below the node, with 1 branch dominant. Culm-sheaths present, persistent, 17–21 cm long, 1 times as long as wide, hispid, with black hairs, truncate at apex, auriculate, with 5 mm high auricles, setose on shoulders, shoulders with curved hairs. Culm-sheath ligule 1 mm high, entire. Culm-sheath blade ovate or triangular, erect or reflexed, 7–18 cm long, 25–60 mm wide, hispid, acuminate or attenuate. Leaf-sheath oral hairs setose, curly. Leaf-sheath auricles falcate, 3 mm long. Ligule an eciliate membrane, 1 mm long, membranous. Leaf-blade base symmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 9–26 cm long, 15–40 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence bractiferous, globose, 2.5–3 cm long, with glumaceous subtending bracts, bracts 2.5–4 mm long, without axillary buds at base of spikelet, without prophylls.

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 one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 20–22 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 2–4 empty glumes, similar, shorter than spikelet. Lower glume ovate, 3 mm long, 7 -veined. Lower glume apex setaceously acuminate. Upper glume elliptic, 7–11 mm long, 11–13 -veined. Upper glume surface glabrous or pubescent. Upper glume hairs black. Upper glume apex setaceously acuminate.

Florets. Basal sterile florets 1, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma lanceolate, 12–13 mm long, 13–15 -veined, more than 3-veined. Lemma surface glabrous or pilose, hairy above. Lemma hairs black. Lemma apex attenuate. Palea tightly convolute around flower, 17–20 mm long, 14–16 -veined. Palea surface pilose, hairy above. Palea apex dentate. Rhachilla extension 1 mm long, pubescent.

Flower and Fruit. Lodicules absent. Anthers 6. Stigmas 3. Caryopsis with adherent pericarp, stipitate. Embryo with basal plumule. Endosperm farinose.

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

Country /Province /State. **Western Indian ocean.** Madagascar.

Celtica gigantea (Link) F.M. Vázquez & Barkworth. *Bot. J. Linn. Soc.* 144(4): 491–492 (2004).

Accepted 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) (as *Stipa*).

Basionym or Replaced Name: *Stipa gigantea* Link, *Schrad. Journ.* 2: 313. (1799). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: NT: C. Pintos-Gomes, S. Mendes, Rodrigo & F.M. Vazquez s.n., 27–04–2002, Portugal: Southern Setubal, Cruce de Calvaha a Pinheiro da Cruz (HSS-9002; INT: BM, MA, UTC, Z). NT designated by F.M. Vazquez & Barkworth, *Bot. J. Linn. Soc.* 144: 491 (2004).

Recent Synonyms: *Macrochloa gigantea* (Link) Hack., *Cat. Rais. Gramin. Portugal* 16–17 (1880).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (153).

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

Derivation (Clifford & Bostock 2007): L. very large. Culms tall compared with those of related species.

Classification. Subfamily Pooideae. Tribe: Stipeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths herbaceous, distinctly ribbed, glabrous. Culms erect, 150–250 cm long, 3–6 mm diam. Culm-internodes smooth, distally glabrous. Leaves mostly basal. Leaf-sheaths wider than blade at the collar. Leaf-sheath oral hairs pubescent. Leaf-sheath auricles erect. Ligule an eciliate membrane, 0.5–1 mm long, membranous, truncate. Leaf-blades filiform, involute, 35–75 cm long, 0.9–1.5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or pubescent, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or ovate, loose or effuse, (20–)30–50 cm long. Primary panicle branches naked below. Panicle branches flat, 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, dorsally compressed, 22–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Spikelet callus square. Floret callus elongated, straight to curved, 2–2.5 mm long, pilose.

Glumes. Glumes similar, exceeding apex of florets. Lower glume lanceolate, 22–30 mm long, 1 length of upper glume, membranous, much thinner on margins, without keels, 3 -veined (very prominently). Upper glume lanceolate, 22–30 mm long, 0.7–0.8 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 3 -veined (very prominently). Upper glume apex acuminate or caudate, mucronate.

Florets. Fertile lemma linear to lanceolate, subterete, 14–18 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface villous. Lemma margins convolute. Lemma apex lobed, 2 -fid, with oblong lobes, incised 0.2–0.3 of lemma length, awned, 1 -awned. Principal lemma awn straight, 70–120 mm long overall, with 22–30 mm long limb, with twisted column, limb scabrous. Palea lanceolate, tightly convolute around flower, 1 length of lemma, 2 -veined, without keels. Palea surface villous, hairy on back. Palea apex acuminate.

Flower and Fruit. Lodicules 3. Anthers 3, linear, 12–14 mm long. Stigmas 2, plumose.

Distribution (TDWG). Continent. Europe, Africa, North America (+).
Region. Southwestern Europe.
Country /Province /State. : Spain. Northern Africa. Morocco.

Cenchrus abyssinicus (Hack.) Morrone, *Ann. Bot.* 106: 127 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Odontyletrum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Odontyletrum*).

TYPE from Ethiopia. **Basionym or Replaced Name:** *Odontyletrum abyssinicum* Hack., *Oestr. Bot. Zeitschr.* 1898, 86 (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT?: *Schimper 1211*, 1863–8, Ethiopia: ex Tigre v. Begemder (US-1125875 (fragm. ex W)). [*Schimper 1211* was cited by Hackel as a specimen from B that might be the same as the type. However, the label location on the US (fragm. ex W) differs from what he reports for the B specimen; *fide* rjs].

Illustrations (Books): R.M.Polhill, F.T.E.A., *Gramineae* 3(1982):669, Fig 124), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (225, Fig 142), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (280, Fig 111), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (78, Fig. 46).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3074 (1916)).

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms prostrate, 20–40 cm long, spongy, rooting from lower nodes. Leaf-sheaths reticulately veined. Ligule an eciliate membrane. Leaf-blades 4–20 cm long, 5–7 mm wide.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear, 4–10 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, 1 in the cluster. Involucre composed of bristles, united into a herbaceous lobed scale, oblong, 7–10 mm long, base bluntly stipitate. Involucral bristles deciduous with the fertile spikelets, with one conspicuously longer bristle (12–25 mm), flattened, rigid, antrorsely scaberulous, glabrous, obtuse.

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, 10–14 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0–2 mm long, 0–0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Upper glume ovate, 3–6 mm long, 0.4–0.5 length of adjacent fertile lemma, herbaceous, without keels, 1–3 -veined. Upper glume apex acuminate.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, herbaceous, 9 -veined, acute. Fertile lemma ovate, 10–14 mm long, cartilaginous, much thinner above, dark brown, without keel, 7 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea cartilaginous.

Flower and Fruit. Lodicules absent. Anthers 3, linear, 6–7 mm long, purple. Stigmas 1, terminally exerted, purple, plumose. Styles 12 mm long. Caryopsis with adherent pericarp, oblong, dorsally compressed.

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

Country /Province /State. Northeast tropical Africa, East tropical Africa, Southern Africa. Ethiopia (inc. Eritrea). Tanzania. Mpumalanga, Kwazulu-Natal (?). Arabian Peninsula. Yemen.

Cenchrus advena (Wipff & Veldkamp) Morrone, *Ann. Bot.* 106: 127 (2010).

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

TYPE from US (cult). **Basionym or Replaced Name:** *Pennisetum advena* Wipff & Morrone, *Sida*, 18(4): 1033 (1999). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: United States: Texas: Brazos Co.: cultivated at Texas A&M University, College Station, commonly used ornamental grass in the area, 18 Sep 1990, *Joseph K. Wipff 1723* (HT: L; IT: K, MO, US, UTC).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (530).

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

Derivation (Clifford & Bostock 2007): L. a stranger. Adventive species described from individuals found growing in countries in which they are not native.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 100–150 cm long. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 0.5–0.8 mm long. Leaf-blades 33–52 cm long, 6–11 mm wide, purple. Leaf-blade margins scabrous, ciliate, hairy at base.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, nodding, flexuous, 23–32 cm long, 3–5.8 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile and pedicelled, 1–3 in the cluster. Involucre composed of bristles, 11.7–25 mm long, base obtuse, base 0.5–1.1 mm long. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, 45–80 in principal whorl, inner bristles longer than outer, with one conspicuously longer bristle, 21.3–33.6 mm long, terete, flexible, 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, 5.3–6.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.5–1 mm long, 0.1–0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 1.9–3.6 mm long, 0.5 length of spikelet, membranous, without keels, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic, 4.7–6.1 mm long, 0.9 length of spikelet, chartaceous, 5 -veined, acuminate. Palea of lower sterile floret 4.5–5 mm long. Fertile lemma lanceolate, 5.2–6.1 mm long, chartaceous, without keel. Lemma margins flat. Lemma apex acuminate. Palea 4.7–5.6 mm long, chartaceous, 2 -veined.

Flower and Fruit. Anthers 3, 2.5–2.7 mm long.

Distribution (TDWG), Continent. Tropical Asia, North America.

Country /Province /State. Malesia, Papuaia. Java (?). New Guinea. South-central USA and Southeastern USA. Texas. Louisiana.

Cenchrus agrimonioides Trin. *Diss. Gram. Panic. 72.* (1826).

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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Chamisso*, In insula O-wahu (LE-TRIN-1075.01).

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

Derivation (Clifford & Bostock 2007): Gk. -oides. Resembling *Agrimonia*.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms robust, 25–200 cm long. Leaf-sheaths keeled, glabrous on surface or pubescent. Ligule a fringe of hairs, 2.5 mm long. Leaf-blades 16–41 cm long, 6–16 mm wide. Leaf-blade surface scabrous, glabrous or puberulous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, loose (internodes 1.7–3.3mm), 7.8–28 cm long, 1.6–2.3 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, connate into a cup below, with 2–3 mm connate, ovate, 10–14 mm long, base obconical (2.5–4.5mm), base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, 6–10 in principal whorl, inner bristles longer than outer, 5.7–7 mm long, terete, rigid, retrorsely scaberulous, ciliate, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 6–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.3–3.5 mm long, 0.25–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 4.5–6.3 mm long, 0.75–0.9 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex setaceously acuminate.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 5.9–6.6 mm long, 0.9 length of spikelet, membranous, 5 -veined, acute. Fertile lemma ovate, 5.8–7 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. North-central Pacific. Hawaii.

Cenchrus americanus (L.) Morrone. *Ann. Bot.* 106: 127 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum glaucum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum glaucum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum glaucum*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum glaucum*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Pennisetum glaucum*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Pennisetum glaucum*), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Pennisetum glaucum*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Pennisetum americanum*, *Pennisetum typhoides*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (*Pennisetum glaucum*).

TYPE from Sri Lanka. **Basionym or Replaced Name:** *Panicum glaucum* L., *Sp. Pl.* 1: 56 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Hermann, Fl. Zeyl.* 44, Sri Lanka (BM). LT designated (as holotype) by Rauschert, Feddes Repert. 83(9–10): 662 (1973).

Recent Synonyms: *Pennisetum giganteum* A.Rich., *Tent. Fl. Abyss.* 2: 382. (1850). *Pennisetum americanum* (L.) K. Schum., *Pflanzenw. Ost-Afrikas* 5B: 51 (1895)

Pennisetum glaucum (L.) R. Br., *Prod.* 195 (1810).

Pennisetum typhoides (Burm. f.) Stapf & C.E. Hubb., *Bulletin of Miscellaneous Information Kew* 1933: 271 (1933.)

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (368 as *Setaria glauca*), H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (448, Fig 372 as *P. typhoides*), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 412 as *Setaria glauca*), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (501, Pl. 192 as *Setaria glaucum*), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (616), C-C Hsu, *Taiwan Grasses* (1975) (as *Setaria glauca*), K.F.Best, et al, *Prairie Grasses* (1971) (209 as *Setaria glauca*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (522), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrata Catarinensis Gramineas* (1981–1982) (817, Fig. 168), M.N.Correa, *Flora Patagonica* Parte III, *Gramineae* (1978) (536, Fig 362 as *Setaria glauca*), K.M.Matthew, Further Illustrations on the *Flora of Tamilnadu Carnatic* (1988) (pl.814 as *P. americanum*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (333), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14e (1940) (82, Pl. 50 as *P. spicatum*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:111(1980) as *P. americanum* & 124(1980) as *P. glauca*).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, R.Darce, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

Derivation (Clifford & Bostock 2007): L. glauca, bluish-green. Whole plant or any of its parts glaucous.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms erect, robust, 150–300 cm long. Culm-nodes bearded. Ligule a fringe of hairs. Leaf-blades 50–100 cm long, 8–70 mm wide.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle spiciform, linear or elliptic or ovate, 4–200 cm long, 0.8–5.5 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis terete, pubescent. Spikelets subtended by an involucre. Fertile spikelets pedicelled, 1–9 in the cluster. Involucre composed of bristles, oblong, 2–7 mm long, base bluntly stipitate (1.1–25mm). Involucral bristles persistent, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, with longest bristle scarcely emergent or with one conspicuously longer bristle, 12–26 mm long, terete, flexible, glabrous or ciliate. 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 obovate, dorsally compressed, 3–6 mm long, persistent on plant.

Glumes. Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume oblong, 0.5–2 mm long, 0.15–0.33 length of spikelet, membranous, without keels, 0–3 -veined. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret lanceolate or oblong, 1.5–4.5 mm long, 0.5–0.75 length of spikelet, chartaceous, 5–7 -veined, ciliolate on margins, emarginate or obtuse, mucicous or mucronate. Fertile lemma ovate, 1.4–4 mm long, coriaceous, without keel, 5–7(–9) -veined, more than 3-veined. Lemma margins flat, pubescent. Lemma apex emarginate or obtuse. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, anther tip penicillate. Styles connate below. Caryopsis with adherent pericarp, obovoid, exposed between gaping lemma and palea at maturity, 2–5.5 mm long.

$N = 7$ (3 refs TROPICOS). $2n = 14$ (4 refs TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, Tropical Asia, Australasia (*), North America, South America.

Region. Northern Europe (*), Eastern Europe.

Country /Province /State. : GB Aliens (Ryves et al). South European Russia, Ukraine. **Northern Africa, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa** (*), **Western Indian ocean.** Egypt (+), Libya. Guinea, Nigeria, Togo. DRC. Eritrea, Ethiopia (inc. Eritrea), Sudan. Angola, Malawi, Mozambique, Zambia. Mauritius (+), Madagascar (+). **Western Asia, Arabian Peninsula, China** (+). Oman. China South Central, China Southeast. **Indian Subcontinent, Indo-China, Malesia.** Bangladesh, Pakistan, Sri Lanka. Myanmar, Vietnam. Java. **Australia.** Western Australia (*), Northern Territory (*), Queensland (*), New South Wales (*), A.C.T. (*). Fiji (*). Marianas (*). Hawaii (*). **Southwestern USA, South-central USA, Southeastern USA, Mexico.** California. Texas. Florida, Louisiana. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico. **Caribbean, Western South America, Brazil.** Cuba (as *Setaria lutescens*), Dominican Republic (as *Setaria lutescens*), Haiti (& as *Setaria lutescens*), Jamaica (as *Setaria lutescens*), Puerto Rico (as *Setaria lutescens*). Bolivia, Colombia, Ecuador. Brazil West Central, Brazil North, Brazil Southeast, Brazil South.

TDWG4. Fujian. Yunnan. Sikkim. Meghalaya, Nagaland. Andhra Pradesh, Bihar. Madhya Pradesh, Punjab, Rajasthan, Tamilnadu, Uttah Pradesh, West Bengal. South-West. Darwin & Gulf. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains. Catamarca, Mendoza, San Juan, San Luis. Buenos Aires, Chaco, Cordoba, Corrientes, La Pampa, Santa Fe. Río Negro. Mexico State. Chihuahua, Durango, Neuvo Leon. Veracruz. Michoacan, Oaxaca.

Cenchrus annuus (Mez) Morrone. *Ann. Bot.* 106: 127 (2010).

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

TYPE from Peru. **Basionym or Replaced Name:** *Pennisetum annum* Mez, *Engl. Jahrb. lvi. Beibl.* 125, 7 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Weberbauer 5354*, 17 Apr 1910, Peru "Mounts near Ilimiea, 1700–1800 m (B; IT: F, US-3416211 (fragm. ex B)).

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

Derivation (Clifford & Bostock 2007): L. annual. Annuals.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms slender, 30–70 cm long. Culm-nodes glabrous. Ligule a fringe of hairs. Leaf-blades lanceolate, 6–20 cm long, 5–10 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, elliptic, 2.5–3 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1(–2) in the cluster. Involucre composed of bristles, 2.5 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 11–12 mm long, terete, flexible, antorsely scaberulous, 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, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.25 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma lanceolate, 5 mm long, coriaceous, without keel. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Cenchrus arnhemicus (F.Muell.) Morrone. *Ann. Bot.* 106: 127 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *P. australiensis*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *P. australiensis*).

TYPE from Australia. **Basionym or Replaced Name:** *Pennisetum arnhemicum* F.Muell., *Fragm.* 8: 109. (1874). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia, Victoria R.: Mueller (K iso).

Recent Synonyms: *Pseudochaetochloa australiensis* Hitchcock, *Journ. Wash. Acad. Sc.* 14: 492 (1924).

Illustrations (Books): C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (269, Pl 77 as *P. australiensis*), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1210 & 1211, Fig 342 & 343 both male & female plants as *P. australiensis*), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002) (as *P. australiensis*).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002); (as *P. australiensis*).

Derivation (Clifford & Bostock 2007): L. *-ica*, belonging to. From Arnhem Land, Northern Territory, Australia.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 50–120 cm long, 3–12-noded. Culm-nodes pubescent. Ligule a fringe of hairs, 0.8–2.3 mm long. Leaf-blades flat or conduplicate, 20–50 cm long, 2–5.5 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform. Dioecious.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 8–15 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, 1 in the cluster. Male spikelets pedicelled. Involucre composed of bristles, ovate, 10–20 mm long, base truncate, base pubescent. Involucral bristles deciduous with the fertile spikelets, 7–12 in principal whorl, with longest bristle scarcely emergent, terete, flexible, antrorsely scaberulous (above), plumose (below). 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 lanceolate, dorsally compressed, 4–6 mm long, 1.2–1.4 mm wide, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.4–3.8 mm long, 0.33–0.66 length of spikelet, membranous, without keels, 0–3 -veined. Lower glume apex entire or erose, obtuse or acute, muticous or mucronate. Upper glume lanceolate or ovate, 2.3–2.6 mm long, 0.5–0.66 length of spikelet, membranous, without keels, 3(–5) -veined. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 5 -veined, ciliate on margins, acute or acuminate, muticous or mucronate. Fertile florets female. Fertile lemma lanceolate, 3.4–3.8 mm long, coriaceous, without keel. Lemma surface striate. Lemma margins flat. Lemma apex acute or acuminate, pubescent. Palea coriaceous.

Flower and Fruit. Male inflorescence unlike female (spiciform with branches, involucre sparsely hairy), a panicle. Male spikelets distinct from female, 2 flowered, lanceolate, glabrous. Male spikelet glumes 2. Male spikelet lemma 3 -veined.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory.

TDWG4. Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland.

Cenchrus biflorus Roxb. *Fl. Ind.* 1:238 (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), 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: *Roxburgh s.n.*, India: "A native of the interior, elevated, dry parts of the Coromandel Coast." (BM).

Recent Synonyms: *Cenchrus rajasthanensis* K.C. Kanodia & P.C. Nanda, *Geobios*, 5(4): 157 (1978).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (260, Fig. 192), W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi*, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (331, Pl. 50, as *C. barbatus*), J.Bosser, *Graminees des*

Paturage et des Cultures a Madagascar (1969) (297, Fig. 109), S. Phillips, *Poaceae* (Gramineae) in I. Hedberg & S. Edwards, *Flora of Ethiopia and Eritrea* (1995) (278, Fig. 110), L. Boulos, *Flora of Egypt* 4 (2005) (319, Pl. 94), K. M. Matthew, Further Illustrations on the *Flora of Tamilnadu Carnatic* (1988) (Pl. 730; Pl. 731), M. E. Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (536), E. Hafliger & E. Schultz, Grass Weeds, CIBA-GEIGY (1:26(1980)).

Images: D. Sharp & B. K. Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. bis, twice; flos, flower. Florets two per spikelet.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, caespitose. Culms geniculately ascending, 5–90 cm long. Culm-internodes unequal, the upper longer, channelled, thin-walled, eglandular, smooth, distally glabrous or pubescent. Culm-nodes constricted, purple, glabrous. Lateral branches ample, extravaginal, arising from lower culm or mid culm. Branch complement constant, one or two, with subequal branches, thinner than stem. Leaves basal and cauline. Leaf-sheaths loose, open for most of their length, with flat margins, longer than adjacent culm internode, keeled, scaberulous, glabrous on surface or pubescent, outer margin glabrous, inner surface glabrous. Leaf-sheath oral hairs ciliate or bearded. Ligule a fringe of hairs, 2 mm long. Collar dark, pubescent. Leaf-blade base simple or broadly rounded or cordate. Leaf-blades linear or lanceolate, 2–25 cm long, 2–7 mm wide. Leaf-blade surface scaberulous, rough on both sides, puberulous or pilose (sparsely). Leaf-blade margins scaberulous, glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 2–15 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, 1–3 in the cluster. Involucre composed of bristles, connate into a disc below (2–4 mm diam), with 0.5–1 mm connate, ovate, 4–11 mm long, base obconical, base glabrous. Involucral bristles deciduous with the fertile spikelets, in one whorl or with an outer whorl of thinner bristles, 7–15 in principal whorl, inner bristles longer than outer, with longest bristle scarcely emergent, 2.9–7 mm long, flattened, grooved on the face, rigid, retrorsely scaberulous, ciliate, obtuse or spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 3.5–6 mm long, 1–1.5 mm wide, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.4–0.5 length of spikelet, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 2.5–3.5 mm long, 0.6–0.7 length of spikelet, membranous, without keels, 1–5 -veined. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret similar to upper glume, ovate, 0.7–0.8 length of spikelet, membranous, 3–5 -veined, acute, mucous or mucronate. Fertile lemma ovate, 3.5–6 mm long, coriaceous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea coriaceous.

Flower and Fruit. Anthers 3, 0.4 mm long, brown, anther tip smooth. Filaments 2 mm long. Stigmas yellow. Styles 2.2 mm long. Ovary glabrous. Caryopsis oblong or orbicular, 1.1–1.3 mm long.

N = 17 (1 ref TROPICOS), or 24 (1 ref TROPICOS).

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

Country /Province /State. Northern Africa, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa (*), Western Indian ocean. Egypt (*). Benin, Gambia, Ghana, Guinea-Bissau, Mali, Mauritania, Senegal, Niger. DRC. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania. Angola, Mozambique, Zambia. Namibia, Botswana, Limpopo. Madagascar (*). **Arabian Peninsula.** Saudi Arabia. **Indian Subcontinent.** India, Pakistan, West Himalaya. **Australia.** Western Australia (*), Northern Territory (*), Queensland (*).

TDWG4. Andhra Pradesh, Daman, Gujarat, Haryana, Karnataka. Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamilnadu, Uttah Pradesh. Kimberley. Victoria R & Barkly Tableland. North, Inland.

Cenchrus brownii Roem. & Schult. *Syst.* 2: 258 (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), D. Sharp, D. & B. K. Simon, *AusGrass* (2002), J. F. Veldkamp, *Poaceae* ms (*Flora Malesiana*), 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 s.n.*, Australia (BM; IT: US (fragm.)).

Illustrations (Books): L. K. A. Chippindall, *Grasses and Pastures of South Africa* (1955) (452, Fig. 375), H. Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (39, Fig. 25), E. E. Henty, *A Manual of the*

Grasses of New Guinea (1969) (48, Pl. 13), *Flora of Australia Oceanic Islands Poaceae* 50(1993) & 49(1994) (50:509 Fig.93 (1993)), 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) (532), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (362, Fig. 333), S.A.Renouze, *Gramineas de Bolivia* (1998) (555, Fig. 128), S.A.Renouze, *The Grasses of Bahia*, 1984 (260, Fig. 97), J.A.Steyermark et al, *Flora of the Venezuelan Guayana Vol. 8* (2004) (69, Fig. 44), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (120, Fig. 37), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (134, Fig. 19), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:27(1980)).

Illustrations (Journals): *Ruizia* (13:416 Fig 55c-d (1993)).

Derivation (Clifford & Bostock 2007): in honor of Robert Brown, (1773–1858), Scots-born English botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 25–95 cm long. Ligule a fringe of hairs, 0.6–1.3 mm long. Leaf-blades 8–30 cm long, 4–11 mm wide. Leaf-blade surface glabrous or pilose, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear or oblong, continuous, 3–12 cm long, 1.5 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 2–3 in the cluster. Involucre composed of bristles, connate into a cup below, with 2.5–4 mm connate, globose, 5–8 mm long, base obconical, base villous. Involucral bristles deciduous with the fertile spikelets, with an outer whorl of thinner bristles, inner bristles subequal to outer, with longest bristle scarcely emergent, 2–4 mm long, flattened, rigid, retrorsely scaberulous, villous, spinose.

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, acuminate, 4–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.5–2.5 mm long, 0.25–0.4 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 2.2–4.9 mm long, 0.5–0.8 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 0.8–0.9 length of spikelet, membranous, 5 -veined, acute. Fertile lemma ovate, 4–6 mm long, coriaceous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea coriaceous.

Flower and Fruit. Anthers 3, 0.8–2.3 mm long. Caryopsis with adherent pericarp, ovoid, 1.9–2.6 mm long. $2n = 34$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

Country /Province /State. Southern Africa (*). Kwazulu-Natal. **Eastern Asia.** Kazan-retto, Nansai-Shoto, Ogosawara-shoto. **Indo-China, Malesia, Papuasia.** Cambodia, Thailand, Vietnam. Borneo, Java, Lesser Sunda Is, Moluccas, Sumatra, Philippines, Christmas I. New Guinea West Papua (Irian Jaya). New Guinea (*), Solomon Is (*). **Australia.** Western Australia (*), Northern Territory (*), Queensland (*). **Northwestern Pacific.** Caroline Is, Marianas, Marshall Is, Wake Is. **South-central USA, Southeastern USA, Mexico.** Texas. Florida. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil.** Belize, Costa Rica, El Salvador, Honduras. Bahamas, Cayman Is, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil North, Brazil Southeast.

TDWG4. Kimberley. Darwin & Gulf. North. Distrito Federal, Mexico State, Morelos, Puebla. Chihuahua, Guanajuato, Neuvo Leon, 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.

Cenchrus bambusiformis (Fourn.) Morrone. *Ann. Bot.* 106: 127 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from Mexico. **Basionym or Replaced Name:** *Gymnotrix bambusiformis* E. Fourn., *Mexic. Pl.* 2: 48 (1886). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Schaffner 338*, Mexico: Veracruz: prope Mirador (P; IT: US-207605).

Recent Synonyms: *Pennisetum bambusiforme* (Fourn.) Jacks., *Ind. Kew.* 2:458 (1895).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Feldiana Botany New Series* 4 (1980) (461, Fig 174).

Derivation (Clifford & Bostock 2007): *L. forma*, appearance. Similar to *Bambusa* in habit.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, robust, 600–800 cm long, 10–20 mm diam., rooting from lower nodes. Culm-internodes thin-walled, distally glabrous. Lateral branches ample. Leaf-sheaths glabrous on surface or pilose. Ligule a ciliate membrane, 1–4 mm long. Leaf-blade base with a false petiole. Leaf-blades lanceolate, 20–40 cm long, 20–50 mm wide.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear or oblong, flexuous, 6–10 cm long, 1–2 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, scabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, base obtuse, base 0.3 mm long, base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, 40 in principal whorl, inner bristles longer than outer, 16–18 mm long, terete, flexible, antorsely 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 ovate, dorsally compressed, acute, 3.9–5.2 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate or orbicular, 0.4 mm long, 0.1 length of spikelet, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 1–2 mm long, 0.15–0.4 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or caudate.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 5–6 -veined, caudate. Palea of lower sterile floret 0.66 length of lemma. Fertile lemma ovate, 3–4.2 mm long, chartaceous, without keel. Lemma surface scaberulous. Lemma margins flat. Lemma apex acute. Palea chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2 mm long.

$2n = 36$ (2 refs TROPICOS).

Distribution (TDWG), Continent. North America, South America.

Country /Province /State. Mexico. Gulf (Mexico), Southwest Mexico. Mesoamerica, Northern South America, Western South America, and Southern South America. Costa Rica, El Salvador, Guatemala, Honduras, Panama. Venezuela. Bolivia, Colombia, Ecuador, Peru.

TDWG4. Veracruz, Jalisco, Oaxaca.

Cenchrus basedowii (Summerhayes & C.E.Hubb.) Morrone. *Ann. Bot.* 106: 127 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum*).

TYPE from Australia. **Basionym or Replaced Name:** *Pennisetum basedowii* Summerhayes & C.E.Hubb., *Bull. Misc. Inform. Kew* 1926: 440 (1926). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: [Australia]: "Western Australia. May River, King Sound, ..., N.W.", *Basedow* 13, Apr..

Illustrations (Books): C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (279, Pl. 80), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1193, Fig. 338), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3185 (1933)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): in honor of Herbert Basedow (1881–1933) South Australian geologist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, caespitose, clumped loosely. Culms geniculately ascending, 35–70 cm long. Lateral branches ample. Leaf-sheaths keeled. Ligule a fringe of hairs. Leaf-blades 10–20 cm long, 5–7 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle, terminal and axillary. Peduncle scaberulous above, glabrous or pubescent above. Panicle spiciform, oblong or ovate, 3–8 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with briefly decurrent ribs, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 20–40 mm long, base truncate, base 0.5 mm long, base pubescent. Involucral

bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, 3–4 in principal whorl, inner bristles longer than outer, 20–40 mm long, flattened, flexible, 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, dorsally compressed, 6–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure, shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Upper glume lanceolate, 5–7 mm long, 0.9–1 length of spikelet, membranous, without keels, 9–11 -veined. Upper glume apex acuminate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, chartaceous, 7–9 -veined, acuminate. Fertile lemma lanceolate, 6–7 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate. Palea chartaceous.

Flower and Fruit. Anthers 3, anther tip apiculate.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley. Victoria R & Barkly Tableland. North, Inland.

Cenchrus brevisetosus (B.K.Simon) B.K.Simon. *Austrobaileya* 8: 192 (2010).

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, Queensland.

Cenchrus caliculatus Cav. *Ic. 5, 39. t. 463. (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), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Society Islands: Baba, *Nie s.n.* (HT: MA) "Amicorum insula" = Friendly Islands ?.

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (179).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): Gk. kalyx, cup; L. -ulus, diminutive; -atus, possessing. Spikelets subtended by a cup-like involucre of bristles.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms robust, 100–200(–300) cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1–1.6 mm long. Leaf-blades 14–56 cm long, 3–19 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, loose (internodes 1–3.2mm), 8.2–23.5 cm long, 1–2.8 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, connate into a disc below, with 0.5 mm connate, ovate or globose, 6–10.8 mm long, base bluntly stipitate (1–3mm), base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, with longest bristle scarcely emergent or with one conspicuously longer bristle, 6–10 mm long, terete, rigid, retrorsely scaberulous, pubescent, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 3.8–6.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.2–3.5 mm long, 0.3–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2.4–4.8 mm long, 0.6–0.75 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 3.5–6.5 mm long, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma ovate, 3.8–6.1 mm long, coriaceous, much

thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Temperate Asia, Tropical Asia, Australasia, Pacific.

Country /Province /State. **China.** Manchuria. **Malesia, Papuaia.** Lesser Sunda Is, Philippines. New Guinea PNG. New Guinea. **Australia, New Zealand.** Queensland, New South Wales, Lord Howe-Norfolk Is. Kermadec Is. **Southwestern Pacific, South-central Pacific, North-central Pacific.** Fiji, Niue, New Caledonia, Samoa, Tonga, Vanuatu. Cook Is, Marquesas, Society Is, Tubuai Is. Hawaii.

TDWG4. North, Central, South East, Inland. Coast, Tablelands, Western Slopes.

Cenchrus caninus (Reinw. ex Blume) Morrone, *Ann. Bot.* 106: 127 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum macrostachys*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum macrostachys*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum macrostachys*), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)* (as *Pennisetum macrostachys*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (as *Pennisetum macrostachys*).

TYPE from Indonesia. **Basionym or Replaced Name:** *Gymnotrix macrostachys* Brongn., *Voy. Monde* 2(2): 104, t. 11 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: Moluccas.

Recent Synonyms: *Pennisetum macrostachys* (Brongn.)Trin., *Mem. Acad. Petersb. Ser. VI.* iii.2. 177 (1835).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (522).

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

Derivation (Clifford & Bostock 2007): Gk. makros, large; stachys, ear of corn. Inflorescence large.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 200–300 cm long, 10–20 mm diam. Lateral branches ample. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades 20–40 cm long, 10–30 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 15–30 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, puberulous or pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 20–30 mm long, base obtuse, base 0.5 mm long. Involucral bristles deciduous with the fertile spikelets, numerous, 20–30 mm long, terete, flexible, 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, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.25 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2.5–3 mm long, 0.5 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, chartaceous, 5 -veined, acuminate. Fertile lemma lanceolate, 5–6 mm long, chartaceous, without keel. Lemma margins flat. Lemma apex acuminate. Palea chartaceous.

Flower and Fruit. Anthers 3, anther tip apiculate.

N = 34 (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia, Pacific.

Country /Province /State. **Malesia, Papuaia.** Borneo, Java, Moluccas, Sumatra, Sulawesi, Philippines. New Guinea, Solomon Is (*). **Southwestern Pacific, Northwestern Pacific, North-central Pacific.** Fiji (*), Niue (*), Samoa (*), Tonga (*). Cook Is (*). Hawaii (*).

Cenchrus chilensis (Desv.) Morrone, *Ann. Bot.* 106: 127 (2010).

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

TYPE from Chile. **Basionym or Replaced Name:** *Gymnotrix chilensis* E. Desv., *Fl. Chile* 6: 251, t. 74 (1853)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, *Cl. Gay s.n.*.

Recent Synonyms: *Pennisetum chilense* (Desv.) Hack., *Buchtien, Contrib. Fl. Boliv.* 66 (1910).

Illustrations (Books): S.A.Renouvoise, *Gramineas de Bolivia* (1998) (550, Fig. 127), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (491, Fig. 176).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Chile.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Basal innovations intravaginal. Culms 100–200 cm long, 2–4 mm diam. Culm-nodes glabrous. Ligule a fringe of hairs. Leaf-blades flat or convolute, 12–45 cm long, 3–10 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 8–15 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, 1 in the cluster. Involucre composed of bristles, 7–12 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, terete, flexible, antrorsely 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, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.2 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.5 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5–7 -veined, acute. Fertile lemma lanceolate, 5–6 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Styles connate below, 1 of their length connate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest, Chile North, Chile Central.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, San Luis, Tucuman. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca, Antofagasta, Atacama. Coquimbo, Valparaiso.

Cenchrus ciliaris L. *Mant. Pl.* 2: 302 (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), 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), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from South Africa. **Basionym or Replaced Name:**

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa: Cape of Good Hope, *Koenig s.n.* (HT: LINN-1217.9).

Recent Synonyms: *Pennisetum ciliare*, (L.) Link, *Hort. Berol.* i. 213; *Handb.* 1: 85 (1827).

Illustrations (Books): G.V.Pope et al., *Flora Zambesiaca* 10 (3(1989):187, T. 48 as *Cenchrus*), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (450, Fig. 374as *Cenchrus*), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984) (as *Cenchrus*), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (79, Fig. 39), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (293, Fig. 108 as *Cenchrus*), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 415), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (277, Fig. 109 as *Cenchrus*), L.Boulos, *Flora of Egypt* 4 (2005) (319, Pl. 94 as *Cenchrus*), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (475, Pl. 182as *Cenchrus*), N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (288, Fig. 33 as *Cenchrus*), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (48, Pl. 13 as *Cenchrus*), K.M.Mathew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 819 & 820 as *Cenchrus*), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (433, Fig. 362 as *Cenchrus*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (285, Pl. 82 as *Cenchrus*), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (148 as *Cenchrus*), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (248, Fig. 38 as *Cenchrus*), F.W.Gould, *The Grasses of Texas* (1975) (564, fig. 294 as *Cenchrus*), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (528), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (356, Fig. 328), S.A.Renouvoise,

Gramineas de Bolivia (1998) (555, Fig. 128 as *Cenchrus*), S.A.Rennoize, *The Grasses of Bahia*, 1984 (262, Fig. 98 as *Cenchrus*), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (70, Fig. 45 as *Cenchrus*), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (69, Fig. 18 as *Cenchrus*), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (80, Fig. 47), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:25(1980) as *Cenchrus ciliaris*).

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*;, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999) (as *Cenchrus*).

Derivation (Clifford & Bostock 2007): L. cilium, eyelid; -are, pertaining to. Glumes or lemmas ciliate on nerves or margins.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Butt sheaths distinctly ribbed, sparsely hairy or pubescent or pilose. Basal innovations extravaginal. Culms geniculately ascending, 10–50 cm long, 1–4 mm diam., wiry. Lateral branches sparse. Leaves basal and cauline. Leaf-sheaths loose, open for most of their length, with flat margins, 5–8.5 cm long, mostly shorter than adjacent culm internode, keeled, striately veined, scaberulous, glabrous on surface or pilose, outer margin glabrous or hairy. Leaf-sheath oral hairs scanty or ciliate. Ligule a fringe of hairs, 0.2–2 mm long. Collar glabrous. Leaf-blades 3–25 cm long, 4–10 mm wide. Leaf-blade midrib conspicuous, prominent beneath. Leaf-blade venation distinct. Leaf-blade surface ribbed, scaberulous, glabrous or pilose, sparsely hairy, hairy on both sides (or glabrous), with tubercle-based hairs (at times). Leaf-blade margins unthickened, eglandular, glabrous or ciliate. Leaf-blade apex acuminate, hardened.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear to oblong, 2–14 cm long, 1–2.6 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–4 in the cluster. Involucre composed of bristles, connate into a disc below (0.5–1 mm diam), with 0.2–0.3(–0.5) mm connate, 6–12 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, with one conspicuously longer bristle, 8–16 mm long, flattened (at least base of longest bristle), without grooves or grooved on the face, flexible (often wavy), antrorsely scaberulous, 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 lanceolate, dorsally compressed, acute, 2–5.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, subequal in width, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2–0.5 length of spikelet, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.4–1 length of spikelet, hyaline, without keels, 1–3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of fertile lemma, membranous, 5 -veined, acute, mucronate. Fertile lemma ovate, dorsally compressed, lanceolate in profile, 2–5.5 mm long, chartaceous, pallid, without keel, 5 -veined, more than 3-veined. Lemma margins covering most of palea. Lemma apex acute, mucronate. Palea ovate, 1 length of lemma, chartaceous, 2 -veined. Palea apex acute.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 1.5 mm long. Stigmas 2, protogynous, terminally exserted. Caryopsis obovoid, dorsally compressed, 1–1.3 mm long, dark brown, glabrous, truncate or obtuse, apex unappendaged.

$2n = 36$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America (*), South America (*).

Region. Northern Europe (*), Southeastern Europe.

Country /Province /State. : GB Aliens (Ryves et al). : Sicily. **Northern Africa, Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean.** Algeria, Egypt, Morocco, Tunisia. Canary Is, Cape Verde, Madeira. Ghana, Mali, Mauritania, Nigeria, Senegal. Rwanda, DRC. Eritrea, Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Kenya, Tanzania, Uganda. Angola, Mozambique, Zambia, Zimbabwe. Madagascar (*). **Western Asia, Arabian Peninsula, China, Eastern Asia** (*). Iran, Iraq. Gulf States, Kuwait, Oman. Taiwan (*). **Indian Subcontinent, Indo-China, Malesia, Papuasias.** India, Pakistan, Sri Lanka. Cocos (Keeling) Is, Java, Lesser Sunda Is, Malaya, Philippines. New Guinea West Papua (Irian Jaya). New Guinea, Solomon Is (*). **Australia.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*), New South Wales (*). **Southwestern Pacific, North-central Pacific.** Fiji (*), Niue (*), New Caledonia (*), Phoenix Archipelago (*), Wallis-Futuna Is (*). Marquesas (*). Hawaii (as *Cenchrus*l,*). **Southwestern USA, South-central USA, Southeastern USA, Mexico.** Arizona, California. New Mexico, Texas. Florida, Louisiana,

Mississippi. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Western South America, Brazil, Southern South America.** Costa Rica, El Salvador, Guatemala, Nicaragua, Panama. Puerto Rico (*). Bolivia, Colombia. Brazil West Central, Brazil Northeast, Brazil North, Brazil Southeast, Brazil South. Argentina South, Paraguay.

TDWG4. Andhra Pradesh, Delhi. Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamilnadu, Uttah Pradesh. Kimberley, Ereman, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains. Jujuy (*), La Rioja, Salta, Tucuman. Cordoba, Formosa. Distrito Federal, Mexico State, Morelos, Puebla. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo 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, Yucatan.

Cenchrus clandestinus (Hochst. ex Chiov.) Morrone. *Ann. Bot.* 106: 127 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Pennisetum*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Pennisetum*), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Pennisetum*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (as *Pennisetum*), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010) (as *Pennisetum*).

TYPE from Ethiopia. **Basionym or Replaced Name:** *Pennisetum clandestinum* Hochst. ex Chiov., *Ann. Ist. Bot. Roma*, viii. 41, in adnot. (1903). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Schimper 2084*, Ethiopia (FI; IT: K).

Recent Synonyms: *Kikuyuochloa clandestina* (Hochst. ex Chiov.) H. Scholz, *Feddes Repertorium* 117(7–8): 513 (2006)

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (445, Fig. 369), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (249, Fig. 157), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (266, Fig 105), L.Boulos, *Flora of Egypt* 4 (2005) (313, Pl. 92), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (600), C-C Hsu, *Taiwan Grasses* (1975) (593, Pl. 1443 as *P. clandestinum*), K.M.Matthew, *Flora Palni Hills* (1996) (855, Pl. 855), H.J.Noltie, *The Grasses of Bhutan* (2000) (739, Fig. 46), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (333), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1580, Pl. 234), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (520), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (471, Fig. 404), S.A.Renvoize, *Gramineae de Bolivia* (1998) (545, Fig. 124), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (817, Fig. 168 & 818, Fig. 169), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (434, Fig. 183 & 435, Fig. 184), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (464, Fig. 175), B.Rosengurt, *Gramineas Uruguayas I* (1970) (382, Fig. 169), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:112(1980)).

Illustrations (Journals): *Ruizia* (13:405 Fig 54i-j (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); F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): L. hidden. The inflorescence is enclosed or partially enclosed in the upper leaf-sheath.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes elongated. Stolons present. Culms prostrate, 3–15(–45) cm long, rooting from lower nodes. Leaf-sheaths inflated. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 1–15 cm long, 1–5 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence comprising only a few spikelets, comprising (1–)2–4(–6) fertile spikelets, shorter than basal leaves, subtended by an inflated leaf-sheath, enclosed. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, lanceolate, 4–15 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, few, 3–15 in principal whorl, terete, flexible, antrorsely scabrous, glabrous or pubescent.

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, 10–20 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes both absent or obscure or one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume ovate, 0–3 mm long, 0–0.2 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to fertile lemma, oblong, 1 length of spikelet, membranous, 8–12 -veined, acute. Fertile lemma lanceolate, 10–20 mm long, membranous, without keel, 8–12 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea membranous, 2–4 -veined.

Flower and Fruit. Lodicules absent. Anthers 3, 4–5 mm long, anther tip smooth. Filaments 25–50 mm long. Stigmas 2, protogynous, terminally exerted. Styles 20–30 mm long, connate below, 1 of their length connate.

N = 18 (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). **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.** Egypt. Madeira. Nigeria. Burundi, Cameroon, Rwanda, DRC. Eritrea, Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Malawi, Zimbabwe. Namibia, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Kwazulu-Natal, Western Cape, Eastern Cape. St Helena. Mauritius (+), Madagascar (+), Rodrigues (+). **Arabian Peninsula, China, Eastern Asia.** China South Central. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasiasia.** Eastern Himalaya, Sri Lanka. Java, Malaya, Philippines, Sumatra. New Guinea. **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. **Southwestern Pacific, North-central Pacific.** New Caledonia (*). Easter Is (*). Hawaii (*). **Southwestern USA, Mexico.** Arizona, California. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Costa Rica, Guatemala, Honduras, Nicaragua, Panama. Bolivia, Colombia, Ecuador, Peru. Brazil Southeast, Brazil South. Argentina Northeast, Chile North, Chile Central, Paraguay, Uruguay. Tristan de Cunha.

TDWG4. Yunnan. Darjeeling, Bhutan, Sikkim. Andhra Pradesh. Tamilnadu. South-West. Southern. Central, South East, Inland. Coast, Western Slopes. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, Santa Fe. Atacama. Coquimbo, Valparaiso, Santiago. Distrito Federal, Mexico State, Morelos, Puebla. Durango, Guanajuato, Hidalgo, Queretaro, Zacatecas. Veracruz. Baja California, Baja California Sur. Colima, Jalisco, Michoacan. Chiapas.

Cenchrus complanatus (Nees) Morrone. *Ann. Bot.* 106: 127 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (as *Pennisetum*).

TYPE from Panama. **Basionym or Replaced Name:** *Gymnotrix complanata* Nees, *Bonplandia* 3: 83 (1855)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Seemann Bot. Herald* 224, (BM; IT: US-0093598 (fragm. ex BM)).

Recent Synonyms: *Pennisetum complanatum* (Nees) Hemsl., *Biol. Centr. Am. Bot.* 3: 507. (1885).

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

Derivation (Clifford & Bostock 2007): *L. complano*, level. Culms flattened.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms geniculately ascending or decumbent, 75–200 cm long, 2–3 mm diam., without nodal roots or rooting from lower nodes. Culm-nodes glabrous or pubescent. Lateral branches ample, arising from lower culm or mid culm. Leaf-sheaths longer than adjacent culm internode, outer margin glabrous or hairy. Ligule a fringe of hairs, 1–1.6 mm long. Leaf-blades flat or conduplicate, 15–55 cm long, 3–7 mm wide. Leaf-blade surface scabrous, glabrous, hairless except near base.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear or oblong, 8–12 cm long, 0.7–1 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, scabrous, with scattered hairs, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 8–12 mm long, base obtuse, base 0.7

mm long. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, with one conspicuously longer bristle, 10–15 mm long, terete, flexible, 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 ovate, dorsally compressed, acute, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate or orbicular, 0.33 length of spikelet, 0–1 -veined. Lower glume lateral veins absent. Upper glume ovate, 3.8–4.6 mm long, 0.75 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 ovate, 1 length of spikelet, membranous, 7 -veined, acute. Fertile lemma ovate, 4.4–5.7 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 2.4–3.6 mm long, orange. Styles connate below. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Pacific, North America, South America.

Country /Province /State. North-central Pacific. Hawaii (*). **Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico, Mexico. **Mesoamerica.** Costa Rica, El Salvador, Honduras, Nicaragua, Panama.

Distrito Federal, Mexico State, Puebla. Chihuahua, Hidalgo, Queretaro. Veracruz. Colima, Jalisco, Michoacan. Chiapas.

Cenchrus crinitus (Kunth) Morrone. *Ann. Bot.* 106: 127 (2010).

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

TYPE from Mexico. **Basionym or Replaced Name:** *Gymnotrix crinita* Kunth, *Nov. Gen. Sp. (quarto ed.)* 1: 112–113 (1815) [1816]. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, Sep, Mexico: Michoacán (P).

Recent Synonyms: *Pennisetum crinitum* (Kunth) Spreng., *Syst. Veg.* 1: 302 (1825).

Illustrations (Books): R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983).

Derivation (Clifford & Bostock 2007): L. with long hair. Hairy as of leaf-blades or awns invested in long weak hairs.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 150–270 cm long. Lateral branches lacking. Ligule a fringe of hairs. Leaf-blades 20–40 cm long, 10–20 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 10–15(–23) cm long, 1 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 4–7 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, few, in one whorl, 10–15 in principal whorl, with one conspicuously longer bristle, 15–18 mm long, terete, flexible, 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, dorsally compressed, 4.5–6.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 1.5–2 mm long, 0.33 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume elliptic, 4–5.5 mm long, 0.8–0.9 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 5 -veined, acuminate. Fertile lemma lanceolate, 4.2–6 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate. Palea 1 length of lemma, cartilaginous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

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

TDWG4. Distrito Federal, Mexico State, Morelos. Durango, Guanajuato, Queretaro, Zacatecas. Veracruz. Jalisco, Michoacan, Nayarit. Chiapas.

Cenchrus distachyus (Fourn.) Morrone. *Ann. Bot.* 106: 127 (2010).

Regarded by K as a synonym (*P. tristachyum*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from Mexico. **Basionym or Replaced Name:** *Gymnotrix distachya* E. Fourn., *Mexic. Pl.* 2: 48 (1886). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Galeotti 5680*, Mexico: in praeeruptis humidis, Barranca de San Martin prope Zacuapan, 1500 ft (BR). LT designated by Chase, *Contr. U.S. Natl. Herb.* 22: 230 (1921).

Recent Synonyms: *Pennisetum distachyum* (E. Fourn.) Rupr. ex Chase, *Contr. U.S. Natl. Herb.* 22(4): 229 (1921).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (461, Fig 174).

Derivation (Clifford & Bostock 2007): Gk. dis, twice; stachys, an ear of corn. Inflorescences with two branches or with regularly bifurcating branches.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock evident. Culms arching, 250–300 cm long, 3–6 mm diam., rooting from lower nodes. Culm-internodes distally glabrous. Lateral branches ample. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule a ciliate membrane, 1.5–3.5 mm long. Leaf-blade base with a false petiole. Leaf-blades 17–45 cm long, 16–35 mm wide. Leaf-blade surface glabrous or hirsute, hairy on both sides. Leaf-blade margins scabrous.

Inflorescence. Synflorescence compound.

Inflorescence a panicle, terminal and axillary, subtended by an inflated leaf-sheath. Panicle spiciform, linear, flexuous, 3–10 cm long, 0.7–1 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, scabrous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 4–6 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 15–20 mm long, terete, flexible, 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 ovate, dorsally compressed, acute or acuminate, 4–6.2 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.5–1.2 mm long, 0.1–0.2 length of spikelet, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1.8–2.5 mm long, 0.4–0.5 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 4–5.4 mm long, 1 length of spikelet, membranous, 5 -veined, without midvein or with evident midvein, obscurely veined, scabrous, rough above, acute or acuminate. Fertile lemma ovate, 3.8–5.4 mm long, chartaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma lateral veins obscure. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.3–1.8 mm long, purple. Caryopsis with adherent pericarp. $2n = 36$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica.** Costa Rica, Guatemala.

Puebla. Veracruz. Michoacan, Oaxaca. Chiapas.

Cenchrus distichophyllus Griseb. *Cat. Pl. Cub.* 234. (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 3475*, 1863, Cuba (GOET).

IT: *C. Wright 3475*, Cuba (HABA, NY-70987, US-865739 (fragm. ex GOET)).

IT: *C. Wright 3475*, 1860–1864, Cuba (MO!).

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (362, Fig. 332).

Derivation (Clifford & Bostock 2007): Gk. distichos, in two rows; phyllon, leaf. Leaves arranged conspicuously in two rows.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rootstock evident. Culms erect, 15–40 cm long. Culm-internodes distally pubescent. Leaves distichous. Leaf-sheaths longer than adjacent culm internode, pubescent. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades involute, 2.6–3 cm long, 1.5 mm wide. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 2.5–4 cm long, 0.6–1.6 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, connate into a cup below, ovate, 3.5–6.5 mm long, base obconical, base pilose. Involucral bristles deciduous with the fertile spikelets, emerging irregularly from body of a burr, 35–50 in principal whorl, with longest bristle scarcely emergent, 2–3 mm long, flattened, rigid, retrorsely scaberulous, glabrous or pubescent, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 2.5–3.6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–1.9 mm long, 0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 2.2–3.1 mm long, 0.75–0.9 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 0.9 length of spikelet, membranous, 3 -veined, acute. Fertile lemma ovate, 2.5–3.6 mm long, coriaceous, much thinner on margins, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma margins flat. Lemma apex acute. Palea coriaceous.

Flower and Fruit. Caryopsis with adherent pericarp, ovoid, 2 mm long.

Distribution (TDWG), Continent. South America.

Country /Province /State. Caribbean. Cuba.

Cenchrus domingensis (Spreng. ex Schult.) Morrone. *Ann. Bot.* 106: 127 (2010).

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

TYPE from Santo Domingo. **Basionym or Replaced Name:** *Gymnotrix domingensis* Spreng. ex Schult., *Mant.* 2: 284 (1824). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Santo Domingo, *Bertero s.n.* (HT: ?).

Recent Synonyms: *Pennisetum domingense* (Spreng. ex Schult.) Spreng., *Syst. Veg.* 1: 302 (1825).

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (359, Fig. 330).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Dominican Republic.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms rambling, 100–700 cm long, wiry. Culm-internodes distally glabrous. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades deciduous at the ligule, involute, 0.5–4 cm long, 1–2 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, loose, 2–5 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 4–10 mm long, base truncate, base 0.75 mm long, base pubescent. Involucral bristles deciduous with the fertile spikelets, few, with longest bristle scarcely emergent, 15–20 mm long, terete, flexible, 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, dorsally compressed, 4.2–4.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.2–0.33 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.5–0.66 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 7 -veined, acute. Fertile lemma elliptic, 4.2–4.5 mm long, coriaceous, without keel. Lemma margins flat. Lemma apex acuminate. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico.

Cenchrus durus (Beal) Morrone. *Ann. Bot.* 106: 128 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Pennisetum durum* Beal, *Grass. N. Amer.* 2: 163 (1896). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *C.G. Pringle 817*, 12 Oct 1886, Mexico: Chihuahua: Potrero Mts., under ledges (MSC; ILT: CM, MO-2977366, MO-3727999, US-691229). LT designated by Chase, *Contr. U.S. Natl. Herb.* 22: 229 (1921).

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms erect, 100–200 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous or pubescent. Lateral branches sparse. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 1.5–2 mm long. Leaf-blades 30–60 cm long, 5–15 mm wide, glaucous. Leaf-blade surface scabrous, glabrous or pubescent. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle, terminal and axillary. Peduncle scaberulous above. Panicle spiciform, linear, 3–10 cm long, 1 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, scabrous, with scattered hairs, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 4–6 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, terete, flexible, antrorsely 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, dorsally compressed, 6–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.25 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume margins ciliate. Lower glume apex obtuse. Upper glume ovate, 0.5 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume surface smooth or asperulous. Upper glume margins ciliolate. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, concave across back, scaberulous, acuminate. Fertile lemma lanceolate, 6–7 mm long, coriaceous, without keel. Lemma surface asperulous. Lemma margins flat. Lemma apex acuminate. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Northeast Mexico, Southwest Mexico.

TDWG4. Chihuahua. Oaxaca.

Cenchrus echinatus Steud. ex Doell, in syn. *Mart. Fl. Bras.* 2, 2: 309 (1877).

Accepted by: R.J.Soreng et al., *Catalogue of 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 Bermuda. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Herb. van Royen*, (L-912.356–116; ILT: L). LT designated by Veldkamp in Jarvis et al., *Regnum Veg.* 127: 31 (1993); not Hitchcock, *Contr. U.S. Natl. Herb.* 12: 127 (1908). ST: *Dickinson s.n.*, Bermuda (BM-SL).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (293, Fig. 108), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 418), L.Boulos, *Flora of Egypt* 4 (2005) (319, Pl. 94), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (383, Fig. 150), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (494), C-C Hsu, *Taiwan Grasses* (1975) (536, Pl. 1424), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (39, Fig. 23), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (48, Pl. 13), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006), C.A.Gardner, *Flora of*

Western Australia, Vol 1, Part 1, *Gramineae* (1952) (287, Pl. 83), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (434, Fig. 363), 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) (180), 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), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (532), F.W.Gould, *The Grasses of Texas* (1975) (566, Fig. 296), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (363, Fig. 334), S.A.Renouze, *Gramineas de Bolivia* (1998) (557, Fig. 129), S.A.Renouze, *The Grasses of Bahia*, 1984 (262, Fig. 98), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (69, Fig. 43), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (817 & 829, Fig. 168 & 171), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, *Gramineas* (1969) (441, Fig. 186), W.Burger, *Flora Costaricensis* 15, *Gramineae: Fieldiana Botany New Series* 4 (1980) (120, Fig. 37), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (69, Fig. 18), B.Rosengurt, *Gramineas Uruguayas I* (1970) (299, Fig. 125), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (134, Fig. 19), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (83, Fig. 51), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 772), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:29(1980)).

Illustrations (Journals): *Ruizia* (13:416 Fig 55a-b (1993)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, L.Boulos, *Flora of Egypt* 4 (2005);, H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005);.

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 Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 15–90 cm long. Ligule a fringe of hairs. Leaf-blades 4–25 cm long, 3–10 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, interrupted (or lax), 2–10 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, 2–3 in the cluster. Involucre composed of bristles, connate into a cup below, with 2–5 mm connate, globose, 5–10 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, with an outer whorl of thinner bristles, inner bristles longer than outer, with longest bristle scarcely emergent, 2–5 mm long, flattened, rigid, retrorsely scaberulous, pubescent, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 5–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.3–3.4 mm long, 0.33–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 3.8–5.7 mm long, 0.75 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume surface puberulous. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 5 -veined, obtuse or acute. Fertile lemma ovate, 5–7 mm long, coriaceous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, 3 mm long, truncate.

Distribution (TDWG). **Continent.** Europe (*), Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

Region. Northern Europe (*).

Country /Province /State. : Great Britain (*). **Northern Africa, Macaronesia, West tropical Africa, East tropical Africa, Western Indian ocean.** Egypt (*). Cape Verde. Ghana, Nigeria. Kenya, Tanzania. Aldabra (*), Mauritius (*), Madagascar (*), Reunion (*), Rodrigues (*), Seychelles (*). **Western Asia, Arabian Peninsula, China, Eastern Asia.** Gulf States. China South Central, Hainan, China Southeast. Nansei-Shoto, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Sri Lanka. Cocos (Keeling) Is, Malaya, Singapore, Philippines. New Guinea PNG. New Guinea, Solomon Is (*). **Australia.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*), New South Wales (*). **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 (*), Tuamotu Is (*), Tubuai Is (*). Caroline Is (*), Marcus Is (*), Marianas (*), Marshall Is (*), Wake Is (*). Hawaii (*). **Southwestern USA, South-central USA, Southeastern USA, Mexico.** Arizona, California. New Mexico, Texas. Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina. **Mesoamerica,**

Caribbean, Northern South America, Western South America, Brazil, Southern 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, 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, Chile North, Chile South, Paraguay, Uruguay.

TDWG4. Fujian, Guangdong. Yunnan. Kimberley, Eremean, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre. North, Central, South East, Inland. Coast, Western Slopes, Western Plains. Para, Amapa, 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, Catarina, Rio Grande do Sul. Jujuy, Salta, Santiago del Estero, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, Formosa, La Pampa, Misiones, Santa Fe. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca. Los Lagos. Zacatecas.

Cenchrus elymoides F. Muell. *Frag.* 8: 107 (1873).

Accepted by: D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from Australia. **Basionym or Replaced Name:** *Cenchrus elymoides* F.Muell, *Fragm.* 8: 107 (1873). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Mueller s.n.*, Australia: western Australia: Mueller District: Sturts Creek (MEL-604906(photo, BRI)). LT designated by ?.

Recent Synonyms: *Pennisetum elymoides* (F. Muell.) C.A.Gardner, *Fl. W. Austral.* 1: 277 (1952).

Illustrations (Books): C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (279, Pl 80), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1137, Fig. 328 as *Cenchrus*).

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms robust, 60–150 cm long. Leaf-sheaths pubescent. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades 14–34 cm long, 3.3–10.2 mm wide. Leaf-blade surface pilose, sparsely hairy.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, dense (internodes 1.2–2.8mm), 10.5–16 cm long, 1.1–1.5 cm wide. 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, 1–3 in the cluster. Involucre composed of bristles, connate into a disc below, with 0.5 mm connate, oblong, 9.8–14 mm long, base truncate (0.5–0.8mm), base glabrous. Involucral bristles deciduous with the fertile spikelets, with an outer whorl of thinner bristles, 5–15 in principal whorl, inner bristles longer than outer, with one conspicuously longer bristle, 6.2–11.4(–25) mm long, expanded (narrowly elliptic, 0.5mm wide), flexible, antorsely scaberulous, glabrous or ciliate, attenuate.

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, acuminate, 5–7.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 1–1.5 mm long, 0.2–0.3 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 5–7.4 mm long, 1 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 5.5–7 mm long, 1 length of spikelet, membranous, 3–5 -veined, acute. Fertile lemma ovate, 4.9–6.1 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 1–2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley. Darwin & Gulf, Victoria R & Barkly Tableland. North.

Cenchrus flaccidus (Griseb.) Morrone. *Ann. Bot.* 106: 128 (2010).

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

Pennisetum), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (as *Pennisetum*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Pennisetum*).

TYPE from India. **Basionym or Replaced Name:** *Pennisetum flaccidum* Griseb., *Goett. Nachr.* 86 (1868). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India: Kashmir: "Ladak", [Thomson] *Nubra s.n.* (HT: ?).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (739, Fig. 46), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (528), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 769).

Derivation (Clifford & Bostock 2007): L. unable to support its own weight. Inflorescence branches long and thin and so droop.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 30–120 cm long. Lateral branches fastigiate. Leaf-sheaths without keel. Ligule a fringe of hairs. Leaf-blades flat, 5–40 cm long, 4–13 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 4–22 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, 1 in the cluster. Companion sterile spikelets pedicelled, 2–3 in the cluster. Involucre composed of bristles, 12–22 mm long, base obtuse, base 0.3–0.7 mm long. Involucral bristles deciduous with the fertile spikelets, numerous, 12–22 mm long, terete, flexible, glabrous. Pedicels present.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 4.5–6.5 mm long, as long as fertile (and similar to it), deciduous with the 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, 4.5–6.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0–0.25 length of spikelet, hyaline, without keels. Lower glume apex emarginate or obtuse or acute. Upper glume oblong, 0.33–0.66 length of spikelet, membranous, without keels. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, chartaceous, acuminate. Fertile lemma lanceolate, 4.5–6.5 mm long, chartaceous, without keel. Lemma margins flat. Lemma apex acuminate. Palea chartaceous.

Flower and Fruit. Anthers 3, anther tip smooth.

$N = 9$ (1 ref TROPICOS), or 18 (1 ref TROPICOS), or 27 (1 ref TROPICOS).

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

Country /Province /State. Middle Asia, Western Asia, China. Turkmenistan, Tadjikistan, Afghanistan, Iran, China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, China Southeast, Tibet, Xinjiang. **Indian Subcontinent.** Eastern Himalaya, India, Nepal, Pakistan, West Himalaya.

TDWG4. Gansu, Hebei, Shaanxi, Shandong, Shanxi, Henan, Hubei, Sichuan, Yunnan, Bhutan, Tamilnadu, Uttah Pradesh, Himachal Pradesh, Jammu Kashmir.

Cenchrus flexilis (Mez) Morrone. *Ann. Bot.* 106: 128 (2010).

TYPE from India. **Basionym or Replaced Name:** *Pennisetum flexile* Mez, *Notizbl. Bot. Gard. Berlin-Dahlem* 7: 51 (1917). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: . Kashmir, Scinujpur, *Clarke 29026* (holotype, B).

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India. Jammu Kashmir.

Cenchrus foermeranus Leeke. *Z. Naturf.* 79: 26 (1907).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from Namibia. **Basionym or Replaced Name:** *Pennisetum foermeranum* Leeke, *Z. Naturwiss.* 79: 26 (1907). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Namibia: Sine coll.

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (447, Fig 371), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

Derivation (Clifford & Bostock 2007): L. -anum, indicating connection. In honor of Rudolf Foermer German botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect or geniculately ascending, 30–45 cm long. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades flat or convolute, 15–30 cm long, 2–4 mm wide, glaucous. Leaf-blade surface scaberulous, rough adaxially or on both sides, glabrous. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, loose, curved or flexuous, 3–8 cm long, 0.5–1 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis scaberulous, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 2–3 in the cluster. Involucre composed of bristles, oblong, 6–8 mm long, base bluntly stipitate (1–1.5mm), base pilose. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, 10–25 in principal whorl, with one conspicuously longer bristle, 7–15 mm long, terete, flexible, plumose.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 4.5–6 mm long, as long as fertile.

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 lanceolate or oblong, dorsally compressed, acute, 4.5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 2–3.5 mm long, 0.5–0.6 length of spikelet, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex acute or acuminate, mucronate. Upper glume lanceolate or ovate, 3–5 mm long, 0.6–0.8 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume apex acute or acuminate, mucronate.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret lanceolate or ovate, 1 length of spikelet, membranous, 3–5 -veined, acute or acuminate, mucronate. Fertile lemma ovate, 4.5–6 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate, mucronate. Palea 1 length of lemma.

Flower and Fruit. Lodicules absent. Anthers 3, 2–3.5 mm long, anther tip smooth. Styles connate below, 0.5 of their length connate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Namibia.

Cenchrus gracillimus Nash. *Bull. Torrey Bot. Club*, 22: 300 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *G.V. Nash 188*, 31 Dec 1894, USA: Florida: Lake Co., vicinity of Eustis (US-744856). LT designated by DeLisle, *Iowa St. J. Sci.* 37: 294 (1963).

ST: *G.V. Nash 288*, 1–15 Apr 1894, USA: Florida: Lake: vicinity of Eustis (?; IST: MO).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (533), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (364, Fig. 335).

Derivation (Clifford & Bostock 2007): L. very delicate. Of slender habit.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, caespitose. Culms 15–60 cm long. Leaf-sheaths keeled, glabrous on surface or pilose. Ligule a fringe of hairs, 0.2–0.6 mm long. Leaf-blades 4.5–17 cm long, 1.1–3.3 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, loose (internodes 4–10mm), 2–6.8 cm long, 0.8–1.9 cm wide. 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, 1–3 in the cluster. Involucre composed of bristles, connate into a cup below, ovate, 5.2–12.9 mm long, base obconical, base glabrous. Involucral bristles deciduous with the fertile spikelets, emerging irregularly from body of a burr, 3.2–6 mm long, flattened, rigid, retrorsely 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 ovate, dorsally compressed, acuminate, 4–6.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.4–3.1 mm long, 0.3–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3.2–5.4 mm long, 0.75 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 4.1–6 mm long, 1 length of spikelet, membranous, 3–5 -veined, acute. Fertile lemma ovate, 3.9–6.5 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 0.9–1.9 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Southeastern USA. Alabama, Florida, Georgia. **Caribbean.** Cayman Is, Cuba, Dominican Republic, Haiti, Jamaica.

Cenchrus hohenackeri (Hochst. ex Steud.) Morrone, *Ann. Bot.* 106: 128 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Pennisetum*).

TYPE from India. **Basionym or Replaced Name:** *Pennisetum hohenackeri* Hochst. ex Steud., *Syn. Pl. Glum.* 1: 103 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *R.F. Hohenacker 930*, 1851, India (L, US-978422, US-1127293).

Illustrations (Books): K.M.Mathew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 910 & 911).

Derivation (Clifford & Bostock 2007): in honor of Rudolf Friedrich Hohenacker (1798–1874) Swiss-born German botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 60–150(–200) cm long. Leaf-sheaths keeled. Ligule a fringe of hairs. Leaf-blades conduplicate, 15–40 cm long, 1–5 mm wide, stiff. Leaf-blade surface ribbed, with rectangular ribs.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above, glabrous or pubescent above. Panicle spiciform, linear, 10–25 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, 1 in the cluster. Involucre composed of bristles, oblong, 7–20 mm long, base bluntly stipitate (0.3–0.5mm). Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 6–30 mm long, terete, flexible, 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, dorsally compressed, 6.5–11 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong or ovate or oblate, 0.1–0.25 length of spikelet, hyaline, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex truncate or obtuse or acute. Upper glume elliptic or ovate, 0.33–0.5 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume apex emarginate or acute.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 7–11 -veined, obtuse. Fertile lemma ovate, 6.5–11 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex obtuse or acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 4–5 mm long, anther tip smooth or penicillate. Styles connate below.

$N = 9$ (1 ref TROPICOS). $2n = 18$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa, Tropical Asia.

Country /Province /State. East tropical Africa, Western Indian ocean. Kenya, Tanzania. Madagascar. **Indian Subcontinent.** India, Pakistan.

TDWG4. Andhra Pradesh, Kerala, Karnataka. Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamilnadu.

Cenchrus hordeoides (Lam.) Morrone. *Ann. Bot.* 106: 128 (2010).

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 Sierra Leone. **Basionym or Replaced Name:** *Panicum hordeoides* Lam., *Encycl.* 4: 729 (1791). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Smeathman s.n.*, Sierra Leone (P).

Recent Synonyms: *Pennisetum hordeoides* (Lam.) Steud., *Syn. Pl. Glumac.* 1: 103 (1854).

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

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Hordeum*.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 25–120 cm long. Lateral branches ample. Ligule a ciliate membrane. Leaf-blades 3–30 cm long, 1.5–15 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, straight or curved, 3.5–9 cm long, 0.4–0.6 cm wide (excluding bristles). Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with briefly decurrent ribs, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 2.5–4.5 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, in one whorl, 6–8 in principal whorl, with one conspicuously longer bristle, 5–6(–8) mm long, terete, flexible, antrorsely 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, dorsally compressed, 2.5–3 mm long, falling entire, deciduous with accessory branch structures, readily shedding fertile florets.

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, 5–7 -veined. Upper glume surface puberulous. Upper glume apex acute, mucicous or mucronate.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, membranous, 5 -veined, dentate, 3 -fid. Fertile lemma ovate, 2 mm long, coriaceous, shiny, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 1–1.5 mm long, anther tip smooth.

Distribution (TDWG). Continent. Africa, Tropical Asia.

Country /Province /State. **West tropical Africa, West-central tropical Africa, Northeast tropical Africa.** Gambia, Ghana, Guinea, Ivory Coast, Liberia, Mali, Nigeria, Senegal, Sierra Leone. Cameroon, Gabon, Bioko, DRC. Chad. **Indian Subcontinent.** India, Nepal.

TDWG4. Bihar, Kerala, Madhya Pradesh, Orissa, Rajasthan.

Cenchrus intectus (Chase) Morrone. *Ann. Bot.* 106: 128 (2010).

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

TYPE from Ecuador. **Basionym or Replaced Name:** *Pennisetum intectum* Chase, *Contr. U.S. Natl. Herb.* 24(8): 485 (1927). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 21477, 6 Sep 1923, Ecuador: Loja: between Loja and San Lucas, ca. 2500 m (US-1163845).

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

Derivation (Clifford & Bostock 2007): L. in, without; tectum, cover. Lacking subtending bristles.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, culms solitary. Culms 150 cm long. Culm-internodes distally glabrous or pubescent. Culm-nodes glabrous or pubescent. Lateral branches ample. Leaf-sheaths keeled, pilose, with tubercle-based hairs. Leaf-sheath auricles erect. Ligule an eciliate membrane, 2 mm long. Leaf-blades 20–35 cm long, 5–10 mm wide. Leaf-blade surface scabrous, rough on both sides, hispid, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, flexuous, 4–6 cm long. Primary panicle branches accrescent to a central axis. Panicle axis angular, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, 8–10 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, 4–10 in principal whorl, with longest bristle scarcely emergent or with one conspicuously longer bristle, 15–20 mm long, terete, flexible, antrorsely 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, dorsally compressed, 7–8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.5–0.66 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, concave across back, acute. Fertile lemma lanceolate, 7–8 mm long, coriaceous, without keel. Lemma surface asperulous. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador, Peru.

Cenchrus lanatus (Klotzsch) Morrone. *Ann. Bot.* 106: 128 (2010).

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

TYPE from Sri Lanka. **Basionym or Replaced Name:** *Pennisetum lanatum* Klotzsch, *Bot. Ergeb. Ealdem. Reise*, 65. (1862). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Prinzen Waldemar...auf Ceylon, dem Himalaya und an den Grenzen von Tibet gesammelte pflanzen.".

Illustrations (Books): T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3672 (1969)).

Derivation (Clifford & Bostock 2007): L. lana, wool; -ata, possessing. Leaf-blades densely pubescent.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 30–150 cm long. Leaf-sheaths glabrous on surface or pubescent or hirsute. Ligule a fringe of hairs. Leaf-blades 6–30 cm long, 3–9 mm wide. Leaf-blade surface glabrous or pubescent or hirsute. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Peduncle pilose above. Panicle spiciform, linear, 3.5–13.5 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets pedicelled, 2–4 in the cluster. Involucre composed of bristles, oblong, 3–7 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, branched, numerous, terete, flexible, ciliate. 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, 4–5.5(–6.5) mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic, 0.33–0.4 length of spikelet, membranous, without keels. Lower glume apex obtuse or acute. Upper glume lanceolate, 0.5 length of spikelet, membranous, without keels. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, chartaceous, acuminate. Fertile lemma oblong, 4–5.5 mm long, chartaceous, without keel. Lemma margins flat. Lemma apex acute. Palea chartaceous.

Flower and Fruit. Anthers 3, anther tip smooth.

N = 18 (1 ref TROPICOS).

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

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

Cenchrus latifolius (Spreng.)Morrone. *Ann. Bot.* 106: 128 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Pennisetum*).

TYPE from Uruguay. **Basionym or Replaced Name:** *Pennisetum latifolium* Spreng., *Syst.* 1: 302. (1825). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: [South America: Uruguay]: "Monte Video. Sello.", *Sello[w] s.n.*

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (524), S.A.Renvoize, *Gramineas de Bolivia* (1998) (550, Fig. 127), L.B. Smith, D.C. Wasshausen,

R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (817, Fig. 168, & 825, Fig. 170), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (431, Fig. 181), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (462, Fig. 119), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (382, Fig. 169).

Derivation (Clifford & Bostock 2007): *L. latus*, broad; folium, leaf. Leaf-blades broad or relatively broad with respect to related species.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms 150–300 cm long. Culm-internodes scaberulous. Culm-nodes bearded. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades lanceolate, 30–75 cm long, 20–45 mm wide.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 4–7 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 3–4 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, 8–12 in principal whorl, with one conspicuously longer bristle, 8–10 mm long, terete, flexible, antrorsely scaberulous, 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, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.33–0.5 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, pubescent, acute. Fertile lemma lanceolate, 4–5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Styles free to the base. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Australasia, South America.

Country /Province /State. **New Zealand.** New Zealand North I. **Western South America, Brazil, Southern South America.** Bolivia, Colombia, Ecuador, Peru. Brazil Southeast, Brazil South. Argentina Northeast, Argentina Northwest, Paraguay, Uruguay.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Catamarca, Jujuy, Salta, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, Misiones, Santa Fe.

Cenchrus longisetus Fresen. *Mus. Senck.* 2:134 (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), 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), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from Ethiopia. **Basionym or Replaced Name:** *Pennisetum villosum* R. Br. ex Fresen., *Mus. Senckenberg.* 2: 134 (1837). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *H. Salt s.n.*, 1805–1810, Ethiopia.

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (266, Fig 105), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (474, Fig 407), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (616, Fig 124), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (334), 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) (526), F.W.Gould, *The Grasses of Texas* (1975) (562, Fig. 293), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (356, Fig. 326), S.A.Renvoize, *Gramineas de Bolivia* (1998) (547, Fig 125), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (382, Fig. 169), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:117(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);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

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: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes elongated. Culms geniculately ascending or decumbent, 15–90 cm long. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 7–15 cm long, 2–6 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong or ovate or globose, 2–12 cm long, 1–2 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, smooth, pilose, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1(–4) in the cluster. Involucre composed of bristles, cuneate, 40–70 mm long, base bluntly stipitate (1mm). Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, 40–70 mm long, terete, flexible, plumose.

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, cuspidate, 9–14 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.5–1 mm long, 0.05–0.1 length of spikelet, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate or ovate, 3.5–6 mm long, 0.33–0.5 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 7–11 -veined, scaberulous, rough on veins, acute or acuminate. Fertile lemma lanceolate, 9–14 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 4–5 mm long, anther tip apiculate. Styles 4 mm long, connate below, 1 of their length connate.

N = 27 (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

Region. Southeastern Europe.

Country /Province /State. : Italy. **Northern Africa, Macaronesia, Northeast tropical Africa, Southern Africa** (*), **Western Indian ocean** (*). Egypt. Azores, Canary Is, Madeira. Djibouti, Eritrea, Ethiopia (inc. Eritrea), Somalia. Gauteng, Mpumalanga, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Eastern Cape. Madagascar (*). **Arabian Peninsula.** Saudi Arabia, Yemen. **Indian Subcontinent, Indo-China, Malesia.** India, Sri Lanka. Myanmar. Java. **Australia, New Zealand.** Western Australia (*), South Australia (*), Queensland (*), New South Wales (*), A.C.T. (*), Victoria (*), Tasmania (*). New Zealand North I, New Zealand South I. **North-central Pacific.** Hawaii (*). **Northeast USA, Southwestern USA, South-central USA, Mexico.** Central Mexico, Northeast Mexico, Northwest Mexico. **Mesoamerica, Caribbean, Western South America, Brazil, Southern South America.** Jamaica (+). Bolivia, Peru. Brazil Southeast. Argentina Northeast, Chile Central, Uruguay.

TDWG4. Tamilnadu. Eremeau, South-West. Southern. Central, South East. Coast, Tablelands, Western Slopes, Western Plains. Jujuy. Buenos Aires, Distrito Federal, Entre Rios, Misiones. Santiago. Distrito Federal, Mexico State, Morelos. Aguascalientes, Coahuila, Durango, Neuvo Leon, Queretaro, Tamaulipas, Zacatecas. Sinaloa. Jalisco, Michoacan. Chiapas.

Cenchrus longispinus (Hackel) Fernald. *Rhodora*, 45: 388 (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

Basionym or Replaced Name: *Cenchrus pauciflorus* var. *longispinus* Hack., *Allg. Bot. Z. Syst.* 9: 169 (1903). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Kneucker 426* [= *Harger 426*], 13 Aug 1902, USA: Connecticut: Oxford (ISC-227735; ILT: US-557281). LT designated by DeLisle, Iowa St. J. Sci. 37: 298 (1963).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (435, Fig. 365), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (616, Fig 124), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (180), 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 25 *Poaceae*,

part 2 (2003) (536), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (443, Fig. 187).

Derivation (Clifford & Bostock 2007): *L. longus*, long; spina, spine. Bristles of the subtending involucre longer than those of some other species.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, caespitose. Culms geniculately ascending or decumbent, 10–90 cm long. Leaf-sheaths keeled, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.7–1.7 mm long. Leaf-blades 6.3–18.7 cm long, 3–7.2 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, dense (internodes 2–5mm), 4.1–10.2 cm long, 1.2–2.2 cm wide. Primary panicle branches accrescent to a central axis, burrs 6–18 in number, with sessile scars on axis. Panicle axis angular, scaberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 2–3 in the cluster. Involucre composed of bristles, connate into a cup below, globose, 8.3–11.9 mm long, base obconical, base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, emerging irregularly from body of a burr, 46–75 in principal whorl, 3.5–7 mm long, flattened, without grooves or grooved on the face, rigid, retrorsely scaberulous, pubescent, spinose.

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, acuminate, 6–7.8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.5–3.8 mm long, 0.25–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 4.4–6 mm long, 0.75 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 5–6.5 mm long, 0.8 length of spikelet, membranous, 3–7 -veined, acute. Fertile lemma ovate, 5.8–7.6 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 0.8–2.1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG), Continent. Europe (*), Australasia (*), North America, South America.

Region. Northern Europe (*).

Country /Province /State. : Great Britain (*). **Australia.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*), New South Wales (*), Victoria (*). **Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** 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, Rhode Island, Vermont, West Virginia. Arizona, California, Nevada, Utah. New Mexico, Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Virginia, District of Columbia. Northeast Mexico, Northwest Mexico, Southwest Mexico, Southeast Mexico. **Caribbean, Northern South America, Southern South America.** Aruba, Leeward Is, Venezuelan and Netherlands Antilles. Venezuela. Argentina Northeast.

TDWG4. South-West. Central Australia. Southern. South East, Inland. Coast, Tablelands, Western Slopes, Western Plains. La Rioja, Salta. Corrientes, Entre Rios. Chihuahua. Sonora. Guerrero, Jalisco, Michoacan, Oaxaca. Chiapas.

Cenchrus longissimus (S.L. Chen & Y.X. Jin) Morrone. *Ann. Bot.* 106: 128 (2010).

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

TYPE from China. **Basionym or Replaced Name:** *Pennisetum longissimum* S.L. Chen & Y.X. Jin, *Bull. Bot. Res. North-East. Forest. Inst.*, 4(1): 65 (1984). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Duyun Xian, 23 Aug. 1930, Y. Tsiang 6040 (HT: JSBI)

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 769).

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 80–180 cm long, 8–14 -noded. Leaf-sheaths longer than adjacent culm internode, glabrous on surface, outer margin glabrous or hairy. Ligule a fringe of hairs, 2–3 mm long. Leaf-blades flat, 30–90 cm long, 5–20 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 15–30 cm long, 2–3 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis retrorsely scabrous,

bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, 15–40 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 15–40 mm long, terete, flexible, antrorsely 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, dorsally compressed, 6–8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 2 mm long, 0.25–0.33 length of spikelet, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 4 mm long, 0.5–0.66 length of spikelet, membranous, without keels, 1–5 -veined. Upper glume lateral veins absent or distinct. Upper glume apex acuminate.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, chartaceous, 5–7 -veined, acuminate. Fertile lemma lanceolate, 6–8 mm long, cartilaginous, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate. Palea cartilaginous.

Flower and Fruit. Anthers 3, anther tip smooth.

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

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

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

TDWG4. Gansu, Shaanxi. Guizhou, Sichuan, Yunnan.

Cenchrus macrourus (Trin.) Morrone. *Ann. Bot.* 106: 128 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Pennisetum*).

TYPE from South Africa. **Basionym or Replaced Name:** *Pennisetum macrourum* Trin., *Gram. Pan.* :64 (1826). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Link s.n.*, ST: *Swartz s.n.*, South Africa: Cape of Good Hope (LE).

Recent Synonyms: *Pennisetum glaucocladum* Stapf & C.E. Hubb., *Bull. Misc. Inform. Kew* 1933: 276 (1933). *Cenchrus glaucocladus* (Stapf & C.E. Hubb.) Morrone, *Ann. Bot.* 106: 128 (2010).

Pennisetum natalense Stapf, in Dyer, *Fl. Cap.* 7: 435. (1899).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (472, Fig 405), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (333), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (524).

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);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): Gk. makros, large; oura, tail; Inflorescence a spike or spike-like panicle.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms reed-like, 60–500 cm long. Culm-nodes brown. Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–45 cm long, 2–10(–15) mm wide, coriaceous, glaucous. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above, glabrous or pubescent above. Panicle spiciform, linear, 6–40 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis or with sessile scars on axis. Panicle axis with rounded ribs, smooth, glabrous or pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 5–10 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent or with one conspicuously longer bristle, 5–20 mm long, terete, flexible, 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 or ovate, dorsally compressed, cuspidate or acuminate, 2–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic or oblate, 0.5–1 mm long, 0.1–0.15 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate or oblong, 0.1–0.25 length of spikelet, membranous, without keels, 0–3 -veined. Upper glume primary vein absent or distinct. Upper glume apex obtuse or acute or acuminate.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret ovate, 0.75–1 length of spikelet, membranous, 5–9 -veined, obtuse or acute. Fertile lemma ovate, 2–6 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma margins flat. Lemma apex obtuse. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 2–2.5 mm long, anther tip smooth. Styles free to the base or connate below.

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

Country /Province /State. Northern Africa, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Middle Atlantic ocean. Nigeria. Gabon, DRC. Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania. Angola, Malawi, Zambia, Zimbabwe. Namibia, Botswana, Limpopo, North-West (?), Gauteng, Mpumalanga, Swaziland, Kwazulu-Natal, Lesotho, Northern Cape (?), Western Cape, Eastern Cape. St Helena. **Arabian Peninsula.** Saudi Arabia, Yemen. **Australia, New Zealand.** Western Australia (*), South Australia (*), New South Wales (*), Victoria (*), Tasmania (*). New Zealand North I, New Zealand South I.

TDWG4. South-West. Southern. Coast.

Cenchrus massaicus (Stapf) Morrone. *Ann. Bot.* 106: 128 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from Kenya. **Basionym or Replaced Name:** *Pennisetum massaicum* Stapf, *Kew Bull.* 1906, 82 (1906). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kenya Colony: Makindu, Linton 72type info from: "descr. emend." Stapf. *Kew Bull. Misc. Inf.* 1933: 273. 1933.

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962).

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

Derivation (Clifford & Bostock 2007): L. -icum, belonging to. From the territory of the Massai in Kenya.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short, knotty. Culms decumbent, 30–90 cm long, wiry or woody. Lateral branches ample. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Leaf-sheath oral hairs lacking or bearded. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 3–25 cm long, 2–4 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above. Panicle spiciform, linear or oblong, 2–10 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, 1 in the cluster. Involucre composed of bristles, oblong, 4–10 mm long, base bluntly stipitate (briefly). Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, with longest bristle scarcely emergent, 4–10 mm long, terete, flexible, glabrous or plumose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 3.5–5.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume surface asperulous (above). Lower glume apex acute. Upper glume elliptic, 0.66–0.75 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume surface smooth or asperulous, rough on veins. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, smooth or scaberulous, rough at apex, acuminate. Fertile lemma elliptic, 3.5–5.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate, mucronate. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 2–2.5 mm long, anther tip smooth. Styles free to the base.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa, South tropical Africa. Somalia. Kenya, Tanzania. Zimbabwe.

Cenchrus melanostachyus A. Camus. *Bull. Soc. Bot. France* 81:594 (1934).

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, Manampetsa: Perrier 19132.

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms geniculately ascending, 40–60 cm long, swollen at the base. Culm-internodes smooth, distally glabrous. Leaf-sheaths keeled, pilose. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades 25–35 cm long, 4–5 mm wide. Leaf-blade surface scaberulous, hirsute, sparsely hairy. Leaf-blade margins smooth or scaberulous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 3–8 cm long, 0.7–1.2 cm wide. 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 in the cluster. Involucre composed of bristles, connate into a disc below, with 1 mm connate, 6–7 mm long. Involucral bristles deciduous with the fertile spikelets, with an outer whorl of thinner bristles, inner bristles longer than outer, with longest bristle scarcely emergent or with one conspicuously longer bristle, 5–8 mm long, flattened, rigid, antrorsely scaberulous, glabrous, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 4.5 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 ovate, 1.8–2 mm long, 0.4–0.5 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface puberulous.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 5 -veined, puberulous, hairy above, acuminate. Fertile lemma ovate, 4.5 mm long, coriaceous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate, pubescent. Palea coriaceous.

Flower and Fruit. Anthers 3, 2.5 mm long, yellow. Caryopsis with adherent pericarp, ovoid, dorsally compressed, 2.5 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cenchrus mezianus (Leeke) Morrone. *Ann. Bot.* 106: 128 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Pennisetum*).

TYPE from Tanzania. **Basionym or Replaced Name:** *Pennisetum mezianum* Leeke, *Abstamm. Heim. Negerhirse*, 39 (1907). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: [Africa: East Africa]: "Ostafrika",.

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (270, Fig 107).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Carl Christian Mez (1866–1944), German botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short, knotty. Culms decumbent, 30–120 cm long, wiry or woody. Lateral branches suffrutescent. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Ligule a fringe of hairs. Leaf-blades flat or conduplicate or involute, 2–15 cm long, 1–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Peduncle smooth. Panicle spiciform, oblong or ovate, 1–3(–5) 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, 1 in the cluster. Involucre composed of bristles, oblong, 4–10 mm long, base obconical or bluntly stipitate (briefly). Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, with longest bristle scarcely emergent, 4–10 mm long, terete, flexible, 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, 3–4.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.33–0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume apex acute. Upper glume elliptic, 0.66–1 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, acute or acuminate. Fertile lemma elliptic, 3–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate, mucronate. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2 mm long, anther tip smooth. Styles free to the base or connate below. Caryopsis with adherent pericarp, oblong, dorsally compressed, 1.5 mm long.

N = 16 (2 refs TROPICOS), or 32 (2 refs TROPICOS).

Distribution (TDWG). Continent. Africa, Tropical Asia.

Country /Province /State. Northeast tropical Africa, East tropical Africa, Southern Africa. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Namibia, Limpopo. **Indian Subcontinent.** India.

Cenchrus mildbraedii (Mez) Morrone. *Ann. Bot.* 106: 128 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from DRC. **Basionym or Replaced Name:** *Pennisetum mildbraedii* Mez, *Notizbl. Bot. Gart. Berlin*, 7: 52 (1917). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Africa orient. Germanica: Kiwu, in jugo Sabyino-Kahinga, pratos montanos in silva bambusacea formans, *Mildbraed 1763* (US).

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

Derivation (Clifford & Bostock 2007): in honor of Gottfried Wilhelm Johannes Mildbraed (1879–1954) German botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Butt sheaths pilose. Culms erect, 45–120 cm long. Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–40 cm long, 3–10 mm wide. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 6–17 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, smooth, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 2–8 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 4–10 mm long, terete, flexible, 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, dorsally compressed, acute, 3.5–4.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0–0.5 mm long, 0–0.1 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate. Upper glume ovate, 0.1–0.15 length of spikelet, hyaline, without keels, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 0.5–0.66 length of spikelet, membranous, 1–3 -veined, smooth or scaberulous, rough above, acute or acuminate. Fertile lemma ovate, 3–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma margins flat. Lemma apex acute. Palea 1.1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2.5 mm long, anther tip smooth. Styles free to the base or connate below.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa, East tropical Africa. Rwanda, DRC.

Cenchrus mitis Anderss. *Peters, Reise Mossamb. Bot.* 553. (1864).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: [Africa: Mozambique]: "Standort: An Sumpfen und auf morastigen Feldern in Querimba, 11–12 S. B.", *Peters 1842–1848* (HT: B; IT: K).

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

Derivation (Clifford & Bostock 2007): Gk. mitos, thread. Involucral bristles very slender.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending or decumbent, 20–100 cm long. Ligule a fringe of hairs. Leaf-blades 5–30 cm long, 2–10 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 4–18 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(–3) in the cluster. Involucre composed of bristles, connate into a cup below, with 2–6 mm connate, ovate or globose, 6–9 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, with an outer whorl of thinner bristles, inner bristles longer than outer, with longest bristle scarcely emergent, 5–9 mm long, flattened, without grooves, rigid, antrorsely scaberulous, pubescent (surface) or ciliate (margins), spinose.

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, acuminate, 4–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2.5–3 mm long, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume apex acute or acuminate. Upper glume ovate, 2.5–3 mm long, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. 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, 5–7 -veined, puberulous, hairy above, acuminate. Fertile lemma ovate, 4–6 mm long, coriaceous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate. Palea coriaceous.

Flower and Fruit. Anthers 3, 2 mm long. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, 2.5 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa, South tropical Africa. Kenya, Tanzania. Mozambique.

Cenchrus monostigma (Pilger) Morrone. *Ann. Bot.* 106: 128 (2010).

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

TYPE from Cameroon. **Basionym or Replaced Name:** *Pennisetum monostigma* Pilger, *Engl. Jahrb.* 30: 120 (1901). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Preuss* 822, Feb 1891, Kamerun: Buea, zwischen Manus-Quelle und Kamerun-Pic, 2800 m (B). ST: *Preuss* 984, 1891, Kamerun: Manus-Quelle (B).

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

Derivation (Clifford & Bostock 2007): Gk. monos, one; stigma, column. Pistil with a single stigma.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending, 50–100 cm long. Ligule a fringe of hairs. Leaf-blades 7–35 cm long, 3–8(–10) mm wide.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle spiciform, linear, straight or curved, 5–10 cm long, 0.6–0.9 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis (0.5–1 mm). Panicle axis with rounded ribs, pilose, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 5–7 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 20–40 in principal whorl, with longest bristle scarcely emergent or with one conspicuously longer bristle, 6–12 mm long, terete, flexible, 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, dorsally compressed, 4.5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–1.5 mm long, 0.1–0.25 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex emarginate or obtuse. Upper glume oblong, 1–2 mm long, 0.25–0.33 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex emarginate or obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 5 -veined, scaberulous, rough above, obtuse or acute. Fertile lemma lanceolate, 4–6 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma margins flat. Lemma apex acute or acuminate. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 2.5 mm long, anther tip smooth.

$2n = 18$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, West-central tropical Africa. Nigeria, Sierre Leone. Cameroon, Annobon, Principe & Sao Tome, Bioko.

Cenchrus multiflorus J. & C. Presl. *Rel. Haenk.* 1: 318 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, no date, Mexico (PR; IT: US-865744 (fragm. ex PR)).

Illustrations (Books): R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983).

Derivation (Clifford & Bostock 2007): inflorescence with many spikelets.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Cataphylls evident. Culms 60–140 cm long. Leaf-sheaths keeled, glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs lacking or ciliate. Ligule a fringe of hairs, 1.3–1.8 mm long. Leaf-blades 16–25 cm long, 8–20 mm wide. Leaf-blade surface scabrous, glabrous or pilose, sparsely hairy.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, dense (internodes 0.8–1.7mm), 7–18 cm long, 1.3–1.6 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, scaberulous, glabrous or pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 2–4 in the cluster. Involucre composed of bristles, connate into a cup below, with 3 mm connate, globose, 6.8–9.6 mm long, base obconical, base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, 20–30 in principal whorl, inner bristles longer than outer, with one conspicuously longer bristle (16–30mm), 6–7 mm long, flattened, without grooves, rigid, antrorsely scaberulous, glabrous or pubescent, attenuate.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 5.5–6.8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2.2–2.9 mm long, 0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3.5–5.2 mm long, 0.6–0.75 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 5–6.1 mm long, 1 length of spikelet, membranous, 5–7 -veined, acute. Fertile lemma ovate, 5.2–6.6 mm long, coriaceous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 1.9–2.4 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Northeast Mexico, Southwest Mexico, Southeast Mexico. Mesoamerica. Costa Rica, El Salvador, Guatemala, Nicaragua.

TDWG4. Chihuahua, Zacatecas. Guerrero, Jalisco, Oaxaca. Chiapas.

Cenchrus myosuroides H. B. & K. *Nov. Gen. et Sp.* 1, 115. t. 35. (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Humboldt & A.J.A. Bonpland 1361*, 1801, Cuba: Cayo Flamingo (P; ILT: B-W-1480, US-865730 (fragm. ex P-Bonpl.)). LT designated by ?; cited by McVaugh, *Fl. Novo-Galic.* 14: 113 (1983).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (536), F.W.Gould, *The Grasses of Texas* (1975) (565, Fig. 295), R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (361, Fig. 331), S.A.Renvoize, *Gramineas de Bolivia* (1998) (557, Fig. 129), S.A.Renvoize, *The Grasses of Bahia*, 1984 (260, Fig. 97), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, *Gramineas* (1969) (439, Fig. 185 & 441, Fig. 186 as var. *longisetus* & var. *myosuroides*), F.O.Zuloaga et al, *Flora del Paraguay* 23 (1994) (73, Fig. 19), B.Rosengurt, *Gramineas Uruguayas I* (1970) (299, Fig. 125), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:31(1980)).

Derivation (Clifford & Bostock 2007): Gk. mys, mouse; ourus, tail; -oides, resemblance. Inflorescence resembling the tail of a mouse.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms 50–200 cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1.5–3.4 mm long. Leaf-blades 12–38 cm long, 4–13 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, dense (internodes 0.6–1.7mm), 6.5–23 cm long, 0.6–1.5 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1(–3) in the cluster. Involucre composed of bristles, connate into a disc below, globose, 3.8–8.1 mm long, base obconical (0.5–1.5mm), base glabrous. Involucral bristles deciduous with the fertile spikelets, in one whorl, 3–5.8 mm long, flattened, rigid, retrorsely scaberulous, glabrous, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 3.8–5.6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.5–3 mm long, 0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–5 mm long, 0.75–0.9 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 3.1–5.5 mm long, 0.9–1 length of spikelet, membranous, 3–7 -veined, acute. Fertile lemma ovate, 3.8–5.4 mm long, coriaceous, much thinner on margins, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 1.2–2.2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. South-central USA, Southeastern USA, Mexico. Texas. Florida, Louisiana. Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico. **Mesoamerica, Caribbean, Western South America, Brazil, Southern South America.** Costa Rica, Panama. Cuba, Dominican Republic, Haiti, Puerto Rico. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Argentina Northeast, Argentina Northwest, Chile North, Chile Central, Paraguay, Uruguay.

TDWG4. Goias, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. 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, Misiones, Santa Fe. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca, Atacama. Maule. Puebla. Aguascalientes, Coahuila, Chihuahua, Durango, Hidalgo, San Luis Potosi, Zacatecas. Baja California, Baja California Sur, Sinaloa, Sonora. Colima, Jalisco, Michoacan, Oaxaca.

Cenchrus nervosus (Nees) Kuntze. *Rev. Gen. Plant.* 3(3): 347 (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 Brazil. **Basionym or Replaced Name:** *Gymnotrix nervosa* Nees, *Fl. Bras. Enum. Pl.* 2(1): 277–278 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: habitat in cultis graminosis ad Bahiam provinciae ejusdem nominis, Novembri, *Anon.* (HT: B?).

Recent Synonyms: *Pennisetum nervosum* (Nees) Trin., *Mem. Acad. Petersb. Ser.* VI.3: II. 177. (1835).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (522), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (432, Fig. 182).

Derivation (Clifford & Bostock 2007): *L. nervus*, nerve; -osa, abundance. With conspicuous nerves in the glumes or lemmas.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rootstock evident. Culms 100–300 cm long. Lateral branches ample. Ligule a ciliate membrane. Leaf-blades 20–50 cm long, 6–10 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, flexuous, 10–20 cm long, 1.2–1.8 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 10 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, 10 mm long, terete, flexible, 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 ovate, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 2.2–3 mm long, 0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 7 -veined, acute. Fertile lemma ovate, 5–6 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

$2n = 72$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. **South-central USA, Mexico.** Texas. Central Mexico, Northeast Mexico, Gulf (Mexico), Southeast Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Belize, Nicaragua. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil South. Argentina Northeast, Argentina Northwest, Paraguay, Uruguay.

TDWG4. Bahia, Sao Paulo Parana. Jujuy, Salta, Santiago del Estero. Chaco, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe. Puebla. San Luis Potosi, Tamaulipas. Veracruz. Chiapas.

Cenchrus occidentalis (Chase) Morrone. *Ann. Bot.* 106: 128 (2010).

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

TYPE from Ecuador. **Basionym or Replaced Name:** *Pennisetum occidentale* Chase, *Contrib. U. S. Nat. Herb.* 24: 483 (1927). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.S. Hitchcock 19953, 20 Jun 1923, Ecuador: Guayas, west of Guayaquil (US-1163831).

Illustrations (Books): G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 179, Fig. 21 (2006)).

Derivation (Clifford & Bostock 2007): L. occident, west; -ale, pertaining to. From west coast of south America.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms decumbent, robust, 200–300 cm long, rooting from lower nodes. Ligule a fringe of hairs. Leaf-blades 20–60 cm long, 10–20 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, flexuous, 8–12 cm long, 1–1.2 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, stellately pubescent (surrounding scars), bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 8–10 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, 10–15 in principal whorl, with one conspicuously longer bristle, 15–25 mm long, terete, flexible, antrorsely 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, dorsally compressed, 4.5–4.8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.33 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 0.75 length of spikelet, membranous, without keels, 7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 7 -veined, acute. Fertile lemma lanceolate, 4–4.5 mm long, coriaceous, without keel. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Northern South America, Western South America.** Venezuela. Colombia, Ecuador, Peru.

Cenchrus orientalis Rich. *Pers. Syn.* 1: 72. (1805).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)* (as *Pennisetum*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Pennisetum*), N.Tsvelev, *Grasses of the*

Soviet Union (1983) (as *Pennisetum*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Pennisetum*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (as *Pennisetum*).

TYPE from Turkey. **Basionym or Replaced Name:** *Pennisetum orientale* Rich., *Pers. Syn.* 1: 72. (1805). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Turkey, Galatia: Coll? (B hol).

Recent Synonyms: *Pennisetum triflorum* Nees ex Steud., *Syn. Pl. Gram.* 107 (1854).

Illustrations (Books): N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (987 (653), Pl.15 as *Pennisetum orientale*), H.J.Noltie, *The Grasses of Bhutan* (2000) (739, Fig. 46), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (530), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (356, Fig. 327).

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

Derivation (Clifford & Bostock 2007): L. oriens, the east; -alis, pertaining to. From the eastern Mediterranean through to Turkey.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 20–200 cm long, woody. Lateral branches fastigiate. Ligule a fringe of hairs. Leaf-blades flat or convolute, 30–60 cm long, 7–15 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or pubescent.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, continuous or interrupted, 8–30 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, puberulous or pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile and pedicelled, 1–3(–5) in the cluster, 1 sessile. Involucre composed of bristles, 15–30 mm long, base bluntly stipitate, base 0.5–1.5 mm long. Involucral bristles deciduous with the fertile spikelets, numerous, 15–30 mm long, terete, flexible, plumose. 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 lanceolate, dorsally compressed, 4.5–6.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.25–0.4 length of spikelet, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume oblong, 0.5–0.75 length of spikelet, membranous, without keels. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, chartaceous, setaceously acuminate. Fertile lemma lanceolate, 4.5–6.5 mm long, chartaceous, without keel. Lemma margins flat. Lemma apex setaceously acuminate. Palea chartaceous.

Flower and Fruit. Anthers 3, anther tip apiculate.

$N = 7$ (1 ref TROPICOS), or 18 (3 refs TROPICOS), or 28 (1 ref TROPICOS). $2n = 54$ (1 ref TROPICOS), or 56 (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Pacific, North America, South America.

Country /Province /State. Northern Africa. Egypt. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia.** Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq, Sinai. Oman. Japan. Japan Honshu. **Indian Subcontinent, Malesia, Papuaia.** Bangladesh, Eastern Himalaya, India, Pakistan, Sri Lanka, West Himalaya. Java. New Guinea (?). **Northwestern Pacific.** Marianas (*). Hawaii (*). **Mexico.** Central Mexico, Gulf (Mexico), Southwest Mexico. **Caribbean.** Cuba (*), Jamaica, Trinidad-Tobago (*).

TDWG4. Bhutan, Sikkim. Kerala. Maharashtra, Punjab, Rajasthan, Uttah Pradesh, West Bengal. Himachal Pradesh, Jammu Kashmir. Mexico State, Morelos. Veracruz. Guerrero, Michoacan.

Cenchrus pauperus (Steud.) Morrone. *Ann. Bot.* 106: 128 (2010).

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

TYPE from Ecuador: Galapagos. **Basionym or Replaced Name:** *Pennisetum pauperum* Steud. *Syn. Pl. Gram.* 102. (1854). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Anon. s.n.*, Ecuador: Galapagos (P?).

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

Derivation (Clifford & Bostock 2007): L. poor. Bristles few in involucre.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 100–200 cm long. Lateral branches lacking. Ligule a fringe of hairs, 1.5–2 mm long. Leaf-blades involute, 10–20 cm long, 3–4 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear, 4–6 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 2–2.5 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, 3–4 in principal whorl, with longest bristle scarcely emergent, terete, flexible, antrorsely 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, dorsally compressed, 2.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2–0.25 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 0.33–0.5 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, scaberulous, rough above, acute. Fertile lemma lanceolate, 2.5 mm long, chartaceous, without keel. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Cenchrus palmeri Vasey. *Proc. Calif Acad. Ser. 2*, 2 : 211 (1889).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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: *Palmer* 689, 1887, Mexico: Guaymas (US-0090846; IT: F, UC, US-978801, US-744868).

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

Derivation (Clifford & Bostock 2007): in honor of Edward Palmer (1831–1911) United States botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, culms solitary. Culms 9–35 cm long. Leaf-sheaths puberulous, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 1.3–2.3 mm long. Leaf-blades 4.4–10 cm long, 3.8–6.8 mm wide. Leaf-blade surface puberulous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 2–4.2 cm long. Primary panicle branches accrescent to a central axis, burrs 1–4 in number, with sessile scars on axis. Panicle axis angular, scaberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 4–8 in the cluster. Involucre composed of bristles, connate into a cup below, globose, 11.5–18.5 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, numerous, emerging irregularly from body of a burr, 40–65 in principal whorl, 5.8–11 mm long, terete (dark coloured), rigid, retrorsely scaberulous, pubescent, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 5.2–7.3 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 ovate, 4.5–6.4 mm long, 0.9 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 4.5–6.5 mm long, 0.9 length of spikelet, membranous, 5–7 -veined, acute. Fertile lemma ovate, 5.2–7.1 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 1.7–2.1 mm long. Caryopsis with adherent pericarp.

$2n = 34$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America, South America.

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

TDWG4. Para, Amapa. Baja California, Baja California Sur, Sinaloa, Sonora.

Cenchrus pedicellatus (Trin.) Morrone. *Ann. Bot.* 106: 128 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum*), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Pennisetum*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (as *Pennisetum*).

TYPE from Cape Verde Is. **Basionym or Replaced Name:** *Pennisetum pedicellatum* Trin., *Mem. Acad. Petersb. Ser.* 6: 3,1. 184 (1835). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *D. Peters s.n.*, Cape Verde Islands, St. Iago (LE-TRIN-1101.01).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (259, Fig. 191), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (301, Fig 111), H.J.Noltie, *The Grasses of Bhutan* (2000) (739, Fig. 46 as ssp. *unispiculum*), 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) (526), S.A.Renouze, *The Grasses of Bahia*, 1984 (262, Fig. 98), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:113(1980)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Derivation (Clifford & Bostock 2007): L. pes, foot; -ellus, diminutive; -ata, possessing. Spikelets shortly stalked.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 30–150 cm long. Lateral branches ample. Ligule a ciliate membrane. Leaf-blades 5–25 cm long, 4–15 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, straight or curved, 5–15 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with briefly decurrent ribs, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile and pedicelled, 1–5 in the cluster, 0–1 sessile. Involucre composed of bristles, ovate, 5–10 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 15–25 in principal whorl, with one conspicuously longer bristle, 16–24 mm long, terete, flexible, woolly. Pedicels present, 0.5–3.5 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, 3.5–6 mm long, falling entire, deciduous with accessory branch structures, readily shedding fertile florets.

Glumes. Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate or oblong, 1–3 mm long, 0.33–0.5 length of spikelet, hyaline, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent, hairy below. Lower glume apex emarginate or obtuse or acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume surface pubescent, hairy below. Upper glume margins eciliate or ciliate. Upper glume apex acute, mucous or mucronate.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, membranous, 5 -veined, puberulous, dentate, 3 -fid. Fertile lemma lanceolate, 2.5–3 mm long, coriaceous, shiny, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2.5 mm long, anther tip smooth.

$N = 14$ (2 refs TROPICOS), or 27 (3 refs TROPICOS). $2n = 36$ (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, Western Indian ocean. Cape Verde. Benin, Burkina, Gambia, Ghana, Guinea, Ivory Coast, Mali, Mauritania, Nigeria, Senegal, Togo, Niger. Chad, Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania. Zambia. Madagascar. **Indian Subcontinent, Indo-China, Malesia.** Eastern Himalaya. Andaman Is. Philippines. **Australia.** Western Australia (*), Northern Territory (*), Queensland (*). **Southeastern USA.** Florida. **Brazil.** Brazil West Central, Brazil Northeast, Brazil North, Brazil Southeast.

TDWG4. Darjeeling, Bhutan. Assam. Andhra Pradesh, Bihar, Kerala. Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttah Pradesh, West Bengal. South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. North, Central, South East.

Cenchrus pennisetiformis Hochst. & Steud. *Syn. Pl. Glumac.* 1: 109 (1854).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Cenchrus*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Cenchrus*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (as *Cenchrus*).

TYPE from Saudi Arabia. **Basionym or Replaced Name:** *Cenchrus pennisetiformis* Hochst. & Steud., *Syn. Pl. Glumac.* 1: 109 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Schimper hrbr. un. it. arab.* 973, 28 JAN 1826, Saudia Arabia: Jedda, indeserto prope oppid. Deschedda (P; ILT: K (3 sheets)). LT designated by Wipff, *Sida* 19: 527 (2001).

Recent Synonyms: *Pennisetum pennisetiforme* (Hochst., Steud.) Wipff, *Sida* 19(3): 527 (2001).

Illustrations (Books): R.M.Polhill, F.T.E.A., *Gramineae* (3(1982); 693, Fig 158 as *Cenchrus*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (277, Fig 109 as *Cenchrus pennisetiformis*), L.Boulos, *Flora of Egypt* 4 (2005) (as *Cenchrus*), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (436, Fig 366 as *Cenchrus pennisetiformis*), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (247, Fig 143 as *Cenchrus pennisetiformis*).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Derivation (Clifford & Bostock 2007): L. forma, resemblance. Similar to *Pennisetum*.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual or perennial, short-lived. Culms geniculately ascending, 10–40 cm long. Ligule a fringe of hairs. Leaf-blades flat, 2–20 cm long, 2–5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear to oblong, 2–6 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, 1–3 in the cluster. Involucre composed of bristles, connate into a cup below, with 1–2.5 mm connate, 6–12 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, with one conspicuously longer bristle, 8–16 mm long, flattened, without grooves or grooved on the face, flexible (often wavy), antrorsely scaberulous, glabrous or 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 lanceolate or ovate, dorsally compressed, acute, 3–5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 2–3 mm long, 0.5–0.66 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous. Lower glume apex obtuse or acute. Upper glume lanceolate or ovate, 2–3.5 mm long, 0.66 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume surface puberulous. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of fertile lemma, membranous, 5 -veined, puberulous, obtuse or acute. Fertile lemma elliptic, dorsally compressed, 3–5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma margins covering most of palea. Lemma apex acute, mucronate. Palea 1 length of lemma, chartaceous, 2 -veined.

Flower and Fruit. Anthers 3, 3 mm long. Caryopsis with adherent pericarp, obovoid, dorsally compressed, 1.5–2 mm long, truncate.

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Australasia.

Country /Province /State. Northern Africa, Northeast tropical Africa, and East tropical Africa. Egypt. Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Kenya. Western Asia and Arabian Peninsula. Iran. Gulf States, Oman, Saudi Arabia. Indian Subcontinent. Pakistan. Australia. Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*).

TDWG4. Gujarat. Maharashtra, Rajasthan, Uttah Pradesh. Kimberley, Ereman, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre. North, Central, Inland. Coast, Western Plains.

Cenchrus peruvianus (Trin.) Morrone. *Ann. Bot.* 106: 128 (2010).

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

TYPE from Peru. **Basionym or Replaced Name:** *Pennisetum peruvianum* Trin., *Linnaea* 10 (3): 295 (1836). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Poeppig*, s.l. (LE). HT: *mis. Poeppig* 978; 829, 1834, Peru: Andes peruviae (LE-TRIN-271.1; IT: US-978350 (fragm. ex LE-TRIN), US-978349 (fragm. ex L____)). ST: *Poppig* 829,.

Illustrations (Journals): *Ruizia* (13:405 Fig 54g-h (1993)).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Peru.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms robust, 150–300 cm long. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 30–60 cm long, 15–50 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle spiciform, linear, 15–25 cm long, 0.3–0.5 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 20–35 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, terete, flexible, 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, dorsally compressed, 3.7–4.3 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet or reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.25 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.5 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma lanceolate, 3.7–4.2 mm long, coriaceous, without keel. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia, Ecuador, Peru.

Cenchrus petiolaris (Hochst.) Chiov. *Ann. Ist. Bot. Roma*, viii. 324 (1908).

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

TYPE from Ethiopia. **Basionym or Replaced Name:** *Gymnotrix petiolaris* Hochst., *Flora* 27: 250 (1844). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Schimper 136*, Ethiopia: Mt. Scholoda (K).

Recent Synonyms: *Pennisetum petiolare* (Hochst.) Chiov., *Annuario Reale Ist. Bot. Roma* 8 (3): 324 (1908).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (274, Fig 108), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (530).

Derivation (Clifford & Bostock 2007): L. petiolus, little leg; -are, pertaining to. With a pseudopetiole between the leaf-blade and leaf-sheath.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms erect, 45–120 cm long, compressible, with prop roots. Ligule a fringe of hairs. Leaf-blade base broadly rounded or cordate, with a false petiole, petiole 2–12 cm long. Leaf-blades 10–25 cm long, 8–25 mm wide, flaccid. Leaf-blade surface glabrous or puberulous. Leaf-blade margins scaberulous.

Inflorescence. Synflorescence compound, scanty.

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 1.5–3 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis scaberulous, glabrous. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, base obtuse. Involucral bristles deciduous with the fertile spikelets, in one whorl, 1 in principal whorl, 10–20 mm long, terete, flexible, 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, acute, 2–3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.1–0.5 mm long, 1 length of upper glume, 0.05–0.15 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 0.1–0.5 mm long, 0.05–0.15 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex emarginate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, smooth or scaberulous, acute. Fertile lemma elliptic, 2–3 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or scaberulous. Lemma margins flat. Lemma apex acute. Palea cartilaginous.

Distribution (TDWG). Continent. Africa, North America.

Country /Province /State. Northeast tropical Africa. Ethiopia (inc. Eritrea), Sudan. North-central USA. Iowa.

Cenchrus pilcomayensis (Mez) Morrone., *Ann. Bot.* 106: 128 (2010).

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

TYPE from Paraguay. **Basionym or Replaced Name:** *Pennisetum pilcomayense* Mez, *Bot. Jahrb. Syst.* 56 (Beibl. 125): 7 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Paraguay. In regione cursus 128 inferioris fluminis Pilcomayo, May 1906, *T. Rojas 61* (holotype, B; isotypes, P, US-978374).

Recent Synonyms: *Pennisetum frutescens* Leake. *Zeitschr. Naturwiss.* 24: 35 (1907).

Illustrations (Books): A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (434, Fig. 183).

Derivation (Clifford & Bostock 2007): *L. frutesco*, become bushy. Shrubby in habit.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Cataphylls evident. Rhizomes elongated. Culms 100–200 cm long. Culm-internodes thick-walled, distally pruinose. Lateral branches ample. Leaf-sheaths deciduous, glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or convolute, 15–25 cm long, 5–8 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 6–14 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis terete, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 9–10 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, terete, flexible, antrorsely scaberulous, 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, dorsally compressed, 3.3–5.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.33 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1 length of spikelet, membranous, without keels, 7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma lanceolate, 3–5 mm long, coriaceous, without keel. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northeast, Paraguay.

TDWG4. Catamarca, Jujuy, Salta, Santiago del Estero, Tucuman. Chaco, Cordoba, Entre Rios, Formosa, Misiones, Santa Fe.

Cenchrus pilosus H. B. & K. *Nov. Gen. et Sp.* 1, 116. t. 36. (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.W.H.A. von Humboldt & A.J.A. Bonpland s.n.*, Jul, Venezuela: Llanos de Nueva Barcelona (P; IT: US-865717 (fragm. ex P-Bonpl.)).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (120, Fig. 37), G.Harling & C.Persson, *Flora of Ecuador* (2006) (78: 164, Fig. 19 (2006)).

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 Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, caespitose. Culms 30–60 cm long. Leaf-sheaths keeled, smooth or antrorsely scabrous. Ligule a fringe of hairs, 0.5–1.6 mm long. Leaf-blades 6–30 cm long, 4–11 mm wide. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, dense (internodes 1–2.5mm), 2–13 cm long, 0.8–2.7 cm wide. 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, 2–3 in the cluster. Involucre composed of bristles, connate into a cup below, with 2–4 mm connate, globose, 5–8 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, 3–6 mm long, flattened, flexible, smooth, pubescent, attenuate.

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, acuminate, 6–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–4 mm long, 0.2–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–6 mm long, 0.5–0.8 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 4–7 mm long, 0.6–1 length of spikelet, membranous, 3–7 -veined, acute. Fertile lemma ovate, 5–7.5 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 0.9–1.8 mm long. Caryopsis with adherent pericarp.

$2n = 34$ (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, Northern South America, Western South America. Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua. Venezuela. Colombia, Ecuador, Peru.

TDWG4. Distrito Federal, Mexico State, Morelos, Puebla. Coahuila, Zacatecas. Veracruz. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo, Yucatan.

Cenchrus polystachios (L.) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Pennisetum*), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Pennisetum*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Pennisetum*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (as *Pennisetum*).

TYPE from India. **Basionym or Replaced Name:** *Panicum polystachion* L., *Syst. Nat. (ed. 10)* 2: 870 (1759). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: India (LINN-80.4).

Recent Synonyms: *Pennisetum subangustum* (Schumacher) Stapf & C. E.Hubbard, *Kew Bull.* 1933, 271 (1933). *Pennisetum atrichum* Stapf & C.E.Hubb., *Kew Bull.* 1933, 282. (1933).

Pennisetum polystachion (L.) Schult., *Mant.* 2: 146 (1824).

Pennisetum subangustum (Schumach.) Stapf & C.E. Hubb., *Bull. Misc. Inform. Kew* 1933: 271 (1933).

Pennisetum setosum (Sw.) Rich., in *Pers. Syn.* 1: 72. (1805).

Cenchrus subangustus (Schumach.) Morrone, *Ann. Bot.* 106: 129 (2010).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (as *P. ciliatum*), W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi*, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (355, Pl. 52, as *P. polystachyon*), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (297 & 299, Fig. 109 & 110 as *P. atrichum*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (262, Fig. 104), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (604 & 614 as *P. setosum*), C-C Hsu, *Taiwan Grasses* (1975) (601, Pl. 1446 as *P. setosum* & *Setaria geniculata*), N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (as *P. polystachyon*), K.M.Matthew, *Flora Palni Hills* (1996) (856, Pl. 856 as *P. polystachyon*), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (111, Fig. 112), 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) (526), F.W.Gould, *The Grasses of Texas* (1975) (551, Fig. 288 as *Setaria geniculata*), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (341, Fig. 310 as *Setaria geniculata*), S.A.Renvoize, *Gramineas de Bolivia* (1998) (Fig. 125), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (241, Fig. 196), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (388, Fig. 173 as *Setaria geniculata*), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (as *Setaria geniculata*), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (461, Fig.

174 as *P. setosum*), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (358, Fig. 329as *P. setosum*), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (517, Fig. 87), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 767), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:114(1980)).

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);.

Derivation (Clifford & Bostock 2007): Gk. polys, many; stachys, ear of corn. Plants with many branched culms or inflorescences.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual or perennial, caespitose. Culms geniculately ascending, 30–200 cm long. Lateral branches ample. Ligule a ciliate membrane. Leaf-blades 10–40 cm long, 3–16 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, straight or curved, 3–25 cm long, (0.6–)0.8–1(–1.5) cm wide (excluding bristles). Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with briefly decurrent ribs, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 4–12 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, with one conspicuously longer bristle, 6–25 mm long, terete, flexible, antrorsely scaberulous, glabrous or 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 lanceolate, dorsally compressed, 2–5 mm long, falling entire, deciduous with accessory branch structures, readily shedding fertile florets.

Glumes. Glumes one the lower absent or obscure or two, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 0–1 mm long, 0–0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume oblong, 1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute, muticous or mucronate.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, membranous, 5 -veined, dentate, 3 -fid. Fertile lemma oblong, 2–3 mm long, coriaceous, shiny, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, anther tip smooth.

$2n = 34$ (1 ref TROPICOS), or 54 (1 ref TROPICOS).

Distribution (TDWG). **Continent.** Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

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. Gambia, Ghana, Guinea-Bissau, Guinea, Ivory Coast, Liberia, Mali, Nigeria, Senegal, Sierre Leone, Togo, Niger. Cameroon, Gabon, Annobon, Principe & Sao Tome, Rwanda, DRC. Chad, Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Aldabra, Madagascar, Seychelles. **Arabian Peninsula, China, Eastern Asia.** Hainan, China Southeast. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Bangladesh, Sri Lanka. Andaman Is, Thailand. Java, Malaya, Singapore, Philippines, Sumatra. New Guinea West Papua (Irian Jaya). New Guinea, Solomon Is (*). **Australia.** Northern Territory (*), Queensland (*). **Southwestern Pacific, Northwestern Pacific, North-central Pacific.** Fiji (*), Gilbert Is (*). Caroline Is (*), Marianas (*), Marshall Is (*), Wake Is (*). Hawaii (*). **Southeastern USA, 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. Bahamas, Bermuda, Cayman Is (& as *Setaria geniculata*), Cuba, Dominican Republic, Haiti, Jamaica (& as *Setaria geniculata*), Leeward Is, Windward Islands (& as *Setaria geniculata* & *Pennisetum setosum*), Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Southeast, Brazil North. Paraguay.

TDWG4. Hong Kong. Meghalaya, Nagaland. Andhra Pradesh, Bihar, Kerala, Karnataka. Madhya Pradesh, Orissa, Tamilnadu, Uttah Pradesh, West Bengal. Darwin & Gulf. North, South East. Mexico State, Morelos, Puebla. Durango. Veracruz. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Chiapas.

Cenchrus platyacanthus Anderss. *Enum. Pl. Ins. Galap.* 139. (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).

TYPE from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Andersson 33*, 1853, Ecuador: Galapagos Islands: Isla San Cristobal (BR; IT: US-865718 (fragm. ex BR)).

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

Derivation (Clifford & Bostock 2007): Gk. platys, flat; acanthus, spine. Involucral spines modified to acute scales.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms 20–90 cm long. Leaf-sheaths pubescent, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 1.4–2.3 mm long. Leaf-blades 4–24 cm long, 2–8 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, dense (internodes 0.6–1.4mm), 3.8–8.6 cm long, 0.6–2 cm wide. 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, 1 in the cluster. Involucre composed of bristles, connate into a cup below, ovate, 2.8–6 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, emerging irregularly from body of a burr, 5–10 in principal whorl, 1.8–3 mm long, terete, rigid, retrorsely scaberulous, glabrous or pubescent, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 2.4–5.8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.3–1.1 mm long, 0.1–0.2 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 1.9–3.4 mm long, 0.6–0.8 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 2.4–3.7 mm long, 0.6–1 length of spikelet, membranous, 3 -veined, acute. Fertile lemma ovate, 2.2–5.8 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 0.5–1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Galapagos.

Cenchrus prieurii (Kunth) Maire. *Bull. Mus. Hist. Nat. Paris, Ser. 2, 3* : 523 (1931).

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 Senegal. **Basionym or Replaced Name:** *Pennisetum prieurii* Kunth, *Rev. Gram.* 2: 411. t. 119. (1831). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: [Africa]: "Crescit in Senegambia, collibus arenosis.",.

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (277, Fig. 109).

Derivation (Clifford & Bostock 2007): dedicated to F.R. Leprieur (1799–1869) French naval officer and amateur botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 30–75 cm long. Leaf-sheaths keeled, scaberulous. Ligule a fringe of hairs. Leaf-blades 8–30 cm long, 5–10 mm wide. Leaf-blade surface scaberulous, rough on both sides.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle spiciform, linear to oblong, 6–14 cm long, 2–4 cm wide. 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, 2 in the cluster. Involucre composed of bristles, connate into a disc below (3mm diam), with 1 mm connate, 15–20 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, with longest bristle scarcely emergent, 15–20 mm long, flattened, grooved on the face, rigid, antrorsely scaberulous, 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 ovate, dorsally compressed, acuminate, 4–5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 2 mm long, 0.5 length of spikelet, hyaline, without keels, 0–1 -

veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 3–4 mm long, 0.75 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of fertile lemma, membranous, 5 -veined, acute. Fertile lemma ovate, dorsally compressed, 4–5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface granulose. Lemma margins covering most of palea. Lemma apex obtuse or acute, mucronate. Palea 1 length of lemma, coriaceous, 2 -veined.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, 2–2.5 mm long.

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

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa. Algeria. Mali, Mauritania, Nigeria, Senegal, Niger. Ethiopia (inc. Eritrea), Sudan. Arabian Peninsula. Yemen. Indian Subcontinent. India, Pakistan.

TDWG4. Punjab, Rajasthan.

Cenchrus procerus (Stapf) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from Kenya. **Basionym or Replaced Name:** *Beckeropsis procera* Stapf, *Bull. Misc. Inform. Kew* 1933: 272 (1933). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Hitchcock 25117*, Kenya: Nakuru (K).

Recent Synonyms: *Pennisetum procerum* (Stapf) W.D. Clayton, *Kew Bull.* 32(3): 580 (1978).

Illustrations (Books): R.M.Phill, F.T.E.A., *Gramineae* (3(1982):683, Fig 157).

Derivation (Clifford & Bostock 2007): L. tall. Culms tall.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms erect, slender, 50–150 cm long, 1–3 mm diam., wiry. Ligule a ciliate membrane. Leaf-blades filiform or linear, 6–20 cm long, 1–4 mm wide, firm.

Inflorescence. Synflorescence compound, scanty.

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 2–4 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis scaberulous, glabrous. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, base obtuse. Involucral bristles deciduous with the fertile spikelets, in one whorl, 1 in principal whorl, 6–36 mm long, terete, flexible, 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, acuminate, 3–4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.4–0.7 mm long, 0.5–0.75 length of upper glume, 0.1–0.15 length of spikelet, hyaline, pallid, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 0.4–0.7 mm long, 0.1–0.15 length of spikelet, hyaline, pallid, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, scaberulous, acuminate. Fertile lemma elliptic, 3–4 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma margins flat. Lemma apex acute. Palea cartilaginous.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea). Kenya, Uganda.

Cenchrus prolificus Chase. *Contrib. U. S. Nat. Herb.* xxii. 231 (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 Mexico. **Basionym or Replaced Name:** *Pennisetum prolificum* Chase, *Contr. U.S. Natl. Herb.* 22(4): 231, fig. 75 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C.G. Pringle 6075*, 29 Jan 1895, Mexico: Veracruz: rocky slopes, barranca of Metlac, 3000 ft (US-250836; IT: MO-2977369).

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

Derivation (Clifford & Bostock 2007): *L. proles*, offspring; *facio*, make. Inflorescence with many flowers and so capable of producing an abundance of seed.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms robust, 200–400 cm long. Culm-internodes distally glabrous. Lateral branches fastigiate, arising from upper culm. Leaf-sheaths loose, glabrous on surface, outer margin glabrous or hairy. Ligule a ciliate membrane, 2 mm long. Leaf-blades 15–50 cm long, 20–40 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially, glabrous.

Inflorescence. Synflorescence compound.

Inflorescence a panicle, terminal and axillary, subtended by an inflated leaf-sheath. Peduncle flexuous, 2–10 cm long, glabrous. Panicle spiciform, linear or oblong, 3–5 cm long, 1 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 4–6 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 15–20 mm long, terete, flexible, 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 ovate, dorsally compressed, 4–6.2 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.5–1.2 mm long, 0.1–0.2 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex erose, obtuse. Upper glume ovate, 1.8–2.5 mm long, 0.4–0.5 length of spikelet, membranous, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 4–5.4 mm long, 1 length of spikelet, membranous, scaberulous, acute. Fertile lemma ovate, 3.8–5.4 mm long, chartaceous, without keel, 0–3 -veined or more than 3-veined. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Gulf (Mexico), Southwest Mexico.

TDWG4. Veracruz. Guerrero, Oaxaca.

Cenchrus purpurascens Thunb. *Trans. Linn. Soc. London* 2: 329 (1794).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum alopecuroides*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum alopecuroides*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum alopecuroides*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum alopecuroides*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Pennisetum alopecuroides*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Pennisetum alopecuroides*), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Pennisetum alopecuroides*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Pennisetum alopecuroides*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Pennisetum alopecuroides*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Pennisetum alopecuroides*).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: *Panicum hordeiforme* var Flor. Japon p. 48."

Recent Synonyms: *Pennisetum alopecuroides* (L.) Spreng., *Syst. Veg.* 1: 303 (1825). *Cenchrus compressus* (R. Br.) Morrone, *Ann. Bot.* 106: 127 (2010).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (378, Fig 148), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (598), C-C Hsu, *Taiwan Grasses* (1975) (591, Fig. 1442), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (616, Fig 124), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (332), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (336), 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 25 *Poaceae*, part 2 (2003) (524), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 768), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:110(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): Gk. -oides, resembling. Similar to *Alopecurus*, usually in respect of the inflorescence.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock evident. Basal innovations intravaginal. Culms erect, 60–100 cm long. Culm-internodes smooth or scaberulous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths keeled, glabrous on surface. Ligule a fringe of hairs, 0.5–0.75 mm long. Leaf-blades erect or drooping, flat or conduplicate or involute, 10–45 cm long, 3–6 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle hirsute above. Panicle spiciform, linear, 7–20 cm long, 1–1.5 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, villous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, 15–30 mm long, base bluntly stipitate, base 1–4 mm long, base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, 15–30 mm long, terete, flexible, glabrous or 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, subterete, 6–8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 1–1.25 mm long, 0.15 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 0.33–0.5 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume lateral veins obscure. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, chartaceous, 7 -veined, obtuse or acute. Fertile lemma lanceolate, 6–8 mm long, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea chartaceous.

Flower and Fruit. Anthers 3, 3.75–4 mm long, anther tip apiculate. Styles free to the base or connate below. Caryopsis with adherent pericarp, oblong, 2.5–3 mm long. Embryo 0.5 length of caryopsis.

$N = 18$ (1 ref TROPICOS). $2n = 22$ (1 ref TROPICOS).

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Caucasus, China, Eastern Asia.** China South Central, Hainan, Manchuria, China North-Central, China Southeast, Tibet. Japan, Korea, Nansei-Shoto, Ogasawara-shoto, Taiwan. Japan Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China, Malasia.** India. Andaman Is, Myanmar, Vietnam. Java, Malaya, Philippines. **Australia, New Zealand.** Queensland (*), New South Wales (*), A.C.T. (*), Victoria (*). New Zealand North I, New Zealand South I. **Northwestern Pacific. Brazil.** Brazil Southeast.

TDWG4. Beijing, Shaanxi, Shandong, Tianjin. Anhui, Fujian, Guangdong, Guangxi, Henan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan. Kerala. Madhya Pradesh, Tamilnadu. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

Cenchrus purpureus (Schumach.) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Pennisetum*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Pennisetum*), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Pennisetum*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Pennisetum*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987) (as *Pennisetum*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (as *Pennisetum*).

TYPE from Ghana. **Basionym or Replaced Name:** *Pennisetum purpureum* Schumach., *Beskr. Guin. Pl.*: 44 (1827). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Africa: Ghana: Guinea, *Thonning* 355 (HT: C; IT: BM).

Illustrations (Books): F.N.Hepper, *F.W.T.A.* 3(2) (1972) (462, Fig.447 as *Pennisetum*), W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi, I. Maydees et Andropogonees and II. Panicees.* Bruxelles, Goemaere (348, Pl. 51, as *pennisetum*), R.M.Phill, F.T.E.A., *Gramineae* 3(1982):678, Fig 156), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (444, Fig. 368), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (602), C-C Hsu, *Taiwan Grasses* (1975), N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (349, Fig. 40), K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (Pl. 815 & Pl.816), H.J.Noltie, *The Grasses of Bhutan* (2000) (739, Fig. 46), H.B.Gilliland, *Grasses of Malaya* (1971) (163, Fig. 32), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (111, Fig. 113), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (282, Pl. 81), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (334), M.E.Barkworth et al,

Flora of North America north of Mexico Vol 25 *Poaceae*, part 2 (2003) (520), S.A.Rennoize, *Gramineas de Bolivia* (1998) (548, Fig. 126), S.A.Rennoize, *The Grasses of Bahia*, 1984 (262, Fig. 98), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (817, Fig. 168), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (461, Fig. 174), B.Rosengurtt, *Gramineas Uruguayas* (1970) (382, Fig. 169), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (82, Fig. 49), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 768), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:115(1980)).

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. purple to reddish. Usually of purple spikelets.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms erect or geniculately ascending, robust, 100–600 cm long. Ligule a fringe of hairs, 3–5 mm long. Leaf-blades 30–120 cm long, 20–40 mm wide. Leaf-blade margins cartilaginous, scaberulous.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle spiciform, linear, 7–30 cm long, 1–3 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis or with sessile scars on axis. Panicle axis terete, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 0–4 in the cluster. Involucre composed of bristles, oblong, 8–16 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 10–40 mm long, terete, flexible, glabrous or ciliate. Pedicels present.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4.5–7 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet lemmas 2, exerted from 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, 4.5–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes both absent or obscure or one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume lanceolate or ovate, 0.75–3 mm long, 0.25–0.5 length of spikelet, membranous, without keels, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret lanceolate, 0.66–1 length of spikelet, chartaceous, (1–)2–5(–7) -veined, acute or acuminate. Fertile lemma lanceolate, 5–7 mm long, coriaceous, shiny, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat, eciliate. Lemma apex acuminate. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 2–3.1 mm long, anther tip penicillate. Styles connate below. Caryopsis with adherent pericarp, ellipsoid or ovoid, dorsally compressed, concealed by floret, 1.8–2.2 mm long.

$N = 7$ (2 refs TROPICOS), or 14 (2 refs TROPICOS). $2n = 21$ (1 ref TROPICOS), or 28 (3 refs TROPICOS).

Distribution (TDWG). **Continent.** Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

Country /Province /State. **Northern Africa, Macaronesia, West tropical Africa, Northeast tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Middle Atlantic ocean, Western Indian ocean.** Canary Is, Madeira. Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierre Leone, Togo. Cameroon, Gabon, Bioko, Rwanda, DRC. Chad, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Limpopo, Gauteng, Mpumalanga, Swaziland, Kwazulu-Natal, Western Cape. Mauritius (+), Madagascar (+), Rodrigues (+), Seychelles. **Arabian Peninsula, China** (+), **Eastern Asia.** Oman. China South Central, Hainan, China Southeast. Kazan-retto, Nansei-Shoto, Ogosawara-shoto, Taiwan (+). **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Eastern Himalaya, Sri Lanka. Myanmar, Thailand. Java, Lesser Sunda Is, Malaya, Singapore, Philippines, Sulawesi. New Guinea, Solomon Is (*). **Australia, New Zealand.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*), New South Wales (*), Lord Howe-Norfolk Is (*). New Zealand North I. **Southwestern Pacific, North-central Pacific.** Fiji (*), Gilbert Is (*), Niue (*), New Caledonia (*), Samoa (*), Wallis-Futuna Is (*). Cook Is (*), Society Is (*). Caroline Is (*), Marianas (*), Marshall Is (*). Hawaii (*). **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. Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is. French Guiana, Guyana, Surinam, Venezuela. Bolivia,

Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil North, Brazil Southeast, Brazil South. Argentina Northwest, Paraguay, Uruguay.

TDWG4. Fujian, Guangdong, Guangxi, Jiangsu, Jiangxi. Sichuan, Yunnan. Bhutan, Sikkim. Andhra Pradesh, Gujarat, Kerala. Maharashtra, West Bengal. South-West. Darwin & Gulf. Southern. North, Central, South East. Coast. Jujuy (*), Salta, Tucuman. Corrientes, Formosa, Misiones. Mexico State, Puebla. Queretaro, Zacatecas. Veracruz. Jalisco, Michoacan, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco.

***Cenchrus qianningensis*, as "*quianningensis*"** (S.L. Zhong) Morrone. *Ann. Bot.* 106: 129 (2010).

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

TYPE from China. **Basionym or Replaced Name:** *Pennisetum qianningense* S.L. Zhong, *J. Southwest. Agric. Coll. (Chongqing)*, 1982 (4): 75 (1982). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Qian'ning, 12 Aug. 1974, *West Sichuan Veget. Exped. 05820* (HT: SWAU).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 770).

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 100–200 cm long, 2–4 mm diam. Culm-internodes channelled, distally glabrous. Culm-nodes pubescent. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades flat or conduplicate, 10–40 cm long, 4–10 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 10–17 cm long, 0.7–1 cm wide. Primary panicle branches accrescent to a central axis. Panicle axis pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 5–25 mm long. Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 5–25 mm long, terete, flexible, 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 lanceolate, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–1.5 mm long, 0.15–0.2 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Upper glume lanceolate, 4 mm long, 0.6–0.8 length of spikelet, herbaceous, without keels, 5 -veined.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret lanceolate, 5–6 mm long, 1 length of spikelet, chartaceous, 5 -veined. Fertile lemma lanceolate, 5–6 mm long, chartaceous, without keel. Lemma margins involute. Palea chartaceous.

Flower and Fruit. Anthers 3, 3 mm long, purple.

$2n = 36$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan, Yunnan.

Cenchrus ramosus (Hochst.) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Pennisetum*).

TYPE from Sudan. **Basionym or Replaced Name:** *Gymnotrix ramosa* Hochst., *Flora* 27(16): 252 (1844). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Kotschy 199*, 1837–1838, Africa: Sudan: "Habitat in provincia Sennaar." (?; IT: K, L, MO). "Fl. exsicc. Aethiopia Th. Kotschy nr. 199".

Recent Synonyms: *Pennisetum ramosum* (Hochst.) Schweinf., *Beitr. Fl. Aethiop. Abth.* 1, 301 (1867).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (268, Fig 106).

Derivation (Clifford & Bostock 2007): L. ramus, branch; -osa, abundance. Inflorescences or culms much branched.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect, 50–200 cm long. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 6–30 cm long, 4–18 mm wide. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle spiciform, linear or oblong, 2–7 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with briefly decurrent ribs, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended

by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, connate into a disc below (slightly), oblong, 5–20 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, in one whorl, 12–24 in principal whorl, with one conspicuously longer bristle, 10–30 mm long, terete, rigid, 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 ovate, dorsally compressed, 5–6.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.1–0.15 length of spikelet, hyaline, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.8–1 length of spikelet, membranous, without keels, 7–9 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret ovate, 0.8–1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma ovate, 5–6.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2.5 mm long, anther tip smooth. Styles free to the base. $N = 5$ (1 ref TROPICOS). $2n = 10$ (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. Chad, Eritrea, Ethiopia (inc. Eritrea), Sudan. Tanzania, Uganda.

TDWG4. Tamilnadu.

Cenchrus rigidus (Griseb.) Morrone. *Ann. Bot.* 106: 129 (2010).

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

TYPE from Argentina. **Basionym or Replaced Name:** *Gymnotrix rigida* Griseb., *Abh. Konigl. Ges. Wiss. Gottingen* 19: 263 (1874). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Lorentz* 47, Apr 1871, Argentina: Córdoba: in einer Bergschlucht bei Ascochinga etc. auch sonst häufig (GOET; IT: CORD).

Recent Synonyms: *Pennisetum rigidum* (Griseb.) Hack. ex Stuck., *Anal. Mus. Buenos Aires*, 11: 84 (1904).

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

Derivation (Clifford & Bostock 2007): L. stiff. Culms, spikelets or inflorescence branches held stiffly erect.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 100–200 cm long. Culm-internodes thick-walled or solid. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades 14–27 cm long, 5.6–8.6 mm wide. Leaf-blade surface scabrous, rough adaxially, pubescent, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 5–6 cm long, 0.7–0.8 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 6 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, 12–20 in principal whorl, with longest bristle scarcely emergent, terete, rigid, retrorsely 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, dorsally compressed, 5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.9 length of spikelet, membranous, without keels, 7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 7 -veined, acute. Fertile lemma lanceolate, 5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Styles connate below, 0.66 of their length connate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northeast, Argentina Northwest.

TDWG4. Catamarca, Mendoza, Salta, Santiago del Estero, San Luis, Tucuman. Cordoba.

Cenchrus riparius (Hochst. ex A. Rich.) Morrone. *Ann. Bot.* 106: 129 (2010).

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:** *Pennisetum downsonii* Stapf & C.E. Hubb., *Bull. Misc. Inform. Kew* 1933: 279 (1933). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: G.H.W. Schimper, *pl. Schimp. Abyss., sect. I, 84*, 18 Sep 1837, Ethiopia (Tigre): Crescit ad ripas rivorum prope Adoua (P; IT: K, US-1061597).

Recent Synonyms: *Pennisetum riparium* Hochst. ex A. Rich., *Tent. Fl. Abyss.* 2: 381 (1850). *Cenchrus downsonii* (Stapf & C.E. Hubb.) Morrone, *Annal. Bot.* 106: 128 (2010).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (268, Fig 106).

Derivation (Clifford & Bostock 2007): L. ripa, river bank; -aria, pertaining to. Growing on river banks.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes elongated. Stolons present. Culms decumbent, 10–150 cm long. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 4–30 cm long, 2–10 mm wide.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear, 2–15 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, 1–2 in the cluster. Involucre composed of bristles, oblong, 3–6 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 7–15 mm long, terete, flexible, 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, dorsally compressed, acute or acuminate, 6–10 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.05 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate. Upper glume ovate, 0.25–0.33 length of spikelet, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret ovate, 0.8–1 length of spikelet, membranous, 5–7 -veined, acute. Fertile lemma ovate, 6–10 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 3 mm long, anther tip smooth. Styles connate below.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda.

Cenchrus robustus R.D. Webster. *Australian Paniceae (Poac.):* 27 (1987).

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: T: Queensland, Kaban via Ravenshoe, [June 1950] *G.R.Walsh s.n.* (BRI, holo).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (181).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Cataphylls evident. Rhizomes short. Culms erect, 40–100 cm long, 10–20 -noded. Culm-nodes glabrous. Leaf-sheaths smooth, glabrous on surface, outer margin glabrous or hairy. Ligule a fringe of hairs, 1–1.5 mm long. Collar glabrous. Leaf-blades 6–22 cm long, 3–7 mm wide. Leaf-blade surface scabrous, glabrous. Leaf-blade margins scabrous, glabrous.

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, scabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, connate into a disc below, with 0.5 mm connate, elliptic, 9–13 mm long, base bluntly stipitate.

Involucral bristles deciduous with the fertile spikelets, numerous, in one whorl, 45–60 in principal whorl, 9–13 mm long, terete, rigid, retrorsely scaberulous, pubescent (below), spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 7.3–9 mm long, 1.5–1.9 mm wide, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.9–1.1 mm long, 0.15 length of spikelet, hyaline or membranous, without keels, (0–)1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2.8–4.1 mm long, 0.33–0.55 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface asperulous. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret lanceolate, 7.3–9 mm long, 1 length of spikelet, membranous, 5 -veined, distinctly veined, smooth or scaberulous, rough on veins, acute. Fertile lemma lanceolate, 7.5–9 mm long, coriaceous, much thinner on margins, without keel. Lemma margins flat. Lemma apex acuminate. Palea coriaceous.

Flower and Fruit. Anthers 2.9–3.5 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

TDWG4. North, South East. Coast.

Cenchrus rupestris (Chase) Morrone. *Ann. Bot.* 106: 129 (2010).

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

TYPE from Peru. **Basionym or Replaced Name:** *Pennisetum rupestre* Chase, *Contrib. U. S. Nat. Herb.* 24: 484 (1927). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J.F. MacBride & W. Featherstone* 453, 12 Apr–3 May 1922, Peru: Matucana, alt. 2400 m (US-1161395).

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

Derivation (Clifford & Bostock 2007): *L. rupestris*, rock; -estre, place of growth; Growing amongst rocks.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms geniculately ascending, 70 cm long. Culm-nodes glabrous. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a fringe of hairs. Leaf-blade base broadly rounded. Leaf-blades 12–18 cm long, 5–10 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, hairy adaxially, with tubercle-based hairs. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 2.5–7 cm long, 1 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, 5–6 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, 5–8 in principal whorl, with longest bristle scarcely emergent, terete, flexible, antrorsely 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, dorsally compressed, 6–6.2 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.66 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma lanceolate, 6 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Peru.

Cenchrus sagittatus (Henrard) Morrone. *Ann. Bot.* 106: 129 (2010).

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

TYPE from Bolivia. **Basionym or Replaced Name:** *Pennisetum sagittatum* Henrard, *Blumea Suppl.* 1: 229, tab. 16, fig. 26 (1937). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *L.R. Parodi 10069*, 4 Feb 1932, Bolivia: La Florida: Sur Yungas: 1700m (US-1539315, L).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (548, Fig. 126).

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms 100 cm long. Lateral branches ample, arising from lower culm or mid culm or upper culm. Ligule a fringe of hairs. Leaf-blade base sagittate. Leaf-blades lanceolate, 25 cm long, 25 mm wide. Leaf-blade surface puberulous, hairy abaxially.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 6 cm long, 0.5 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets pedicelled, 1 in the cluster. Involucre composed of bristles, 4 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, few, 2–3 in principal whorl, with longest bristle scarcely emergent, terete, flexible, antrorsely scaberulous, glabrous. 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 lanceolate, dorsally compressed, obtuse, 4 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.66 length of spikelet, membranous, without keels, 7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 3–5 -veined, scaberulous, acute. Fertile lemma lanceolate, 4 mm long, coriaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru.

Cenchrus setaceus (Forsk.) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Pennisetum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *Pennisetum*), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000) (as *Pennisetum*), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)* (as *Pennisetum*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Pennisetum*), T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *Pennisetum*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Pennisetum*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (as *Pennisetum*).

TYPE from Egypt. **Basionym or Replaced Name:** *Phalaris setacea* Forssk., *Fl. Aegypt.-Arab.* 17 (1775). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Forsskel s.n.*, Egypt: Cairo (?).

Recent Synonyms: *Pennisetum setaceum* (Forsk.) Chiov., *Bull. Soc. Bot. Ital.* 1923, 113 (1923).

Illustrations (Books): G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (250, Fig. 158), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (266, Fig 105), L.Boulos, *Flora of Egypt* 4 (2005) (315, Pl. 93), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (149, Pl. 56 as *P. macrostachyum*), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (473, Fig 406), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (334), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (528), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:116(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); (& as *P. macrostachyum*), F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): L. seta, bristle; -acea, indicating resemblance. With long bristles in the inflorescence.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 20–130 cm long. Ligule a fringe of hairs. Leaf-blades convolute, 15–30 cm long, 1–3 mm wide, stiff, glaucous. Leaf-blade midrib widened.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 6–30 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, glabrous or pilose, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile and pedicelled, 1–3 in the cluster, 1 sessile. Involucre composed of bristles, oblong, 12–26 mm long, base bluntly stipitate (1–3mm), base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, with one conspicuously longer bristle, 16–40 mm long, terete, flexible, plumose. 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 lanceolate, dorsally compressed, 4.5–6.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate or orbicular, 0.1–0.33 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate or ovate, 0.25–0.66 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute or acuminate, mucronate.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret lanceolate or ovate, 1 length of spikelet, membranous, 1–3(–5) -veined, scaberulous, rough on veins, acuminate, mucronate. Fertile lemma oblong, 4.5–6.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute.

Flower and Fruit. Lodicules absent. Anthers 3, 2.5–3.5 mm long, anther tip smooth. Styles connate below. $N = 18$ (2 refs TROPICOS). $2n = 18$ (1 ref TROPICOS), or 27 (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

Region. Southeastern Europe.

Country /Province /State. : Sicily. **Northern Africa, Macaronesia, West tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa** (*). Algeria, Egypt, Libya, Morocco, Tunisia. Canary Is. Senegal. Eritrea, Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Kenya, Tanzania. Zambia, Zimbabwe. Namibia, Limpopo, Gauteng, Mpumalanga, Free State, Kwazulu-Natal, Western Cape, Eastern Cape. **Western Asia, Arabian Peninsula.** Afghanistan, Iran, Lebanon-Syria, Palestine, Israel & Jordan. Gulf States, Oman, Saudi Arabia. **Malesia.** Java, Singapore. **Australia, New Zealand.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*), New South Wales (*). New Zealand North I, New Zealand South I. **North-central Pacific.** Fiji (*), New Caledonia. Hawaii (*). **Southwestern USA, South-central USA, Southeastern USA, Mexico.** Arizona, California, Nevada. Texas. Florida, Louisiana. Central Mexico, Northeast Mexico, Southwest Mexico. **Northern South America, Southern South America.** Venezuela. Argentina Northeast.

TDWG4. Kimberley, Eremean, South-West. Southern. North, Central, South East. Coast, Western Slopes, Western Plains. Buenos Aires. Morelos. Guanajuato. Michoacan.

Cenchrus setigerus (Vahl. *Sida* 19(3): 526 (2001).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Cenchrus setiger*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Cenchrus setiger*), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *Cenchrus*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Cenchrus*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010) (as *Cenchrus setigerus*).

TYPE from Arabia. **Basionym or Replaced Name:** *Cenchrus setigerus* Vahl, *Enum. Pl.* 2: 395 (1805). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Saudi Arabia., *Forsskal s.n.* (HT: C).

Recent Synonyms: *Pennisetum setigerum* (Vahl) Wipff, *Sida* 19 (3): 527 (2001).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (278, Fig 110), L.Boulos, *Flora of Egypt* 4 (2005) (319, Pl. 94 as *Cenchrus setiger*), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (436, Fig 367 as *Cenchrus setiger*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (282, Pl 82 as *Cenchrus*), 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) (528).

Images: D.Sharp & B.K.Simon, *AusGrass*. *Grasses of Australia*. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. seta, bristle; gero, carry. With spikelets subtended by bristles.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths thickened and forming a bulb. Culms geniculately ascending, 5–80 cm long. Ligule a fringe of hairs. Leaf-blades 2–20 cm long, 2–7 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 2–12 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, 1–3 in the cluster. Involucre composed of bristles, connate into a cup below, with 1–3 mm connate, oblate, 3–7 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, in one whorl or with an outer whorl of thinner bristles, inner bristles longer than outer, with longest bristle scarcely emergent, 2–4 mm long, flattened, grooved on the face, rigid, antrorsely scaberulous, glabrous or pubescent or ciliate, obtuse or spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 3–5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.5–2 mm long, 0.5 length of spikelet, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous. Lower glume apex obtuse or acute. Upper glume ovate, 2 mm long, 0.5–0.66 length of spikelet, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface puberulous. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, puberulous, emarginate, mucronate. Fertile lemma ovate, 3–5 mm long, chartaceous or coriaceous, much thinner on margins, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex truncate or obtuse, mucronate. Palea chartaceous or coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 2 mm long. Caryopsis with adherent pericarp, oblong, dorsally compressed, 1.5 mm long, truncate.

Distribution (TDWG). Continent. Europe (*), Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, South America.

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Northern Africa, West tropical Africa, Northeast tropical Africa, East tropical Africa.** Egypt (as *Cenchrus setiger*). Ghana. Eritrea, Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Kenya, Tanzania. **Western Asia, Arabian Peninsula, China.** Iran. Gulf States, Kuwait, Oman, Saudi Arabia. China South Central. **Indian Subcontinent.** India, Pakistan. **Australia.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*), New South Wales. **North-central Pacific.** New Caledonia (*). Hawaii (*). **Brazil.** Brazil West Central, Brazil Northeast, Brazil Southeast.

TDWG4. Yunnan. Delhi, Diu, Daman, Goa, Gujarat, Haryana. Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamilnadu, Uttah Pradesh. Kimberley, Eremean, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre. North, Central, South East, Inland. Coast, Tablelands, Western Plains.

Cenchrus shaanxiensis (S.L. Chen & Y.X. Jin) Morrone. *Ann. Bot.* 106: 129 (2010).

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

TYPE from China. **Basionym or Replaced Name:** *Pennisetum shaanxiense* S.L. Chen & Y.X. Jin, *Bull. Bot. Res. North-East. Forest. Inst.*, 4(1): 68 (1984). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Shaanxi: Luoyang Xian, 870 m, 2 Nov. 1958, *C.L. Tang 957* (HT: JSBI).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 769).

Derivation (Clifford & Bostock 2007): L. *-ense*, denoting origin. From Shaanxi Province, China.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 80–150 cm long. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a fringe of hairs. Leaf-blades flat, 30–50 cm long, 5–15 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 10–20 cm long, 1–2 cm wide. Primary panicle branches accrescent to a central axis. Panicle axis retrorsely scabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 10–30 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 10–30 mm long, terete, flexible, 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, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 2 mm long, 0.3–0.4 length of spikelet, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume

apex obtuse. Upper glume ovate, 1.7–3 mm long, 0.3–0.5 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume primary vein absent or obscure. Upper glume apex acuminate.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, chartaceous, acuminate. Fertile lemma lanceolate, 5–6 mm long, cartilaginous, without keel. Lemma margins flat. Lemma apex acuminate. Palea cartilaginous.

Flower and Fruit. Anthers 3, anther tip smooth.

Distribution (TDWG). Continent. Temperate Asia.

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

TDWG4. Gansu, Shaanxi. Hunan. Sichuan, Yunnan.

Cenchrus sichuanensis S.L. Chen & Y.X. Jin. *Bull. Nanjing Bot. Gard. Mem. Sun Yat Sen*, 1988–1989: 5 (1990).

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

TYPE from China. **Basionym or Replaced Name:** *Pennisetum sichuanense* S.L. Chen & Y.X. Jin, *Bull. Nanjing Bot. Gard. Mem. Sun Yat Sen*, 1988–1989: 5 (1990). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Derong Xian, 2000–3000 m, *c.i.* 3366 (HT: ?).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 771).

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Sichuan Province, China.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 40–60 cm long. Leaf-sheaths mostly shorter than adjacent culm internode. Ligule a ciliolate membrane, 1.5–2 mm long. Leaf-blades flat, 3–12 cm long, 2–5 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 5–12 cm long, 0.6–0.9 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis retrorsely scabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 3–5 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 3–5 mm long, terete, flexible, retrorsely scaberulous, 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, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.33–0.5 length of spikelet, membranous, without keels, 0–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume ovate, 0.9 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, chartaceous, acuminate. Fertile lemma lanceolate, 5–6 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex apiculate. Palea chartaceous.

Flower and Fruit. Anthers 3, anther tip smooth.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan, Yunnan.

Cenchrus somalensis W.D. Clayton. *Kew Bull.*, 32(1): 3 (1977).

Accepted by: 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: Somali Republic: Erigavo, 5000–7000 ft [1524–2133 m], under shade of bush and trees, Nov 1938, *A.S. Mc Kinnon S221* (HT: K).

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

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 25–45 cm long. Ligule a ciliate membrane. Leaf-blades convolute, 5–15 cm long, 1 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear to oblong, 2.5–6 cm long. Primary panicle branches accrescent to a central axis, 6–16 in number, with sessile scars on axis. Panicle axis angular, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster.

Involucre composed of bristles, connate into a cup below, with 2–4 mm connate, 6–9 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, with one conspicuously longer bristle, 10–15 mm long, flattened, flexible (often wavy), antrorsely scaberulous, glabrous or 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, 4–5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of fertile lemma, membranous, 5 -veined, acute. Fertile lemma lanceolate, dorsally compressed, 4–5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins covering most of palea. Lemma apex acuminate. Palea 1 length of lemma, coriaceous, 2 -veined.

Flower and Fruit. Lodicules absent. Anthers 3.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Somalia.

Cenchrus sphacelatus (Nees) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from South Africa. **Basionym or Replaced Name:** *Gymnothrix sphacelata* Schumach., *Fl. Afr. Austral. Ill.* 68 (1841)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa, Stormberg: Drege (K isosyn); South Africa, Gekau: Drege s.n. ; South Africa, Gekau to Mbashe: Drege sn (K isosyn).

Recent Synonyms: *Pennisetum sphacelatum* (Nees) Th. Dur. & Schinz, *Consp. Fl. Afr.* v. 784 (1895).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (442, Fig 366), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (248, Fig 156).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): L. speckled with brown or black. The apices of the anthoecia are purple or black.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 30–150 cm long. Ligule a fringe of hairs. Leaf-blades convolute, 10–35 cm long, 2–4 mm wide, coriaceous, stiff.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above or pilose above. Panicle spiciform, linear, 4–12 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, smooth, glabrous or pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 4–14 mm long, base obconical. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, 4–14 mm long, terete, flexible, glabrous or plumose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, cuspidate or acuminate, 2.5–4.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or elliptic, 0.1–0.5 length of spikelet, hyaline, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume elliptic or ovate, (0.15–)0.33–0.66(–0.75) length of spikelet, membranous, without keels, 1–3 -veined. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 0.8–1 length of spikelet, membranous, 3–5 -veined, scaberulous, rough above, acute or setaceously acuminate. Fertile lemma elliptic, 2.5–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute or acuminate, mucronate. Palea membranous.

Flower and Fruit. Lodicules 2. Anthers 3, 2–2.5 mm long, anther tip smooth. Styles free to the base.

$2n = 18$ (1 ref TROPICOS).

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa.** Eritrea, Ethiopia (inc. Eritrea). Malawi. Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Western Cape, Eastern Cape.

Cenchrus spinifex Cav. *Ic.* 5:38. t. 461 (1799).

Regarded by K as a synonym (*C. echinatus*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *C. incertus*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *C. incertus*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002) (as *C. incertus*), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006) (as *C. incertus*), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *C. incertus*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *C. pauciflorus*), T.G.Tutin et al, *Flora Europaea* 5 (1980) (as *C. incertus*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *C. pauciflorus*).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. in Regne chilensi iuxta fundum Longavi, neonon prope Montavideol.,

Recent Synonyms: *Cenchrus incertus* M. A. Curt., *Bost. Journ. Nat. Hist.* 1: 135 (1837).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (452, Fig. 375 as *C. pauciflorus*), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (434, Fig. 364 as *C. incertus*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (289, Pl. 84 as *C. incertus* & as *C. pauciflorus*), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (as *C. incertus*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (180 as *C. incertus*), 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) (533), F.W.Gould, *The Grasses of Texas* (1975) (566, Fig. 297), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (364, Fig. 336 & 365, Fig. 337 as *C. microcephalus*, *C. pauciflorus*), S.A.Renvoize, *Gramineas de Bolivia* (1998) (555, Fig. 128), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (493, Fig. 177 as *C. pauciflorus*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (817, Fig. 168), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (467, Fig. 120 as *C. pauciflorus*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (298, Fig. 124 as *C. pauciflorus*), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, *Gramineas* (1969) (443, Fig. 187 & 444, Fig. 188 as *C. pauciflorus* var. *pauciflorus* & *C. pauciflorus* var. *muricatus*), W.Burger, *Flora Costaricensis* 15, *Gramineae: Fieldiana Botany New Series* 4 (1980) (120, Fig. 37), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:32(1980) as *C. pauciflorus*).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): *L. spina*, thorn; *facio*, make. Involucral bristles spiny.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 5–80 cm long. Ligule a fringe of hairs, 0.5–1.5 mm long. Leaf-blades 2–18 cm long, 2–6 mm wide. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 2–8.5 cm long, 0.8–2 cm wide. 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, 2–4 in the cluster. Involucre composed of bristles, connate into a cup below (cleft on 2 sides), with 2–7 mm connate, ovate or globose, 5.5–10.2 mm long, base obconical, base glabrous or pubescent. Involucral bristles deciduous with the fertile spikelets, emerging irregularly from body of a burr, 8–40 in principal whorl, with longest bristle scarcely emergent, 2–5 mm long, flattened, rigid, retrorsely scaberulous, pubescent, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 3.5–5.8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–1.3 mm long, 0.33–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 2.8–5 mm long, 0.75–0.9 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 5–7 -veined, acute. Fertile lemma ovate, 3.4–5.8 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex acute. Palea coriaceous.

Flower and Fruit. Anthers 3, 0.5–2 mm long. Caryopsis with adherent pericarp, ovoid, dorsally compressed, 1.3–3 mm long.

$2n = 34$ (2 refs TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, Australasia (*), North America, South America.

Region. Northern Europe (*), Southwestern Europe, Southeastern Europe, Eastern Europe.

Country /Province /State. : Great Britain (*). : Corsica, France, Spain. : Italy. Ukraine. **Northern Africa, Macaronesia, South tropical Africa, Southern Africa** (*). Algeria, Libya, Tunisia. Azores. Mozambique. Limpopo, Free State, Kwazulu-Natal, Northern Cape, Western Cape, Eastern Cape. **Western Asia, China.** Manchuria. **Australia.** Western Australia (*), South Australia (*), Queensland (*), New South Wales (*), A.C.T. (*), Victoria (*). **North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Illinois, Iowa, Kansas, Oklahoma. Indiana, Ohio, West Virginia. Arizona, California, Utah. New Mexico, Texas. Alabama, Florida, Georgia, Louisiana, North Carolina, South Carolina, Virginia. Central Mexico, Southwest Mexico. **Mesoamerica, Caribbean, Western South America, Brazil, Southern South America.** Belize, Costa Rica, El Salvador, Honduras, Nicaragua, Panama. Bahamas, Cayman Is, Cuba, Dominican Republic, Haiti, Jamaica (as *C. pauciflorus*), Leeward Is, Puerto Rico. Bolivia, Colombia, Ecuador, Peru. Brazil South. Argentina Northeast, Argentina Northwest, Chile North, Paraguay, Uruguay.

TDWG4. South-West. Southern. South East, Inland. Coast, Western Slopes. Catamarca, Jujuy, Mendoza, Salta, Santiago del Estero, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, La Pampa. Neuquén, Río Negro. Atacama. Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo 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.

Cenchrus squamulatus (Fresen.) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from Ethiopia. **Basionym or Replaced Name:** *Pennisetum squamulatum* Fresen., *Mus. Senckenberg.* 2: 137 (1837). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Abyssinia: Simen, August oder September, *Rueppell s.n.* (HT: FR).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (262, Fig 104).

Derivation (Clifford & Bostock 2007): L. squama, scale; -ula, diminutive; -atum, possessing. Paleas, lemmas and glumes well developed.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock evident. Culms 30–200 cm long. Ligule a fringe of hairs. Leaf-blades 15–30 cm long, 2–17 mm wide. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, curved, 5–25 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis terete, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets pedicelled, 2–5 in the cluster. Involucre composed of bristles, oblong, 6–12 mm long, base obtuse, base pilose. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles subequal to outer, terete, flexible, ciliate. Pedicels present, 1–3 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, laterally compressed, 3.5–7.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes membranous, 1–6 mm long, acuminate. Companion sterile spikelet lemmas 2, exserted from 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, 4.5–7 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 ovate, 0.25 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 0.33–0.5 length of spikelet, membranous, 0–1 -veined, without lateral veins, obtuse. Fertile lemma ovate, 4.5–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat, ciliolate. Lemma apex acuminate. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5 mm long, anther tip smooth. Styles connate below.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa. Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania.

Cenchrus stramineus (Peter) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from Tanzania. **Basionym or Replaced Name:** *Pennisetum stramineum* Peter, *Repert. Spec. Nov. Regni Veg. Beih.* 40(1): 71, fig. 37 (1930). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Peter 43215*, Tanzania, Masai District, Ngorongoro (B).

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

Derivation (Clifford & Bostock 2007): L. straw-yellow. Spikelets and attendant structures straw-colored.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending, 30–120 cm long, wiry. Lateral branches suffrutescent. Ligule an eciliate membrane, 0.5–1.5 mm long, lacerate. Leaf-blades 3–15 cm long, 2–9 mm wide. Leaf-blade surface glabrous or pubescent. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 2–15 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, smooth or scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, oblong, 7–12 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, 7–12 mm long, terete, flexible, 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, dorsally compressed, acuminate, 5–5.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic, 0.1–0.25 length of spikelet, hyaline, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume elliptic or ovate, 0.33–0.66 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5–7 -veined, scaberulous, rough above, acuminate. Fertile lemma elliptic, 5–5.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2 mm long, anther tip smooth. Styles free to the base.

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

Country /Province /State. Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea), Somalia. Kenya, Tanzania. Arabian Peninsula. Yemen.

Cenchrus tempisqueusis (R.W. Pohl) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Pennisetum tempisqueense* R.W. Pohl, *Fieldiana, Bot.*, 38(2): 6 (1976). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.W. Pohl & G. Davidse 11725*, 20 Feb 1969, Costa Rica: Guanacaste: 8 km N of Hacienda Palo Verde (14 km WSW of Bagaces) (ISC; IT: CR-47189, F, K, UC, US-3055850).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (469, Fig 176).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Rio Tempisque, Costa Rica.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 39–100 cm long. Culm-internodes glaucous, distally glabrous. Culm-nodes constricted, brown, glabrous. Lateral branches lacking. Leaf-sheaths wider than blade at the collar, keeled, glabrous on surface, outer margin glabrous. Ligule a ciliate membrane, 1–1.5 mm long. Leaf-blades flat or conduplicate, 8–22 cm long, 4.5–7.5 mm wide, glaucous. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 7–10 cm long, 2–2.5 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 10–14 mm long, base truncate, base 0.2–0.3 mm long. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, 20 in principal whorl, inner bristles shorter than outer, with one conspicuously longer bristle, 12–17 mm long, terete, flexible, 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 ovate, dorsally compressed, acuminate, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–1.6 mm long, 0.2–0.25 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 5–5.5 mm long, 0.9 length of spikelet, membranous, without keels, 7 -veined. Upper glume apex acuminate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 5.7–5.9 mm long, 1 length of spikelet, membranous, 5 -veined, acuminate. Fertile lemma ovate, 5.2–5.7 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.2–1.5 mm long, purple. Styles free to the base. Caryopsis with adherent pericarp, oblong, 2.1–2.2 mm long, light brown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Cenchrus thulinii (S.M. Phillips) Morrone. *Ann. Bot.* 106: 129 (2010).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Pennisetum*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Pennisetum*).

TYPE from Ethiopia. **Basionym or Replaced Name:** *Pennisetum thulinii* S.M. Phillips, *Kew Bull.*, 46(3): 535 (1991). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ethiopia: Arsi Prov.: Katar river, c. 20 km SW of Asella, 2200 m, on rocks near river, *Thulin 1541* (HT: K; IT: UPS).

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

Derivation (Clifford & Bostock 2007): in honor of Mats Thulin (fl. 1992), Swedish botanist who collected in Ethiopia.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, slender, 40 cm long, wiry. Leaf-sheaths tight. Ligule a fringe of hairs. Leaf-blades filiform, involute, 1–1.5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 2.5–3.5 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, base truncate. Involucral bristles deciduous with the fertile spikelets, few, 2 in principal whorl, 5–5.5 mm long, terete, flexible, 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, dorsally compressed, acute, 3 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 oblate, 0.4 mm long, 0.1–0.15 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex truncate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 0.2 length of spikelet, hyaline, 1 -veined, without lateral veins, acuminate, mucronate or awned. Awn of lower sterile floret terminal, 0.5–1 mm long. Fertile lemma oblong, 3 mm long, membranous, without keel, more than 3-veined. Lemma surface scaberulous, rough above. Lemma margins flat. Lemma apex obtuse, mucronate. Palea 1 length of lemma, membranous. Palea surface scaberulous. Palea apex ciliate.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Ethiopia (inc. Eritrea).

Cenchrus tribuloides Linn. *Sp. Pl.* 1050 (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), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: Kalm. s.n., USA: Virginia; "In Virginiae maritimis." (LINN). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 127 (1908).

Recent Synonyms: *Cenchrus vaginatus* Steud., *Syn. Pl. Gram.* 110. (1854).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (452, Fig. 375), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (289, Pl. 84), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (536), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (367, Fig. 338), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:33(1980)).

Derivation (Clifford & Bostock 2007): *L. tribulus*, a four-pronged implement strewn on the ground to impede cavalry and so in general applied to burrs; Gk. -oides, resembling. The spikelets and attendant bristles bear a fanciful resemblance to the fruits of *Tribulus*.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms 10–70 cm long. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 1–2.1 mm long. Leaf-blades 2–14 cm long, 3–14 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, dense or loose (internodes 3–10mm), 2–8.2 cm long, 1.5–3 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, smooth or scaberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, connate into a cup below, ovate, 9–16 mm long, base obconical, base glabrous. Involucral bristles deciduous with the fertile spikelets, numerous, emerging irregularly from body of a burr, 15–44 in principal whorl, 4–8 mm long, flattened, rigid, retrorsely scaberulous, ciliate, spinose.

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, acuminate, 6–8.8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–4 mm long, 0.2–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 4.9–6.8 mm long, 0.75 length of spikelet, membranous, without keels, 3–7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 5.5–7.5 mm long, 0.8–0.9 length of spikelet, membranous, 3–7 -veined, acute. Fertile lemma ovate, 6–8.7 mm long, coriaceous, much thinner on margins, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex obtuse. Palea coriaceous.

Flower and Fruit. Anthers 0.8–2.8 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Pacific, North America, South America.

Country /Province /State. North-central Pacific. Tonga (*). Hawaii (*). **Southeastern USA.** Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Virginia. **Caribbean, Western South America, Brazil.** Bahamas, Bermuda, Cayman Is, Cuba, Haiti, Jamaica, Puerto Rico. Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

Cenchrus thunbergii (Kunth) Morrone., *Ann. Bot.* 106: 129 (2010).

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), N.Tsvelev, *Grasses of the Soviet Union* (1983).

TYPE from South Africa. **Basionym or Replaced Name:** *Alopecurus hordeiformis* L., *Sp. Pl.* 1: 60 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: (LINN-82.5). LT designated by Renvoize in Cafferty et al., *Taxon* 49(2): 245 (2000).

Recent Synonyms: *Pennisetum glabrum* Steud., *Syn. Pl. Gram.* 104. (1854). *Pennisetum thunbergii* Kunth, *Revis. Gramin.* 1: 50 (1829).

Pennisetum thunbergii Kunth, *Rev. Gram.* 1: 50 (1829).

Panicum hordeiforme (L.) Thunb., *Fl. Jap.* 46 (1784).

Illustrations (Books): G.V.Pope et al., *Flora Zambesiaca* 10 (3(1989):184, t. 47), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (443, Fig 367), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (270, Fig 107), 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);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): in honor of Carl Pehr Thunberg (1743–1828) Swedish botanist and physician.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Butt sheaths glabrous. Culms erect or geniculately ascending, 10–150 cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or convolute, 3–40 cm long, 2–8 mm wide. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Peduncle glabrous. Panicle spiciform, linear or oblong, 2–15 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 5–14 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, 5–14 mm long, terete, flexible, 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 or ovate, dorsally compressed, acuminate, 2.5–5 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 oblong or ovate, 0.2–0.25 length of spikelet, hyaline, without keels, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent. Upper glume apex emarginate or obtuse or acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic or ovate, (0.25–)0.33–0.66(–0.75) length of spikelet, membranous, 1–3 -veined, cuspidate or acuminate, mucronate. Awn of lower sterile floret 0.5–1.5 mm long. Fertile lemma ovate, 2.5–5 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate, mucicous or mucronate. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2.5 mm long, anther tip smooth or penicillate. Styles connate below, 0.2 of their length connate. Caryopsis with adherent pericarp, oblong, dorsally compressed, 1.7 mm long.

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Middle Atlantic ocean.** Nigeria. Rwanda, DRC. Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Zambia, Zimbabwe. Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Western Cape, Eastern Cape. **Arabian Peninsula.** Yemen. **Indian Subcontinent.** Sri Lanka. **Australia.** Queensland (*).

TDWG4. South East.

Cenchrus trachyphyllus (Pilger) Morrone. *Ann. Bot.* 106: 129 (2010).

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:** *Pennisetum trachyphyllum* Pilger, *Engl. Jahrb.* . 122. (1901). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Albers 170*, Oct 1899, Usambara: Kwai, häufig auf feuchten Stellen der Bergabhänge bei 1600 m ST: *Albers 363*, ST: *Stuhlmann 9087*, ST: *Holst 3253*, ST: *Holst 5003*,.

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (274, Fig 108).

Derivation (Clifford & Bostock 2007): Gk. trachys, rough; phyllon, leaf. Leaf-blades scabrid.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms decumbent or rambling, 60–200 cm long, rooting from lower nodes. Culm-nodes black. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 10–45 cm long, 8–30 mm wide, membranous.

Inflorescence. Synflorescence compound, scanty.

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 10–25 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, oblong, 5–9 mm long, base obtuse or bluntly stipitate (indistinctly). Involucral bristles deciduous with the fertile spikelets, numerous, 15–30 in principal whorl, with one conspicuously longer bristle, 10–30 mm long, terete, flexible, 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, dorsally compressed, acute or acuminate, 4–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.1–0.25 length of spikelet, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 0.25–0.5 length of spikelet, membranous, without keels, 3–5 -veined. Upper glume apex acuminate.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 5–7 -veined, scaberulous, acuminate. Palea of lower sterile floret scabrous, adorned on keels. Fertile lemma ovate, 4–7 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma margins flat. Lemma apex acute or acuminate. Palea chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 2–3 mm long, anther tip smooth. Caryopsis with adherent pericarp, oblong, dorsally compressed, 2.5 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Cameroon, Rwanda, DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda.

Cenchrus trisetus (Leeke) Morrone. *Ann. Bot.* 106: 130 (2010).

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:** *Pennisetum trisetum* Leeke, *Abstamm. Heim. Negerhirse*, 30 (1907). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: [Africa: Abyssinia: Nile Land], *Schimper 1411, cited in Stapf & Hubb. 971*. (HT: B; IT: K).

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

Derivation (Clifford & Bostock 2007): L. tria, three; seta, bristle. Involucre of three bristles.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms 100–300 cm long. Ligule a fringe of hairs. Leaf-blades 15–45 cm long, 3–18 mm wide, glaucous.

Inflorescence. Synflorescence compound, scanty.

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 2–7 cm long, 0.4 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, scaberulous, glabrous or pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 0.5–3 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, few, 2–6(–15) in principal whorl, with one conspicuously longer bristle, 3–15 mm long, terete, flexible, 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, dorsally compressed, 2.8–4(–5) mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.5 mm long, 0.1–0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate or obtuse or acute. Upper glume elliptic, 0.8–1.5 mm long, 0.33 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5–7 -veined, scaberulous, acute. Fertile lemma elliptic, 2.8–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, anther tip smooth.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Rwanda, DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Zimbabwe.

Cenchrus unisetus (Nees) Morrone. *Ann. Bot.* 106: 130 (2010).

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*).

TYPE from South Africa. **Basionym or Replaced Name:** *Gymnotrix unisetata* Nees, *Fl. Afr. Austral. Ill.* 66 (1841). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *J.F. Drége s.n.*, South Africa: Natal (K, L).

Recent Synonyms: *Beckeropsis uniseta* (Nees) K. Schum., *Engl. Pflanzenw. Ost-Afr. B.* 52 (1895). *Pennisetum unisetum* (Nees) Benth., *Journ. Linn. Soc.* 19: 47 (1881).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (258, Fig. 190 as *Beckeropsis*), W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi*, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (361, Pl. 53, as *Beckeropsis*), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (449, fig 373 as *Beckeropsis*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (274, Fig 108), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14e (1940) (81, Fig. 48).

Derivation (Clifford & Bostock 2007): L. unus, one; seta, bristle. Spikelet subtended by a single bristle.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, robust, 60–400 cm long, 2–15 mm diam. Ligule a ciliate membrane. Collar glabrous or bearded. Leaf-blade base without a false petiole or with a false petiole. Leaf-blades linear to lanceolate, 20–60 cm long, (5–)10–30 mm wide, flaccid.

Inflorescence. Synflorescence compound, paniculate.

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 2–4 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis puberulous. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, base obtuse. Involucral bristles deciduous with the fertile spikelets, in one whorl, 1 in principal whorl, (2.5–)7–40 mm long, terete, flexible, 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, 2–3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base truncate.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.2–0.5 mm long, 0.1 length of spikelet, hyaline, pallid, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex emarginate or truncate or obtuse. Upper glume ovate, 0.2–0.5(–0.8) mm long, 0.1–0.2 length of spikelet, hyaline, pallid, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex emarginate or truncate or obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, scabrous, acute. Fertile lemma elliptic, 2–3 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma margins flat. Lemma apex obtuse.

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. Benin, Burkina, Ghana, Guinea-Bissau, Guinea, Ivory Coast, Nigeria, Senegal, Sierre Leone. Cameroon, Gabon, Rwanda, DRC. Chad, Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Mpumalanga, Kwazulu-Natal. **Arabian Peninsula.** Yemen. **Papuasiasia.** New Guinea PNG. New Guinea. New Caledonia (*).

Cenchrus violaceus (Lam.) Morrone. *Ann. Bot.* 106: 130 (2010).

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

TYPE from Senegal. **Basionym or Replaced Name:** *Panicum violaceum* Lam., *Tabl. Encycl.* 1: 169 (1791). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *D. Rousillon s.n.*, Senegal (P).

Recent Synonyms: *Pennisetum fallax* (Fig. & De Not.) Stapf & C. E.Hubbard, *Kew Bull.* 1933, 270 (1933). *Pennisetum violaceum* (Lam.) Rich.ex. *Pers. Syn. Pl.* 1: 72 (1805).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962), L.Boulos, *Flora of Egypt* 4 (2005) (313, Pl. 92).

Derivation (Clifford & Bostock 2007): L. violet. Spikelets, stigmas or anthers violet-colored.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending or decumbent, 30–300 cm long. Ligule a fringe of hairs. Leaf-blades 15–100 cm long, 3–25 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 2.5–20 cm long, 0.8–2 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis terete, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, oblong, 4–8 mm long, base obtuse. Involucral bristles deciduous with the fertile

spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, terete, flexible, plumose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 4–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes both absent or obscure or one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume oblate, 1–3.5 mm long, 0.25–0.5 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret lanceolate, 1.5–6 mm long, 0.33–0.9 length of spikelet, chartaceous, (1–)3–5 -veined, eciliate on margins, obtuse. Fertile lemma lanceolate or ovate, 5–6.5 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat, eciliate. Lemma apex obtuse or acute. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2.5 mm long, anther tip penicillate. Styles connate below. Caryopsis with adherent pericarp, lanceolate or ellipsoid, dorsally compressed, 2–3 mm long, obtuse.

$N = 7$ (1 ref TROPICOS). $2n = 14$ (1 ref TROPICOS), or 20 (1 ref TROPICOS).

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

Country /Province /State. **Northern Africa, West tropical Africa, West-central tropical Africa, Northeast tropical Africa.** Algeria, Egypt. Mali, Mauritania, Nigeria, Senegal. Central African Republic. Chad, Eritrea, Sudan. **Brazil.** Brazil West Central.

Cenchrus weberbaueri (Mez) Morrone. *Ann. Bot.* 106: 130 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Pennisetum weberbaueri* Mez, *Notizbl. Bot. Gart. Berlin*, 7: 50 (1917). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Peru: Dept. Junin prope Tarma, *Weberbauer 2393*.

Illustrations (Books): S.A.Renouze, *Gramineas de Bolivia* (1998) (545, Fig 124).

Illustrations (Journals): *Ruizia* (13:405 Fig 54d-f (1993)).

Derivation (Clifford & Bostock 2007): in honor of August Weberbauer (1871–1948) German botanist resident in Peru.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms 70–100 cm long. Culm-nodes pubescent. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades 12–25 cm long, 6–15 mm wide.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 5–7 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, scabrous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 5–6 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, 15–20 in principal whorl, with one conspicuously longer bristle, 10–12 mm long, terete, flexible, smooth, 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, dorsally compressed, 5.5–6.2 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.15 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.5 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma lanceolate, 5–6 mm long, coriaceous, without keel. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Styles free to the base. Caryopsis with adherent pericarp.

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

Country /Province /State. **Western South America.** Bolivia, Ecuador, Peru.

Pennisetum (Cenchrus) articulare Trin. *Spreng. Neue Entdeck.* ii. 77. (1821).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from Marquesas. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: [Marquesas: Nukahiva]: "Hab. in Insula Nucahiwa.",.

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

Derivation (Clifford & Bostock 2007): *L. articulatus*, joint. Burrs shortly stalked and readily articulating.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending or decumbent, 15–60 cm long, wiry. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades flat or convolute, 15–50 cm long, 1–5 mm wide. Leaf-blade surface scaberulous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear or oblong, 4–10 cm long. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, with scattered hairs to pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 8–20 mm long, base obconical, base 0.5 mm long, base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, inner bristles longer than outer, with longest bristle scarcely emergent, 8–20 mm long, terete, flexible, antrorsely 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, dorsally compressed, acute, 5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0–3 mm long, 0–0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 0.5–0.75 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume apex acuminate.

Florets. Basal sterile florets absent or 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 3–5 -veined, acuminate. Fertile lemma lanceolate, 4.5–5.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate. Palea 1 length of lemma, chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 2 mm long, anther tip apiculate. Stigmas pubescent. Styles connate below. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. South-central Pacific. Marquesas.

Pennisetum (Cenchrus) baojiense W.X. Tong. *Bull. Bot. Res. North-East. Forest. Inst.*, 12(4): 339 (1992).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Shaanxi: Baoji shi, open hill slopes, 660 m, 23 Sept. 1988, *W.X. Tong 88-sh-BJ-006* (HT: LIAS; IT: CAAS, JSBI).

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

Derivation (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Baoji, Shaanxi Province, China.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms geniculately ascending, 100–120 cm long, 8–12 -noded. Leaf-sheaths glabrous on surface, outer margin glabrous or hairy. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades flat, 30–55 cm long, 5–12 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, interrupted (and branched below), loose, 35–45 cm long. Primary panicle branches accrescent to a central axis. Panicle axis pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, 10–25 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 10–25 mm long, terete, rigid, 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, dorsally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 1–1.5 mm long, 0.25 length of spikelet, membranous, without keels, 1(–3) -veined. Lower glume lateral veins absent or obscure.

Lower glume apex acute. Upper glume ovate, membranous, without keels, 3(–5) -veined. Upper glume apex acuminate.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, chartaceous, acuminate. Fertile lemma lanceolate, 5–7 mm long, cartilaginous, without keel. Lemma margins flat. Lemma apex acuminate. Palea cartilaginous.

Flower and Fruit. Anthers 3, anther tip smooth.

Distribution (TDWG). Continent. Temperate Asia.

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

TDWG4. Gansu, Shaanxi. Guizhou, Sichuan, Yunnan.

Pennisetum (Cenchrus) beckeroides Leake. *Abstamm. Heim. Negerhirse*, 30 (1907).

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: [Africa]: "Abessinien", "Nile Land. Abyssinia...", *Schimper 38, in Stapf. & Hubb.* (HT:B; IT:K,P).

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

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Beckera*.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 100–200 cm long. Lateral branches ample. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a ciliate membrane, 1–2 mm long. Leaf-blades 15–35 cm long, 4–6 mm wide, light green. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Synflorescence compound, scanty.

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 5–8 cm long, 0.6–0.7 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, scaberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 0.5–3 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, few, 3–5 in principal whorl, with one conspicuously longer bristle, 3–3.5 mm long, terete, flexible, 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 or oblong, dorsally compressed, obtuse to acute, 3–3.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1 mm long, 0.3 length of spikelet, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume margins ciliolate. Lower glume apex acute. Upper glume ovate, 2 mm long, 0.66 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma lanceolate, 3–3.5 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 2 mm long, anther tip smooth. Styles free to the base.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Ethiopia (inc. Eritrea).

Pennisetum (Cenchrus) caffrum (Bory) Leake. *Abstamm. Heim. Negerhirse*, 39 (1907).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Reunion. **Basionym or Replaced Name:** *Aristida caffra* Bory, *Voy. Iles Afrique* 2: 376 (1804). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Bory St. Vincent s.n.*, 1821, Reunion Islands: plaines de Cafres, isle de Bourbon (LE; IT: G-Del, US-80469 (fragm. ex G-Del)).

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

Derivation (Clifford & Bostock 2007): Pertaining to the Kaffirs of sothern Africa.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 30–50 cm long, 1 -noded. Culm-internodes distally pubescent. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades convolute, 10–15 cm long, 2–3 mm wide, stiff. Leaf-blade surface ribbed, grooved adaxially, glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle spiciform, linear or oblong, straight, 6–10 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis.

Panicle axis with rounded ribs, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 10–15 mm long, base obtuse, base 0.5 mm long, base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, in one whorl, with one conspicuously longer bristle, 20–40 mm long, terete, flexible, 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, dorsally compressed, 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 lanceolate, 1 mm long, 0.25–0.33 length of spikelet, hyaline, without keels. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 4 mm long, 1 length of spikelet, membranous, 7 -veined, setaceously acuminate. Fertile lemma lanceolate, 4 mm long, chartaceous, without keel. Lemma margins flat. Lemma apex acute. Palea 2 mm long, 0.5 length of lemma, chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5 mm long, purple.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Mauritius, Madagascar.

Pennisetum (Cenchrus) centrasiatricum Tsvelev. *Akad. Nauk SSSR Bot. Inst. Komarova, Rast. Tsentral. Azii, Fasc. 4, 3* (1968).

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

TYPE from Tajikistan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tajikistan:.,

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

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Rhizomes elongated. Culms erect or geniculately ascending, 15–80 cm long. Culm-internodes distally glabrous. Ligule a ciliolate membrane, 0.7–1.2 mm long. Leaf-blades flat or convolute, 2–5 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, loose, 5–18 cm long, 0.5–1.3 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis scabrous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 10–15 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 10–15 mm long, terete, flexible, antrorsely scaberulous, 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, dorsally compressed, 3.5–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.15–0.2 length of spikelet, membranous, without keels. Lower glume apex acute. Upper glume ovate, 0.66 length of spikelet, membranous, without keels. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, chartaceous, acuminate. Fertile lemma lanceolate, 3.5–6 mm long, cartilaginous, without keel. Lemma margins flat. Lemma apex acuminate. Palea cartilaginous.

Flower and Fruit. Anthers 3, 2.8–3.8 mm long, purple, anther tip smooth.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Middle Asia, China, Mongolia. Turkmenistan. China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, China Southeast, Tibet, Xinjiang.

TDWG4. Gansu, Hebei, Shaanxi, Shandong, Shanxi. Henan. Hubei, Sichuan, Yunnan.

Pennisetum (Cenchrus) divisum (Forsk. ex F. Gmel.) Henrard. *Blumea*, iii. 162, in obs. (1938).

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 Arabia. **Basionym or Replaced Name:** *Panicum divisum* Forssk. ex Gmelin, *Syst. Nat.* 2: 156 (1791). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Forsskal s.n.*, Arabia (C).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 416 & 417 as *P. asperifolium*), L.Boulos, *Flora of Egypt* 4 (2005) (315, Pl. 93), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (245, Fig 142), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (499, Pl. 191).

Images: L.Boulos, *Flora of Egypt* 4 (2005);.

Derivation (Clifford & Bostock 2007): *L. divido*, divide. Different from the normal in some respect as with culms much branched.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short, knotty. Culms erect or geniculately ascending, 50–100(–200) cm long, woody, without nodal roots or rooting from lower nodes. Culm-internodes glaucous. Lateral branches suffrutescent. Leaf-sheaths loose. Ligule a fringe of hairs. Leaf-blades deciduous at the ligule, filiform, convolute, 3–7.5 cm long, 1–1.5 mm wide, glaucous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle spiciform, oblong, 5–12 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, 1 in the cluster. Involucre composed of bristles, oblong, 7–20 mm long, base bluntly stipitate (0.5–1mm). Involucral bristles deciduous with the fertile spikelets, numerous, terete, flexible, glabrous or 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, 6.5–8.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.5–0.75 length of spikelet, membranous, without keels, 1(–3) -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute or acuminate. Upper glume oblong, 0.9–1 length of spikelet, membranous, without keels. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, chartaceous, acuminate. Fertile lemma lanceolate, 6.5–8.5 mm long, chartaceous, without keel. Lemma margins flat. Lemma apex acuminate. Palea chartaceous.

Flower and Fruit. Anthers 3, anther tip smooth.

$N = 18$ (1 ref TROPICOS), or 27 (1 ref TROPICOS). $2n = 36$ (1 ref TROPICOS).

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

Country /Province /State. **Northern Africa, West tropical Africa, Northeast tropical Africa.** Algeria, Egypt, Libya, Morocco, Tunisia. Niger. Eritrea, Socotra, Somalia. **Western Asia, Arabian Peninsula.** Afghanistan, Iran, Iraq, Palestine, Israel & Jordan. Gulf States, Kuwait, Oman, Saudi Arabia. **Indian Subcontinent.** India, Pakistan.

TDWG4. Gujarat.

Pennisetum (Cenchrus) glaucifolium Hochst. ex A. Rich. *Tent. Fl. Abyss.* 2: 382. (1850).

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: Crescit in petris umbrosis mediae regionis australis montis Selleuda, ..., *Schimper, pl. Schimp. Abyss., sect. I, 390* (HT:P; IT:K; ?:US) IGS note says no inflorescence on US type.

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

Derivation (Clifford & Bostock 2007): *L. glaucus*, bluish-green; folium, leaf. With bluish-green foliage.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Cataphylls evident. Rhizomes short. Basal innovations extravaginal. Culms erect or geniculately ascending, 60–200 cm long. Culm-nodes bearded. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane, 2–3 mm long. Leaf-blades 20–40 cm long, 2–12 mm wide, glaucous. Leaf-blade surface glabrous or puberulous. Leaf-blade margins scaberulous.

Inflorescence. Synflorescence compound, scanty.

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 3–10 cm long, 0.5–0.6 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 6–9 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 25–30 in principal whorl, with one conspicuously longer bristle, 12–16 mm long, terete, flexible, 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 or oblong, dorsally compressed, acute, 4–5.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.6–1 mm long, 0.1–0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate or obtuse. Upper glume ovate, 1.5–3 mm long, 0.4–0.6 length of spikelet, membranous, without keels, 1–3 -veined. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5–7 -veined, scaberulous, rough above, acute. Fertile lemma oblong, 3.5–5 mm long, chartaceous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex apiculate. Palea chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 2.5–3 mm long, anther tip smooth. Styles free to the base. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Ethiopia (inc. Eritrea).

Pennisetum (Cenchrus) gracilescens Hochst. *Flora*, 38: 199 (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: HT: *Schimper 1411*, Ethiopia: Dschadscha (STR; IT: K, L).

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

Derivation (Clifford & Bostock 2007): *L. gracilescens*, become slender. Culms slender.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms geniculately ascending or decumbent, 45–60 cm long, woody, rooting from lower nodes. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or conduplicate or involute, 10–20 cm long, 3–5 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially, glabrous or pilose, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 3–7.5 cm long, 0.5–0.8 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, scaberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, cuneate, 10–20 mm long, base obtuse, base villous. Involucral bristles deciduous with the fertile spikelets, numerous, 15–30 in principal whorl, with one conspicuously longer bristle, 14–24 mm long, terete, flexible, 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 lanceolate, dorsally compressed, acute, 3.5–4 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 1–2 mm long, 0.33–0.5 length of spikelet, hyaline, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume lanceolate, 2.5–3 mm long, 0.75 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 3–5 -veined, scaberulous, rough above, acute or acuminate, mucronate. Fertile lemma oblong, 3.5–4 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 2 mm long, anther tip smooth. Styles connate below, 1 of their length connate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Eritrea, Ethiopia (inc. Eritrea), Sudan.

Pennisetum (Cenchrus) henryanum Forest Brown. *Bull. Bishop Mus., Honolulu*, No. 84, 61 (1931).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from Marquesas. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Marquesas, Nukuhiva, Hawaii, 16 Jun 1921, *F. Brown 454*.

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

Derivation (Clifford & Bostock 2007): *L. -anum*, indicating connection. In honor of Charles Henry (fl. 1921) French official in the Marquesas.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms decumbent, 30–60 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.1 mm long. Leaf-blades 20–40 cm long, 10 mm wide. Leaf-blade surface glabrous. Leaf-blade margins spinulose.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 10–13 cm long, 2–3 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, puberulous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets 1 in the cluster. Involucre composed of bristles, 18–25 mm long, base bluntly stipitate, base 0.5 mm long. Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent, 18–25 mm long, terete, flexible, antrorsely 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, dorsally compressed, 4–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2 mm long, 0.5 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 3 mm long, 0.75 length of spikelet, membranous, without keels, 3 -veined. Upper glume surface puberulous. Upper glume margins ciliate. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male or barren, without significant palea. Lemma of lower sterile floret oblong, 4 mm long, 1 length of spikelet, membranous, 5 -veined, obtuse. Fertile lemma ovate, 4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acuminate. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. South-central Pacific. Marquesas.

Pennisetum (Cenchrus) humile Hochst. ex A. Rich. *Tent. Fl. Abyss.* 2: 383. (1850).

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: *G.H.W.* 1372, 30 July 1838, Ethiopia: Semien, Enschedap (P; IT: K, MO, WAG).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (270, Fig 107).

Derivation (Clifford & Bostock 2007): L. low growing. Short-statured in comparison with related species often prostrate.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Basal innovations intravaginal. Culms erect or geniculately ascending, slender, 5–20 cm long, 1–2 -noded. Ligule a fringe of hairs. Leaf-blades conduplicate or convolute, 6–12 cm long, 1–2.5 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Peduncle 5–10 cm long, glabrous or pubescent above. Panicle spiciform, oblong or globose, 1–2 cm long, 0.5–0.7 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, base truncate, base pubescent. Involucral bristles deciduous with the fertile spikelets, few, 7–8 in principal whorl, with longest bristle scarcely emergent, 5–7 mm long, terete, flexible, 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, 5–5.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.5–1 mm long, 0.1–0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate. Upper glume oblate, 0.5–1 mm long, 0.1–0.2 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex truncate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 2–2.5 mm long, 0.4–0.5 length of spikelet, hyaline, 0–1 -veined, without midvein or with evident midvein, without lateral veins, acuminate. Fertile lemma oblong, 5–5.5 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute or apiculate. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 3 mm long, anther tip smooth. Styles connate below. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Ethiopia (inc. Eritrea).

Pennisetum (Cenchrus) laxior (Clayton) Clayton. *Kew Bull.*, 32(3): 580 (1978).

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

TYPE from Nigeria. **Basionym or Replaced Name:** *Beckeropsis laxior* Clayton, *Bull. Brit. Mus. (Nat. Hist.)*, Bot. 3: 118 (1963). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Keay 22678*, 31 Oct 1948, Nigeria: Idanre Hills (K).

Illustrations (Books): F.N.Hepper, *F.W.T.A.* 3(2) (1972) (458 Fig.446 as *Beckeropsis laxior*).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3643 (1967)).

Derivation (Clifford & Bostock 2007): L. more lax. Racemes more lax than those of related species.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 40–80 cm long, 7–10 -noded. Lateral branches ample. Leaf-sheaths glabrous on surface or pilose. Ligule a ciliate membrane. Leaf-blade base without a false petiole or with a false petiole, petiole 0–5 cm long. Leaf-blades 5–10(–25) cm long, 3–6(–14) mm wide, flaccid. Leaf-blade surface pubescent or pilose. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 2–3 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis scaberulous, glabrous. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, base obtuse. Involucral bristles deciduous with the fertile spikelets, in one whorl, 1 in principal whorl, 15–25 mm long, terete, flexible, 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, dorsally compressed, acuminate, (3–)3.5–4(–4.5) mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 mm long, 0.5 length of upper glume, 0.1–0.15 length of spikelet, hyaline, pallid, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex emarginate or truncate or obtuse. Upper glume elliptic, 0.75–1 mm long, 0.2–0.25 length of spikelet, hyaline, pallid, without keels, 0 -veined. Upper glume primary vein absent. Upper glume apex emarginate or truncate or obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 5 -veined, spinulose, rough above, hispidulous, hairy above, hairy between veins, acuminate. Fertile lemma elliptic, 3–4 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma surface hispidulous, hairy above. Lemma margins flat. Lemma apex acute. Palea 1 length of lemma, cartilaginous, 2 -veined.

Flower and Fruit. Lodicules 2, cuneate, 0.2 mm long, truncate. Anthers 3, 2 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, West-central tropical Africa, Northeast tropical Africa. Ghana, Nigeria. Cameroon, Annobon, Principe & Sao Tome.

Pennisetum (Cenchrus) ledermannii Mez. *Engl. Jahrb. Ivii. Beibl.* 191 (1921).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Cameroon. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Ledermann 2776*, Cameroon (B: US).

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

Derivation (Clifford & Bostock 2007): in honor of Carl Ludwig Ledermann (1875–1958) Swiss-born West African plant collector.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms erect, 100–150 cm long. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs. Leaf-blades 20–35 cm long, 4–8 mm wide. Leaf-blade surface pilose, hairy adaxially. Leaf-blade margins scaberulous. Leaf-blade apex filiform.

Inflorescence. Inflorescence a panicle. Peduncle scaberulous above, pubescent above. Panicle spiciform, linear, 15–25 cm long, 0.8 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis scaberulous, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an

involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 5–10 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 15–26 in principal whorl, with one conspicuously longer bristle, 10–20 mm long, terete, flexible, 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, dorsally compressed, acuminate, 4.5–5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.5 mm long, 0.1 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblate, 1 mm long, 0.2 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins obscure. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 3 mm long, 0.6 length of spikelet, membranous, 1–3 -veined, acute, mucronate. Fertile lemma elliptic, 4.5–5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 3 mm long, anther tip smooth. Styles connate below.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa. Cameroon.

Pennisetum (Cenchrus) longistylum Hochst. ex A. Rich. *Tent. Fl. Abyss.* 2:388 (1850).

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: *G.H.W. Schimper* 65, 30 Sep 1837, Ethiopia: crescit ad ripas depressas prope Adoua (G; IT: L, MO, US-1061598 (fragm. ex B), US-243715 (fragm. ex G)).

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

Derivation (Clifford & Bostock 2007): L. longus, long; stylum, column. Style long.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, mat forming. Cataphylls evident. Rhizomes elongated. Culms decumbent, 10–25 cm long. Leaf-sheaths keeled, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs. Leaf-blades conduplicate, 5–16 cm long, 3–5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Panicle spiciform, linear, 1–3 cm long, 0.6 cm wide, bearing few spikelets. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, glabrous. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, lanceolate, 10–20 mm long, base obtuse, base pubescent. Involucral bristles deciduous with the fertile spikelets, numerous, terete, flexible, 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, 10–20 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate or oblate, 0.5–1 mm long, 0.05–0.1 length of spikelet, membranous, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate or oblate, 1–2 mm long, 0.1–0.15 length of spikelet, membranous, without keels, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret lanceolate or ovate, 1 length of spikelet, membranous, 11–15 -veined, obtuse. Fertile lemma lanceolate, 10–20 mm long, membranous, without keel. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 4–4.5 mm long, anther tip smooth. Filaments 5 mm long. Stigmas 2. Styles connate below, 1 of their length connate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Macaronesia, Northeast tropical Africa. Azores, Canary Is, Madeira. Eritrea, Ethiopia (inc. Eritrea).

Pennisetum (Cenchrus) montanum (Griseb.) Hack. ex Stuck. *Anal. Mus. Buenos Aires*, 11: 84 (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 Argentina. **Basionym or Replaced Name:** *Hymenachne montana* Griseb., *Abh. Konigl. Ges. Wiss. Göttingen* 19: 307 (1874). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *Schickendantz* 177, Feb 1873, Argentina: Catamarca: Cuesta de la Negrilla (GOET; IT: CORD, US-1720134). ST: *Hieronymous* 640, 20 Feb 1877, Argentina: Córdoba: al norte de al Cuesta de Copina (CORD, GOET).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (5448, Fig 126).

Derivation (Clifford & Bostock 2007): L. mons, mountain; -ana, indicating location. Growing on mountains.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms decumbent, zigzag, 100–200 cm long, rooting from lower nodes. Lateral branches ample, arising from lower culm. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule a fringe of hairs. Leaf-blade base with a false petiole, petiole 0.5–1 cm long. Leaf-blades 10–20 cm long, 8–30 mm wide.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 5–9 cm long, 0.5–0.8 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis angular, glabrous. Spikelets solitary or subtended by an involucre (a few spikelets at base of spike). Fertile spikelets sessile. Involucre composed of bristles, 2–10 mm long. Involucral bristles deciduous with the fertile spikelets, few, 1 in principal whorl, terete, flexible, antrorsely scaberulous, 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, dorsally compressed, 4.5–5 mm long, falling entire, deciduous from the base or with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.25–0.33 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.5 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex entire or dentate, 3 -fid, obtuse.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblong, 1 length of spikelet, membranous, 5–7 -veined, pubescent, entire or dentate, 3 -fid, obtuse. Fertile lemma lanceolate, 4.5–5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex obtuse. Palea 1 length of lemma, chartaceous.

Flower and Fruit. Lodicules absent. Anthers 3. Styles free to the base. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, Tucuman. Cordoba.

Pennisetum (Cenchrus) nubicum (Hochst.) K.Schum ex Engl. *Abh. Preuss. Akad. Wiss.* 1894: 58 (1894).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Sudan, Ethiopia. **Basionym or Replaced Name:** *Gymnotrix nubica* Hochst., *Flora* 27(16): 251 (1844). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *Kotschy* 152, 9 Oct 1839, Africa: Nubia: ad latus orientale montis Kordofan, Arash-Cool (WAG; IST: MO). In pll. exsicc. Un. it. ex Kotschy itin. Nubico nr. 152.. ST: *Kotschy* 13, 1837–1838, Africa: Ethiopia: in monte "Beci." (?; IST: MO). In Fl. Aethiopia Th. Kotschy exsicc. nr. 13. ST: *Kotschy* 368, Africa: Ethiopia: inter Corosco et Berber In Fl. Aethiopia Th. Kotschy exsicc. ... nr. 368..

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

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Nubia, either the Sudan or north-east Africa in general.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms erect, 100–150 cm long. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades 10–25 cm long, 5–10 mm wide, flaccid. Leaf-blade surface scaberulous, rough abaxially. Leaf-blade margins scaberulous.

Inflorescence. Synflorescence compound, scanty.

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 2.5–5 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis puberulous. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, base obtuse. Involucral

bristles deciduous with the fertile spikelets, in one whorl, 1 in principal whorl, 20–30 mm long, terete, flexible, 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, dorsally compressed, acute, 2–3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.1–0.5 mm long, 1 length of upper glume, 0.05–0.15 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate. Upper glume oblong, 0.1–0.5 mm long, 0.05–0.15 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex truncate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, smooth or scaberulous, acute. Fertile lemma elliptic, 2–3 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or scaberulous. Lemma margins flat. Lemma apex acute. Palea cartilaginous.

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

Country /Province /State. Northeast tropical Africa. Eritrea, Ethiopia (inc. Eritrea), Sudan. **Arabian Peninsula.** Saudi Arabia.

Pennisetum (Cenchrus) pirottiae Chiov. *Ann. Ist. Bot. Roma*, viii. 37. (1908).

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: Barca, Agordat, circa 500 m, 27–30 Mar 1893, *Terracciano & Pappi 2814*.

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

Derivation (Clifford & Bostock 2007): in honor of Pietro Ranualdo Pirott (1853–1936) Italian botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 150–300 cm long, 3–9 mm diam. Lateral branches fastigiata. Ligule a fringe of hairs. Leaf-blades lanceolate, 7–20 cm long, 6–20 mm wide. Leaf-blade surface scaberulous, rough abaxially. Leaf-blade margins scaberulous.

Inflorescence. Synflorescence compound, fastigiata (bunches of 3–12 inflorescences).

Inflorescence a panicle, terminal and axillary. Panicle spiciform, linear, 0.8–2.5 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis scaberulous, glabrous. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, base obtuse. Involucral bristles deciduous with the fertile spikelets, in one whorl, 1 in principal whorl, 7–9 mm long, terete, flexible, 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, dorsally compressed, acute, 3–3.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.5–0.75 mm long, 0.75 length of upper glume, 0.15–0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.75–1 mm long, 0.25–0.33 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, scaberulous, acute. Fertile lemma elliptic, 3–3.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or scaberulous. Lemma margins flat. Lemma apex acute. Palea cartilaginous.

Flower and Fruit. Anthers 3, 2 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Eritrea, Ethiopia (inc. Eritrea), Sudan.

Pennisetum (Cenchrus) nodiflorum Franch. *Bull. Soc. Hist. Nat. Autun*, 8: 363 (1895).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from DRC; Congo Rep. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Dybowski s.n.*, Congo Francais: environs de Brazzaville ST: *Fr. Hens 32*, Congo Belge: Stanley pool.

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

Derivation (Clifford & Bostock 2007): *L. nodus*, knot; flos, flower. Culms with many short lateral branches each terminating in an inflorescence.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 40–80 cm long, woody. Culm-nodes swollen. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or conduplicate or involute, 2–15 cm long, 3–6 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear or oblong, loose, 2–10 cm long, 0.6–0.8 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs or angular, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, 4–10 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, 16–35 in principal whorl, with longest bristle scarcely emergent, 4–10 mm long, terete, flexible, antrorsely 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, dorsally compressed, 3.5–4.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 1–2 mm long, 0.33–0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume apex obtuse or acute. Upper glume ovate or obovate, 3.5–4.5 mm long, 1 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma ovate, 3.5–4.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 2 mm long, anther tip smooth. Styles connate below. Caryopsis with adherent pericarp.

Distribution (TDWG), Continent. Africa.

Country /Province /State. West-central tropical Africa. DRC.

Pennisetum (Cenchrus) pumilum Hack. ex Engl. *Abh. Preuss. Akad. Wiss.* II. 124. (1892).

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: ST: *Schimper 1486*, 20 Aug 1863, Ethiopia: bei Gaft, auf Sumpfwiesen (US).

ST: *Schimper 1488*, 1863, Ethiopia: Gerra.

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

Derivation (Clifford & Bostock 2007): *L. dwarf*, low growing. Habit typically depauperate.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Culms erect or geniculately ascending, slender, 10–15 cm long, 1–2 -noded. Lateral branches lacking. Ligule a fringe of hairs. Leaf-blades aciculate, conduplicate, 3–9 cm long, 0.5–1 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Peduncle 6–9 cm long. Panicle spiciform, linear, 1.8–3.5 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis scaberulous, glabrous. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, base obtuse. Involucral bristles deciduous with the fertile spikelets, in one whorl, 1 in principal whorl, 6–12 mm long, terete, flexible, 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, 3–3.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate.

Glumes. Glumes both absent or obscure or one the lower absent or obscure or two, similar, shorter than spikelet, thinner than fertile lemma. Lower glume obovate, 0.1–0.5 mm long, 0.05 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume obovate, 0.1–0.5 mm long, 0.05 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 5 -veined, scaberulous, entire or dentate, 3 -fid, obtuse. Fertile lemma ovate, 3–

3.5 mm long, membranous, much thinner on margins, without keel, 5 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 2–2.5 mm long, anther tip smooth.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Ethiopia (inc. Eritrea).

Pennisetum (Cenchrus) pseudotriticoides A.Camus. *Rev. Bot. Appliq.* xxvii. 272 (1947).

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

TYPE from Madagascar. **Basionym or Replaced Name:** *Pennisetum triticoides* Baker, *J. Linn. Soc., Bot.* 21: 453 (1885). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar, *Baron* 683, 3239, 3294, *Parker s.n.* (ST: K).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (299, Fig 110).

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 50–80 cm long. Culm-internodes distally glabrous. Ligule a fringe of hairs. Leaf-blades conduplicate, 15–50 cm long, 2–4 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, loose, 8–20 cm long, 0.5–0.8 cm wide. 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, 1 in the cluster. Involucre composed of bristles, 10–11 mm long. Involucral bristles deciduous with the fertile spikelets, in one whorl, 10–15 in principal whorl, with one conspicuously longer bristle, 12–25 mm long, terete, flexible, 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, dorsally compressed, 7–9 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.05 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Upper glume ovate, 1–1.5 mm long, 0.15–0.33 length of spikelet, membranous, without keels, 1 -veined. Upper glume primary vein obscure. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, 7–9 -veined, acute. Fertile lemma lanceolate, 7–9 mm long, cartilaginous, without keel. Lemma margins flat. Lemma apex acute. Palea membranous.

Flower and Fruit. Lodicules absent. Anthers 3.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Pennisetum (Cenchrus) schweinfurthii Pilger. *Engl. Jahrb.* . 121. (1901).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Sudan/Ethiopia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *G.A. Schweinfurth 1500*, Sep 1865, Sudan: Kassala (US-1720196).

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

Derivation (Clifford & Bostock 2007): in honor of Georg August Schweinfurth (1836–1925) German botanist and anthropologist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 30–60 cm long, 1.5–2.5 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous or pilose, with tubercle-based hairs. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle spiciform, linear, 10–20 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis villous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets pedicelled, 4 in the cluster. Involucre composed of bristles, oblong, 9–12 mm long, base obtuse. Involucral bristles deciduous with the fertile spikelets, numerous, with an outer whorl of thinner bristles, with one conspicuously longer bristle, 20–28 mm long, terete, flexible, ciliate. Pedicels present, 0.5–1 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong, laterally compressed, 9–10 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 8–9 mm long, keeled, 1–3 -veined, obtuse or acute. Companion sterile spikelet lemmas 2, exerted from glumes, 6–8 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, acuminate, 9–10 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 ovate, 1–2 mm long, 0.1–0.2 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate or ovate, 2–3 mm long, 0.33–0.5 length of spikelet, membranous, 0–1 -veined, without midvein or with evident midvein, without lateral veins, acute. Fertile lemma ovate, 9–10 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma margins flat. Lemma apex acuminate. Palea 1 length of lemma, coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, 5–6 mm long, anther tip smooth. Styles connate below. $2n = 14$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Ethiopia (inc. Eritrea), Sudan.

Pennisetum (Cenchrus) sieberianum (Schlecht.) Stapf & C.E.Hubb. *Kew Bull.* 1933. 270 (1933).

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:** *Penicillaria sieberiana* Schlecht., *Linnaea* 25(5): 565 (1853). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sieber s.n.*, Egypt (?).

Recent Synonyms: *Pennisetum dalzielii* Stapf & C.E.Hubb., *Kew Bull.* 1933, 290. (1933).

Illustrations (Books): L.Boulos, *Flora of Egypt* 4 (2005) (313, Pl. 92).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Franz Wilhelm Sieber (1789–1844) Bohemian botanist and traveller.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Annual. Culms robust, 100–300 cm long. Ligule a fringe of hairs. Leaf-blades 50–100 cm long, 20–40 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 5–150 cm long, 1–3 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis terete, pubescent, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 2 in the cluster. Involucre composed of bristles, oblong, 6–9 mm long, base bluntly stipitate (0.2–1.5mm). Involucral bristles deciduous with the fertile spikelets, numerous, with longest bristle scarcely emergent or with one conspicuously longer bristle, 10–25 mm long, terete, flexible, glabrous or 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 or elliptic or obovate, dorsally compressed, 4–6 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes both absent or obscure or one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume oblong, 1–3 mm long, 0.25–0.5 length of spikelet, membranous, without keels, 0–3 -veined. Upper glume primary vein absent or distinct. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret lanceolate or oblong, 1.5–6 mm long, 0.33–1 length of spikelet, chartaceous, 3–5 -veined, ciliolate on margins, emarginate or obtuse. Fertile lemma lanceolate or ovate, 3.5–5.5 mm long, coriaceous, without keel. Lemma margins flat, pubescent. Lemma apex truncate to acuminate. Palea coriaceous.

Flower and Fruit. Lodicules absent. Anthers 3, anther tip penicillate. Styles connate below. Caryopsis with adherent pericarp, ellipsoid or ovoid, isodiametric or dorsally compressed, concealed by floret or exposed between gaping lemma and palea at maturity, 2–4.5 mm long, truncate or obtuse.

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

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa, South tropical Africa, Southern Africa. Egypt, Nigeria, Senegal, Chad, Eritrea, Ethiopia (inc. Eritrea), Sudan, Angola. Arabian Peninsula. Gulf States, Oman, Saudi Arabia.

Pennisetum (Cenchrus) tristachyum (Kunth) Spreng. *Syst. Veg.* 1:302 (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 Ecuador. **Basionym or Replaced Name:** *Gymnotrix tristachya* Kunth, *Nov. Gen. Sp. (quarto ed.)* 1: 113, t. 61 (1815) [1816]. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, Jan, Ecuador: Pichincha: 2340 m (P).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (Fig. 124 as *tristachyon*).

Derivation (Clifford & Bostock 2007): Gk. treis, three; stachys, ear of corn. Arranged in threes as of spikelets or racemes.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial. Culms decumbent, robust, 150–300 cm long, 5–10 mm diam., without nodal roots or rooting from lower nodes. Lateral branches ample. Leaf-sheaths outer margin hairy. Ligule a ciliate membrane, 1–4 mm long. Leaf-blade base with a false petiole. Leaf-blades lanceolate, 20–32 cm long, 20–40 mm wide. Leaf-blade surface hirsute, hairy on both sides.

Inflorescence. Inflorescence a panicle, terminal and axillary, subtended by an inflated leaf-sheath. Panicle spiciform, linear, curved, 6–10 cm long, 1–2 cm wide. Primary panicle branches accrescent to a central axis, with sessile scars on axis. Panicle axis with rounded ribs, scabrous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, 6–12 mm long, base truncate. Involucral bristles deciduous with the fertile spikelets, numerous, with one conspicuously longer bristle, 16–18 mm long, terete, flexible, 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 ovate, dorsally compressed, acuminate, 3.9–5.2 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.1 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 1–2 mm long, 0.25–0.4 length of spikelet, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex caudate.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, 4–5.2 mm long, 1 length of spikelet, membranous, 5–6 -veined, scabrous, caudate. Palea of lower sterile floret 0.66 length of lemma. Fertile lemma ovate, 3–4.2 mm long, chartaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma lateral veins obscure. Lemma surface asperulous. Lemma margins flat. Lemma apex emarginate. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 1.5–2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mesoamerica, Northern South America, Western South America, Brazil, Southern South America. Venezuela. Bolivia, Colombia, Ecuador, Peru. Argentina Northwest.

TDWG4. Jujuy, Salta, Tucuman.

Pennisetum (Cenchrus) uliginosum Hack. ex Engl. *Abh. Preuss. Akad. Wiss* ii. 123. (1892).

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: *Schimper 1488*, (W; IT: B, K).

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

Derivation (Clifford & Bostock 2007): L. uligo, wetness of the earth; -osa, abundance. Growing in swampy places.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Rhizomes elongated. Culms erect or geniculately ascending, slender, 20–30 cm long, 2–5 -noded, without nodal roots or rooting from lower nodes. Leaf-sheaths keeled. Ligule a fringe of hairs. Leaf-blades 6–12 cm long, 2–2.5 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Peduncle 10–16 cm long. Panicle spiciform, linear, 3–5 cm long, 0.3–0.4 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis angular, scaberulous, glabrous, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile, 1 in the cluster. Involucre composed of bristles, oblong, base truncate. Involucral bristles deciduous with the fertile spikelets, few, 2–3 in principal whorl, with longest bristle scarcely emergent, 5–10 mm long, terete, flexible, 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, acute, 3.5–4 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.1–0.8 mm long, 0.02–0.2 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate. Upper glume oblate, 0.1–0.8 mm long, 0.02–0.2 length of spikelet, hyaline, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex emarginate or truncate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate or oblate, 0.25–0.33 length of spikelet, hyaline, 1 -veined, without lateral veins, entire or dentate, 3 -fid, emarginate or truncate, mucronate. Fertile lemma oblong, 3.5–4 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma margins flat. Lemma apex obtuse, mucronate. Palea 1 length of lemma, membranous.

Flower and Fruit. Lodicules absent. Anthers 3, 2–3 mm long, anther tip smooth. Styles free to the base. Caryopsis with adherent pericarp.

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

Country /Province /State. **Northeast tropical Africa.** Ethiopia (inc. Eritrea).

Pennisetum (Cenchrus) yemense Deflers. *Voy. Yemen*, 217. (1889).

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: [Arabia]: "In wadi Mazebe prope Menakhah; ...", *Exs.* 369.

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

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rootstock evident. Rhizomes short or elongated. Culms erect, 20–40(–100) cm long. Ligule a fringe of hairs. Leaf-blades 1–3 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, 6–12(–16) cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Panicle axis with rounded ribs, pubescent or pilose, bearing deciduous spikelet clusters. Spikelets subtended by an involucre. Fertile spikelets sessile or sessile and pedicelled, 1–3 in the cluster, 1 sessile. Involucre composed of bristles, oblong, 20–30 mm long, base bluntly stipitate, base 1.7 mm long, base villous. Involucral bristles deciduous with the fertile spikelets, numerous, in one whorl, with one conspicuously longer bristle, 30–40 mm long, terete, flexible, plumose. 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 lanceolate, dorsally compressed, 8.5–10 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure or two, dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate or orbicular, 0–1 mm long, 0.1 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 0.33–0.5 length of spikelet, membranous, without keels. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 7–9 -veined, acuminate. Fertile lemma oblong, 8–9 mm long, coriaceous, much thinner above, without keel, 5–9 -veined, more than 3-veined. Lemma margins flat. Lemma apex acute.

Flower and Fruit. Lodicules absent. Anthers 3.

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

Country /Province /State. **Northeast tropical Africa.** Eritrea. **Arabian Peninsula.** Yemen.

Centotheca lappacea (L.) Desv. *Nouv. Bull. Sci. Soc. Philom., Paris*, 2: 189 (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), 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).

Basionym or Replaced Name: *Cenchrus lappaceus* L., *Sp. Pl. (ed. 2)*, 1488 (1763). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: (LINN-1212–15). LT designated by ?; cited by Monod de Friodville, *Blumea* 19: 59 (1971).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (138, Fig. 63), F.N.Hepper, *F.W.T.A.* 3(2) (1972) (382, Fig.428), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (228, Fig. 83), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (234), C-C Hsu, *Taiwan Grasses* (1975) (392, Pl. 1372), N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (458, Fig. 50), K.M.Mathew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 821 & 822), H.J.Noltie, *The Grasses of Bhutan* (2000) (637, Fig. 30), H.B.Gilliland, *Grasses of Malaya* (1971) (54, Fig. 4), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (39, Fig. 27), 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. 849).

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);, K.Domin, *Bibliotheca Botanica* 85 (1915) (410, Fig.95 as *C. malabarica*).

Derivation (Clifford & Bostock 2007): *L. lappa*, burr; -acea, indicating resemblance. Lemmas of the upper floret bearing reflexed bristles.

Classification. Subfamily Panicoideae. Tribe: Centothecae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect, 30–100 cm long. Ligule an eciliate membrane, 2–3 mm long. Leaf-blade base simple or broadly rounded, asymmetrical. Leaf-blades lanceolate, 8–12 cm long, 15–20 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous or pilose, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 10–25 cm long, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1–3 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 lanceolate, laterally compressed or subterete, 5–8 mm long, falling entire, deciduous with the pedicel.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 2.5 mm long, 0.8 length of upper glume, herbaceous, 1-keeled, 3–5 -veined. Lower glume primary vein scaberulous. Lower glume apex acute, mucronate. Upper glume oblong, 3.2 mm long, 0.9 length of adjacent fertile lemma, herbaceous, 1-keeled, 3–5 -veined. Upper glume primary vein scaberulous. Upper glume apex acute, mucronate.

Florets. Fertile florets with the lowest dissimilar. Lowest fertile lemma glabrous. Fertile lemma oblong, 3–3.5 mm long, herbaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface hispid, with reflexed hairs. Lemma apex emarginate, mucronate. Palea oblanceolate, 0.5 length of lemma, 2 -veined. Palea apex pubescent. Apical sterile florets 1 in number, barren, ovate, 0.5 mm long.

Flower and Fruit. Lodicules 2, cuneate. Anthers 2, 0.4–0.7 mm long.

Vegetative proliferation occurs.

N = 12 (2 refs TROPICOS).

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Australasia, Pacific.

Country /Province /State. **West tropical Africa, West-central tropical Africa.** Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Senegal, Sierre Leone. Cameroon, Gabon, Annobon, Principe & Sao Tome, Bioko, DRC. **China, Eastern Asia.** China South Central, Hainan, China Southeast. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Assam, Eastern Himalaya, India, Nepal, Sri Lanka. Andaman Is, Cambodia, Laos, Myanmar, Thailand, Vietnam. Borneo, Java, Lesser Sunda Is, Malaya, Singapore, Moluccas, Philippines, Sulawesi, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is. **Australia.** Queensland. **Southwestern Pacific, South-central Pacific, Northwestern Pacific.** Fiji, Niue, New Caledonia, Samoa, Tonga, Vanuatu, Wallis-Futuna Is. Cook Is, Marquesas, Society Is, Tubuai Is. Caroline Is, Marianas, Marshall Is.

TDWG4. Fujian, Guangdong, Guangxi, Jiangxi. Yunnan. Darjeeling, Bhutan, Sikkim. Assam, Manipur, Meghalaya, Nagaland, Tripura. Andhra Pradesh, Bihar, Goa, Kerala, Karnataka. Madhya Pradesh, Maharashtra, Punjab, Tamilnadu, Uttah Pradesh, West Bengal. North.

Centotheca longilamina Ohwi. *Bull. Tokyo Sci. Mus.*, No. 18, 10 (1947).

Regarded by K as a synonym (*C. lappacea*).

Accepted by: J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Bakhuizen van der Brink* 3312, 8 June 1924, Indonesia: Java, Jakarta, 600 m (BO; IT: L, U).

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

Derivation (Clifford & Bostock 2007): *L. longus*, long; lamina, sword blade. Leaf-blades long.

Classification. Subfamily Panicoideae. Tribe: Centothecae.

Habit, Vegetative Morphology. Annual. Culms 60–120 cm long. Ligule an eciliate membrane, 1 mm long. Leaf-blade base simple, symmetrical. Leaf-blades lanceolate, 20–30 cm long, 15–25 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 15–30 cm long, 10–20 cm wide, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1–2 mm long.

Fertile Spikelets. Spikelets comprising 1–2 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 lanceolate, laterally compressed or subterete, 4 mm long, falling entire, deciduous with the pedicel.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 2.5 mm long, 0.75 length of upper glume, herbaceous, 1-keeled, 3–5 -veined. Lower glume primary vein scaberulous. Lower glume apex acuminate. Upper glume oblong, 3.2 mm long, 0.9 length of adjacent fertile lemma, herbaceous, 1-keeled, 3–5 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile florets all alike. Fertile lemma oblong, 3–3.5 mm long, herbaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface hispid, with reflexed hairs. Lemma apex emarginate, mucronate. Palea 3.5 mm long.

Flower and Fruit. Lodicules 2, cuneate. Anthers 2, 0.5–1.25 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China, Malesia, Papuaia. Thailand. Borneo, Java, Sumatra, Malaya, Singapore. New Guinea.

Centotheca philippinensis (Merr.) Monod de Froideville. *Blumea*, 19(1): 60 (1971).

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 Philippines. **Basionym or Replaced Name:** *Ramosia philippinensis* Merr., *Philipp. J. Sci.* 11: 2 (1916). T:<Type of Basionym>; *fide* TROPICOS and Kew Synonymy Database: HT: *Ramos BS 23607*, [Aug 1915], Philippines (PNH+; IT: K, L).

Recent Synonyms: *Ramosia philippinensis* Merrill, *Philipp. Journ. Sc., Bot.* 11: 2 (1916).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From the Philippines.

Classification. Subfamily Panicoideae. Tribe: Centothecae.

Habit, Vegetative Morphology. Annual. Culms 30–100 cm long. Ligule an eciliate membrane. Leaf-blade base simple, symmetrical. Leaf-blades linear or lanceolate, 2.5–15 cm long, 3–10 mm wide. Leaf-blade venation with distinct cross veins.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 4–10 cm long, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, 1–1.5 mm long, 0.5–1 length of fertile spikelet, puberulous, hairy all along but hairs longer above.

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 or subterete, 5–8 mm long, falling entire, deciduous with the pedicel.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 2.5 mm long, 0.75 length of upper glume, herbaceous, 1-keeled, 3–5 -veined. Lower glume primary vein scaberulous. Lower glume apex acuminate. Upper glume oblong, 3.2 mm long, 0.9 length of adjacent fertile lemma, herbaceous, 1-keeled, 3–5 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile florets all alike. Fertile lemma oblong, 3–3.5 mm long, herbaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex emarginate, mucronate.

Flower and Fruit. Lodicules 2, cuneate. Anthers 2, 0.5–0.75 mm long.

Distribution (TDWG). Continent. Tropical Asia, Australasia.

Country /Province /State. Malesia, Papuaia. Philippines. New Guinea PNG, or West Papua (Irian Jaya). New Guinea. **Australia.** Queensland. Fiji.

TDWG4. North.

Centotheca uniflora Swallen. *Journ. Wash. Acad. Sc.* 26: 535 (1936).

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: *P.A. Petelot 5635*, 26 Feb 1936, Vietnam: Province de Quang Binh: in petite massif de Ang Son, village de Van Huan (US-1645234; IT: L, P, US-1645235).

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

Derivation (Clifford & Bostock 2007): L. unus, one; flos, flower. Spikelets with one fertile floret.

Classification. Subfamily Panicoideae. Tribe: Centothecae.

Habit, Vegetative Morphology. Annual. Culms 30–100 cm long. Ligule an eciliate membrane. Leaf-blade base simple, symmetrical. Leaf-blades lanceolate, 5–14 cm long, 6–13 mm wide. Leaf-blade venation with distinct cross veins.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 10–25 cm long, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–7 mm long, 2–7.5 length of fertile spikelet, smooth, glabrous.

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 or subterete, 4 mm long, falling entire, deciduous with the pedicel.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 2.5 mm long, 0.75 length of upper glume, herbaceous, 1-keeled, 3–5 -veined. Lower glume primary vein scaberulous. Lower glume apex acuminate. Upper glume oblong, 3.2 mm long, 0.9 length of adjacent fertile lemma, herbaceous, 1-keeled, 3–5 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 3–3.5 mm long, herbaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex emarginate, mucronate.

Flower and Fruit. Lodicules 2, cuneate. Anthers 2, 1.25–1.4 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Centochloa singularis Swallen. *Journ. Wash. Acad. Sc.* 25: 192 (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 Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.R. Swallen 3703*, 1–5 Mar 1934, Brazil: Maranhco, between Barra do Corda and Grajahu. (US-1611707).

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

Derivation (Clifford & Bostock 2007): L. singulus, solitary; -are, pertaining to. Inflorescence consisting of a single raceme.

Classification. Subfamily Panicoideae. Tribe: Paspaleae. Subtribe PASPALINAE.

Habit, Vegetative Morphology. Annual. Culms erect, 10–75 cm long. Ligule a ciliate membrane, 0.5 mm long. Leaf-blades conduplicate, 5–15 cm long, 3–8 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 2–7, digitate, unilateral, 3–14 cm long. Rhachis narrowly winged, angular, 0.5 mm wide, scabrous on margins. Spikelet packing adaxial, regular, 1 -rowed. 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 obovate (turbinate), turbinate, dorsally compressed, 3.5–4 mm long, falling entire.

Glumes. Glumes one the lower absent or obscure, exceeding apex of florets, thinner than fertile lemma. Upper glume ovate, spurred, 3.5–4 mm long, membranous, without keels, 3 -veined. Upper glume surface pubescent, hairy between veins, with a transverse fringe of hair (0.7–1mm). Upper glume hairs red. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 1 length of spikelet, membranous, 3 -veined, pubescent, with a transverse fringe of hair, bearing red hairs, bearing hairs 0.5 mm long, obtuse. Fertile lemma obovate, 2.2–2.5 mm long, indurate. Lemma margins involute. Lemma apex obtuse, pubescent. Palea indurate.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil West Central, Brazil Northeast. Goias, Maranhao, Piaui.

Centropodia forskalii (Vahl) T.A. Cope. *Kew Bull.*, 37(4): 658 (1983).

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 *Asthenatherum*), N.Tsvelev, *Grasses of the Soviet Union* (1983) (as *Asthenatherum*).

TYPE from Egypt. **Basionym or Replaced Name:** *Asthenatherum forskalii* (Vahl) Nevski, *Acta Univ. As. Med. Ser.* 8 b, Bot. Fasc. 17, 8 (1934). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Forsskal 40*, Egypt: Cairo, in desertis Kahirimis (C (4 sheets)).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (153, Fig. 78 as *Asthenatherum*), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 355 as *Asthenatherum forsskalii*), L.Boulos, *Flora of Egypt* 4 (2005) (219, Pl. 62 as *C. forskaolii*), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (as *Asthenatherum*), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (381, Pl. 145 as *Asthenatherum forsskalii*), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (32, Fig. 5 as *Asthenatherum*).

Derivation (Clifford & Bostock 2007): in honor of Pehr Forsskeol (1736–1768), Swedish botanist.

Classification. Subfamily Arundinoideae. Tribe: Arundineae. Tribe: Centropodieae.

Habit, Vegetative Morphology. Perennial, caespitose. Cataphylls evident. Culms decumbent, 3–50 cm long. Culm-internodes solid, glaucous, distally pubescent. Ligule a ciliate membrane. Leaf-blades deciduous at the ligule, flat or involute, 0.7–7 cm long, 2–5 mm wide, stiff, glaucous. Leaf-blade surface ribbed, pubescent. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle contracted, oblong, 1–20 cm long, 0.5–2 cm wide. 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 lanceolate, laterally compressed, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated between glumes, definite. Floret callus evident, curved, 1 mm long, pubescent, pungent, disarticulating obliquely.

Glumes. Glumes persistent, similar, exceeding apex of florets, similar to fertile lemma in texture. Lower glume elliptic, 7–9 mm long, 1 length of upper glume, chartaceous, without keels, 7–9 -veined. Lower glume surface asperulous, glabrous or pubescent, hairy below. Lower glume apex acute. Upper glume lanceolate, 7–9 mm long, chartaceous, without keels, 7–9 -veined. Upper glume surface asperulous, glabrous or pubescent, hairy below. Upper glume apex acute.

Florets. Fertile lemma oblong, 4–5 mm long, chartaceous, much thinner above, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent, hairy between veins, with a transverse row of hair tufts, bearing 2–6 hair tufts in all. Lemma apex lobed, 2 -fid, with lanceolate lobes, incised 0.4–0.45 of lemma length, acuminate, awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 3–5 mm long overall, without a column or with twisted column. Palea 0.75 length of lemma, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 1–1.3 mm long. Caryopsis with adherent pericarp.

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

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa, South tropical Africa. Egypt, Libya, Mauritania, Eritrea, Sudan. Middle Asia, Western Asia, Arabian Peninsula. Turkmenistan, Uzbekistan. Iran, Iraq, Palestine, Israel & Jordan, Sinai. Gulf States, Kuwait, Oman, Saudi Arabia. Indian Subcontinent. Pakistan.

TDWG4.

Centropodia fragilis (Guinet & Sauvage) T.A. Cope. *Kew Bull.*, 37(4): 658 (1983).

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

TYPE from Morocco. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: T: *Guinet & Sauvage 95*, Morocco (RAB).

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

Derivation (Clifford & Bostock 2007): L. weak. Inflorescences readily disarticulating.

Classification. Subfamily Arundinoideae. Tribe: Arundineae. Tribe: Centropodieae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms erect or geniculately ascending, 60–90(–120) cm long, 8–12 -noded. Culm-internodes distally pubescent. Leaf-sheaths pubescent. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades deciduous at the ligule, flat or involute, 3–10 cm long, 2–4 mm wide, stiff, glaucous. Leaf-blade surface ribbed, pubescent. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear or lanceolate, 15–30 cm long, 2–3 cm wide. Primary panicle branches 1 -nate, 4–7 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 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 lanceolate, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated between glumes, 1.2–1.4 mm long. Floret callus evident, 1.4–1.8 mm long, pubescent, pungent, disarticulating obliquely.

Glumes. Glumes persistent, similar, reaching apex of florets. Lower glume elliptic, 8–10 mm long, 1 length of upper glume, chartaceous, without keels, 7–9 -veined. Lower glume surface asperulous. Lower glume apex acuminate. Upper glume lanceolate, 8–10 mm long, 2 length of adjacent fertile lemma, chartaceous, without keels, 7–9 -veined. Upper glume surface asperulous. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 4–5 mm long, chartaceous, much thinner above, without keel, 9 -veined, more than 3-veined. Lemma lateral veins ribbed. Lemma surface pubescent, hairy between veins, with a transverse row of hair tufts, bearing 6–8 hair tufts in all (arching upwards). Lemma margins ciliate. Lemma hairs 2–3 mm long. Lemma apex lobed, 2 -fid, with lanceolate lobes, incised 0.5 of lemma length, acuminate, awned, 1 -awned. Principal lemma awn from a sinus, straight, 3 mm long overall, with a straight or slightly twisted column. Column of lemma awn 2 mm long. Palea 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 1.6–2.5 mm long. Caryopsis with adherent pericarp, ellipsoid, 2.2 mm long.

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

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa, Western Indian ocean. Egypt, Libya. Mauritania. Chad. Western Asia, Arabian Peninsula. Sinai. Gulf States, Saudi Arabia.

Centropodia glauca (Nees) T.A. Cope. *Kew Bull.*, 37(4): 658 (1983).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Asthenatherum glaucum* (Nees) Nevski, *Acta Univ. As. Med. Ser.* 8 b, Bot. Fasc. 17, 9 (1934), *Danthonia glauca* Nees, *Fl. Afr. Austr.* 327. (1841). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: In collibus siccis sabulosis prope Kuigunjels ad flumen Garip, *Dredge*.

Illustrations (Books): R.M.Phill, F.T.E.A., *Gramineae* (1(1970):123, Fig. 39 as *Asthenatherum glaucum*), G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999):13, t. 6), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (246, Fig. 218 as *Danthonia*), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984) (as var. *lasiophylla*), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (80, Fig 40).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): *L. glauca*, bluish-green. Whole plant or any of its parts glaucous.

Classification. Subfamily Arundinoideae. Tribe: Arundineae. Tribe: Centropodieae.

Habit, Vegetative Morphology. Perennial. Rootstock evident. Cataphylls evident. Rhizomes elongated. Culms decumbent, 15–60 cm long. Culm-internodes solid, glaucous, distally pubescent. Ligule a ciliate membrane. Leaf-blades deciduous at the ligule, flat or involute, 3–9 cm long, 3–7 mm wide, stiff, glaucous. Leaf-blade surface ribbed, pubescent. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 2.5–11 cm long, 1–2.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated between glumes. Floret callus evident, curved, 1 mm long, pubescent, pungent, disarticulating obliquely.

Glumes. Glumes persistent, similar, exceeding apex of florets, similar to fertile lemma in texture. Lower glume lanceolate, 7–10 mm long, 1 length of upper glume, chartaceous, without keels, 7 -veined. Lower glume surface asperulous, glabrous or pubescent, hairy below. Lower glume apex acute. Upper glume lanceolate, 7–10 mm long, chartaceous, without keels, 5–7 -veined. Upper glume surface asperulous, glabrous or pubescent, hairy below. Upper glume apex acute.

Florets. Fertile lemma oblong, 4–5 mm long, chartaceous, much thinner above, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent, hairy between veins, with a transverse row of hair tufts, bearing 6 hair tufts in all. Lemma apex lobed, 2 -fid, with lanceolate lobes, incised 0.5–0.6 of lemma length, acuminate, awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 3–5 mm long overall, without a column or with twisted column. Palea 0.75 length of lemma, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2–3 mm long. Caryopsis with adherent pericarp. $N = 24$ (2 refs TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa, Southern Africa. Kenya. Namibia, Botswana, North-West, Northern Cape.

Centropodia mossamedensis (Rendle) T.A. Cope. *Kew Bull.*, 37(4): 658 (1983).

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 mossamedensis* Rendle, *Cat. Welw. Afr.* Pl. 2: 211. (1899). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Welwitsch 2282*, Angola: Mossamedes, in coarse sandy places near Cavalheiros on the river Onco

ST: *Welwitsch*, Angola: Mossamedes, in coarse sandy places near Cavalheiros by the river Bero.

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Mossamedes, Angola.

Classification. Subfamily Chloridoideae. Tribe: Centropodieae.

Habit, Vegetative Morphology. Perennial, caespitose. Cataphylls evident. Rhizomes short, knotty. Culms geniculately ascending or decumbent, 60–80(–120) cm long, 4–7 -noded. Culm-internodes distally pubescent. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 1–1.2 mm long. Leaf-blades deciduous at the ligule, involute, 5–10 cm long, 3–8 mm wide, stiff, glaucous. Leaf-blade surface ribbed, pubescent. Leaf-blade margins cartilaginous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 15–30 cm long, 2–3 cm wide. Primary panicle branches 1 -nate, 3–7 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–10 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 lanceolate, laterally compressed, 18–24 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes elongated between glumes, 1.2 mm long. Floret callus evident, curved, 1.8–2 mm long, pubescent, pungent, disarticulating obliquely.

Glumes. Glumes persistent, similar, reaching apex of florets or shorter than spikelet. Lower glume elliptic, 17–22 mm long, 1 length of upper glume, chartaceous, without keels, 7–11 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume lanceolate, 17–22 mm long, 2 length of adjacent fertile lemma, chartaceous, without keels, 7–11 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma oblong, 9–11 mm long, chartaceous, much thinner above, without keel, 9 -veined, more than 3-veined. Lemma lateral veins ribbed. Lemma surface pubescent, hairy between veins, with a transverse row of hair tufts, bearing 6–8 hair tufts in all. Lemma margins ciliolate. Lemma hairs 4–5 mm long. Lemma apex lobed, 2 -fid, with lanceolate lobes, incised 0.5–0.6 of lemma length, acuminate, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 13–16 mm long overall, with twisted column. Column of lemma awn 4–5 mm long. Palea 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 4–5 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. South tropical Africa, Southern Africa. Angola. Namibia.

Cephalostachyum burmanicum R. N. Parker & C. E. Parkinson. *Fedde, Repert.* 1: 127 (1932).

Accepted by: 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: ST: *Po Khant 13440*, 5 May 1932, Burma: Tenasserim, Mergui Dist. (US-1612366).

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

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Burma, now Myanmar.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–1800 cm long, 80–100 mm diam., woody. Culm-internodes terete, thin-walled, 50 cm long, glaucous, distally hispid. Lateral branches dendroid. Culm-sheaths present, brown, hispid, with black hairs, auriculate, setose on shoulders, shoulders with curved hairs. Culm-sheath blade ovate, cordate, pubescent, acuminate. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs scanty, deciduous. Leaf-sheath auricles erect. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like

connection to sheath. Leaf-blades lanceolate, 15–35 cm long, 25–32 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 14–26 secondary veins, with obscure cross veins. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, dense, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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 lanceolate, laterally compressed, 12–18 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 1–2 empty glumes, persistent, shorter than spikelet. Upper glume ovate, chartaceous, without keels. Upper glume apex acuminate, mucronate.

Florets. Fertile lemma lanceolate, 7–9 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma apex acuminate, mucronate or awned, 1 -awned. Principal lemma awn 0.5–0.9 mm long overall. Palea 1 length of lemma, chartaceous. Palea keels approximate. Palea apex dentate, 2 -fid, with excurrent keel veins. Apical sterile florets 1 in number, rudimentary.

Flower and Fruit. Lodicules 3, veined, ciliate. Anthers 6, anther tip smooth. Filaments free. Stigmas 2–3. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp, oblong or obovoid.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Myanmar.

Cephalostachyum capitatum Munro. *Trans. Linn. Soc.* 26: 139 (1868).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Schizostachyum capitatum* (Munro) R.B. Majumdar, non Rupr.(1839), S. Karthikeyan et al., *Fl. Ind. Enumerat. - Monocot.*: 281 (1989). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: TYPE MATERIAL: *N. Wallich 8913*, no date, India (US-2809349).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (494, Fig. 3).

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, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning or scandent, 400–1000 cm long, 25–30 mm diam., woody. Culm-internodes terete, thin-walled, 60–100 cm long, yellow or mid-green. Lateral branches dendroid. Culm-sheaths present, 15–30 cm long, 3–4 times as long as wide, chartaceous, pubescent, with appressed hairs, with tawny hairs, concave at apex or truncate at apex, auriculate. Culm-sheath ligule entire or ciliate. Culm-sheath blade lanceolate, erect or reflexed, pubescent. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty, deciduous. Ligule an eciliate membrane. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.5–0.8 cm long. Leaf-blades lanceolate or ovate, 10–20 cm long, 25–50 mm wide, light green. Leaf-blade midrib conspicuous. Leaf-blade venation with 8–20 secondary veins, without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate, filiform, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, globose, 2–3.5 cm long, dense, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 15–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Upper glume ovate, 10–12 mm long, chartaceous, without keels. Upper glume surface glabrous or pubescent, hairy below. Upper glume apex acute, awned, 1 -awned, awn 10 mm long.

Florets. Fertile lemma ovate, 10–12 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 2–5 mm long overall. Palea tightly convolute around flower, chartaceous. Palea keels approximate. Palea surface pubescent, hairy on back.

Flower and Fruit. Lodicules 3, veined, ciliate. Anthers 6, anther tip smooth. Stigmas 2, pubescent. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp, ovoid.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Assam, Eastern Himalaya.

TDWG4. Darjeeling, Bhutan, Sikkim.

Cephalostachyum chapelieri Munro. *Trans. Linn. Soc.* 26: 140 (1868).

Accepted by: 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: Hab. in Madagascar, *Chapelier s.n.* (HT: P).

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

Derivation (Clifford & Bostock 2007): In honor of Louis Armand Chapelier (1779–1800) French botanist who collected in Madagascar.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, woody. Culm-internodes terete, antrorsely scabrous. Lateral branches dendroid. Branch complement several. Culm-sheaths present. Leaf-sheaths striately veined, outer margin hairy. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 6–12 cm long, 12–18 mm wide, indurate. Leaf-blade venation with 10–12 secondary veins, with distinct cross veins. Leaf-blade surface hirsute, sparsely hairy. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, globose, 2 cm long, dense, with foliaceous subtending bracts, bracts 25–30 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume lanceolate, 10–12 mm long, membranous, 7–11 -veined. Lower glume apex attenuate. Upper glume ovate, 10–12 mm long, membranous, without keels, 7–11 -veined. Upper glume apex attenuate.

Florets. Fertile lemma ovate, 10–12 mm long, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma apex dentate, 2 -fid. Palea tightly convolute around flower, chartaceous. Palea keels approximate.

Flower and Fruit. Lodicules absent. Anthers 6. Stigmas 3. Ovary with a steeple-like appendage. Caryopsis with free brittle pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cephalostachyum chevalieri A.Camus. *Bull. Soc. Bot. France.* 90: 74 (1943).

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): In honor of Jean Baptiste Auguste Chevalier (1873–1956) French botanist and collector in tropical Africa, SE Asia and Brazil.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 800 cm long, woody. Culm-internodes terete, thin-walled, distally pubescent. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long, petiole glabrous. Leaf-blades lanceolate, 11–12 cm long, 20–25 mm wide. Leaf-blade venation with 12–14 secondary veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, 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 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 oblong, laterally compressed, 15–16 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet, shiny. Lower glume ovate, 4–5 mm long. Lower glume surface smooth. Lower glume apex mucronate. Upper glume lanceolate, 8–9 mm long, chartaceous, without keels. Upper glume surface smooth. Upper glume mucronate.

Florets. Fertile lemma ovate, 9–10 mm long, chartaceous, without keel, more than 3-veined. Lemma surface glabrous. Lemma margins ciliate. Lemma apex acuminate, mucronate. Palea 9–10 mm long,

chartaceous, 2-keeled but the uppermost without keels. Palea keels approximate, scaberulous. Apical sterile florets 1 in number, barren, lanceolate, 4–5 mm long.

Flower and Fruit. Lodicules 3. Anthers 6, 4 mm long. Stigmas 2. Ovary with a steeple-like appendage, pubescent on apex. Caryopsis with free brittle pericarp.

Distribution (TDWG). Continent. Africa, Tropical Asia.

Country /Province /State. Western Indian ocean. Madagascar. Indo-China. Vietnam.

Cephalostachyum flavescens Kurz. *Journ. As. Soc. Beng.* 42, 2: 252 (1873).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Illustrations (Books): K.M.Mathew, *Flora Palni Hills* (1996) (as *Schizostachyum*).

Derivation (Clifford & Bostock 2007): *L. flavescens*, become yellow. Foliage yellowish.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 300–600 cm long, 25–38 mm diam., woody. Culm-internodes terete, thin-walled, yellow or dark green, smooth. Lateral branches dendroid. Culm-sheaths present, 10–35 cm long, 1 times as long as wide, glabrous or hispid, with appressed hairs, with tawny hairs, auriculate, setose on shoulders, shoulders with curved hairs, shoulders with 2–5 mm long hairs. Culm-sheath ligule entire or dentate. Culm-sheath blade ovate or triangular, cordate, erect, 2.5–9 cm long. Leaf-sheaths striately veined. Leaf-sheath oral hairs scanty, deciduous. Leaf-sheath auricles erect. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear, 7–19 cm long, 10–20 mm wide. Leaf-blade midrib evident. Leaf-blade venation with 8–12 secondary veins. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, dense, 5–6 cm between clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 1–2 empty glumes, persistent, shorter than spikelet. Upper glume lanceolate or ovate, chartaceous, without keels, 7–9 -veined. Upper glume surface pubescent. Upper glume hairs white. Upper glume apex acuminate, mucronate.

Florets. Fertile lemma lanceolate or ovate, 10 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma hairs white. Lemma apex acuminate, mucronate. Palea chartaceous. Palea keels approximate. Palea surface pilose, hairy on margins. Palea apex dentate, 2 -fid, with excurrent keel veins.

Flower and Fruit. Lodicules 3, 5 mm long, veined, ciliate. Anthers 6, yellow or green, anther tip smooth. Filaments free. Stigmas 3. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Myanmar.

Cephalostachyum langbianense A.Cheval. & A.Camus. *Bull. Mus. Hist. Nat. Paris*, 27: 452 (1921).

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. -ense*, denoting origin. From Lang-bian Plateau, Annam.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, woody. Culm-internodes terete, thin-walled, 10–20 cm long, distally pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous. Culm-sheath blade lanceolate, erect, 8–10 cm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 20–40 cm long, 40–65 mm wide, stiff, glandular. Leaf-blade venation with 24–26 secondary veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, 3–4 cm long, dense, 2–10 cm between clusters, 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 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, 18–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3–4 empty glumes, persistent, shorter than spikelet. Lower glume ovate, 3–4 mm long. Lower glume surface pubescent. Upper glume ovate, 10 mm long, chartaceous, without keels. Upper glume surface pubescent.

Florets. Fertile lemma ovate, 12–15 mm long, chartaceous, without keel, more than 3-veined. Lemma margins convolute, ciliate. Lemma apex acuminate, mucronate. Palea lanceolate or ovate, 8–10 mm long, chartaceous, 2-keeled but the uppermost without keels. Palea keels approximate, ciliate. Palea apex dentate, 2-fid. Rhachilla extension 7–8 mm long. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules 3, veined, ciliate. Anthers 6, 5 mm long, anther tip with extended connective and pubescent. Filaments free. Stigmas 3. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Cephalostachyum latifolium Munro. *Trans. Linn. Soc.* 26: 140 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *W. Griffith 2682*, India: Bhutan (K, ILT: BM, US-2809348). LT designated by Stapleton, *J. Bot.* 51: 29 (1994).

ST: *Griffith 4*, India.

Recent Synonyms: *Cephalostachyum fuchsianum* gamble, *Ann. Bot. Gard. Calc.* 7: 107 (1896).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (494, Fig. 3), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 60).

Derivation (Clifford & Bostock 2007): *L. latus*, broad; *folium*, leaf. Leaf-blades broad or relatively broad with respect to related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning or scandent, 200–300 cm long, woody. Culm-internodes terete, thin-walled, dark green. Lateral branches dendroid. Culm-sheaths present, 15–22 cm long, 3 times as long as wide, chartaceous, concave at apex, auriculate, with acute auricles. Culm-sheath blade lanceolate, 10–12.5 cm long, 8–12 mm wide. Leaf-sheaths striately veined, outer margin hairy. Ligule an eciliate membrane, 3–6 mm long. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.7–1 cm long. Leaf-blades lanceolate or ovate, 25–40 cm long, 25–100 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 16–36 secondary veins, without cross veins. Leaf-blade apex acuminate, filiform, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, globose, 5 cm long, dense, with spathaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 12–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, persistent, shorter than spikelet. Upper glume lanceolate or ovate, 7 mm long, chartaceous, 1-keeled. Upper glume apex acuminate, awned, 1-awned, awn 7 mm long.

Florets. Fertile lemma lanceolate, 12 mm long, chartaceous, without keel, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acuminate, awned, 1-awned. Principal lemma awn 2–3 mm long overall. Palea tightly convolute around flower, chartaceous. Palea keels approximate.

Flower and Fruit. Lodicules 3, veined, ciliate. Anthers 6, anther tip apiculate. Filaments free. Stigmas 2. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp, ovoid, 7.5 mm long, dark brown.

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

Country /Province /State. China. China South Central. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya. Myanmar.

TDWG4. Yunnan. Darjeeling, Bhutan.

Cephalostachyum mannii (Gamble) Stapleton. *Kew Bull.* 52:700 (1997).

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:** *Arundinaria mannii* Gamble, *Ann. Bot. Gard. Calcutta* 7:26 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: Meghalaya, Amkasur, Jainita Hills, 900 m, 24 April 1889, *G. Mann 21845* (HT: K).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 59).

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 Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Culms scandent, slender, 1000 cm long, 8 mm diam., wiry and woody. Culm-internodes 90 cm long. Lateral branches dendroid. Culm-sheaths present, tardily deciduous, 30–40 cm long, hispid, with dark brown hairs. Culm-sheath blade linear, as wide as sheath at base, 25 cm long, mucronate. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs scanty. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades lanceolate, 20 cm long, 20 mm wide, fleshy, glaucous. Leaf-blade venation with 10 secondary veins, with obscure cross veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform. Flowering specimens unknown.

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

Country /Province /State. China. China South Central. **Indian Subcontinent.** Assam, Eastern Himalaya.

TDWG4. Yunnan. Arunachal Pradesh. Assam, Meghalaya.

Cephalostachyum mindorensis Gamble. *Philipp. Journ. Sci.* 5: 272 (1910).

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. -ense, denoting origin. From Mindaro, Province of Camarines, Philippines.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 30 mm diam., woody. Culm-internodes terete, thin-walled. Culm-nodes swollen. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath auricles erect. Ligule a ciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.6 cm long. Leaf-blades lanceolate, 15–25 cm long, 30–50 mm wide. Leaf-blade midrib indistinct. Leaf-blade venation with 14–18 secondary veins. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, 1–2 cm long, dense, 10–15 cm between clusters, with spathaceous subtending bracts, bracts 5–8 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

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 lanceolate or ovate, laterally compressed, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume lanceolate, 5 mm long. Lower glume surface hirsute. Lower glume apex awned, 1 -awned, awn 1 mm long. Upper glume ovate, 7 mm long, chartaceous, without keels. Upper glume surface hirsute. Upper glume margins ciliate. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

Florets. Fertile lemma ovate, 7–8 mm long, chartaceous, without keel, more than 3-veined. Lemma surface hirsute. Lemma margins ciliate. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 1.5–4 mm long overall. Palea 1 length of lemma, chartaceous. Palea keels ciliate. Apical sterile florets 2 in number, lanceolate, 1.5 mm long. Apical sterile lemmas acuminate, awned, 1 -awned. Apical sterile lemma awns 0.5 mm long.

Flower and Fruit. Lodicules 2 or 3, veined, ciliate. Anthers 6, 3 mm long. Filaments free. Stigmas 2. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp, ovoid, 3 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. **Malesia.** Philippines.

Cephalostachyum pallidum Munro. *Trans. Linn. Soc.* 26: 139 (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).

Basionym or Replaced Name: *Schizostachyum pallidum* (Munro) R.B. Majumdar, S. Karthikeyan et al., *Fl. Ind. Enumerat. - Monocot.*: 282 (1989). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: TYPE MATERIAL: *W. Griffith s.n.*, no date, India (US-2809346).

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

Derivation (Clifford & Bostock 2007): *L.* pale-colored. Spikelets or grain pale-green.

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. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths striately veined, outer margin hairy. Leaf-sheath oral hairs scanty, deciduous. Ligule an eciliate membrane or a ciliate membrane. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades lanceolate or ovate, 2.5–12.5 cm long, 12–25 mm wide, light green. Leaf-blade midrib conspicuous. Leaf-blade venation with 8–12 secondary veins, without cross veins. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade margins cartilaginous. Leaf-blade apex acuminate, filiform, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, globose, 2.5 cm long, dense, with spathaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 17.5–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, persistent, shorter than spikelet. Upper glume ovate, 12.5–15 mm long, chartaceous, without keels. Upper glume surface glabrous or pubescent, hairy above. Upper glume apex acuminate, awned, 1 -awned, awn 5 mm long.

Florets. Fertile lemma ovate, 17.5–20 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 2–3 mm long overall. Palea 1 length of lemma, chartaceous. Palea keels approximate.

Flower and Fruit. Lodicules 3, veined, ciliate. Anthers 6. Filaments free. Stigmas 2. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp, ovoid or orbicular.

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

Country /Province /State. **China.** China South Central, Tibet. **Indian Subcontinent, Indo-China.** Assam, India, Myanmar.

TDWG4. Yunnan, Manipur, Meghalaya, Nagaland.

Cephalostachyum pergracile Munro. *Trans. Linn. Soc.* 26: 141 (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), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

Basionym or Replaced Name: *Schizostachyum pergracile* (Munro) R.B. Majumdar, S. Karthikeyan et al., *Fl. Ind. Enumerat. - Monocot.*: 282 (1989). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *J.E. McClelland s.n.*, Burma: Rangoon (US-2809345 (fragm.)).

ST: *Brandis s.n.*, Pegu.

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 60).

Derivation (Clifford & Bostock 2007): *L.* per, very; gracile, delicate. Culms slender.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–3000 cm long, 50–75 mm diam., woody. Culm-internodes terete, thin-walled, 30–45 cm long, glaucous. Lateral branches dendroid. Culm-sheaths present, 10–15 cm long, 0.9–1 times as long as wide, brown, hispid, with black hairs, auriculate, setose on shoulders, shoulders with curved hairs, shoulders with 7–12 mm long hairs. Culm-sheath blade ovate, cordate, 5 cm long, pubescent, acuminate. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs scanty, deciduous. Leaf-sheath auricles erect. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades lanceolate, 15–35 cm long, 25–32 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 14–26 secondary veins, with obscure cross veins. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, dense, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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 lanceolate, laterally compressed, 12–18 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 1–2 empty glumes, persistent, shorter than spikelet. Upper glume ovate, chartaceous, without keels. Upper glume apex acuminate, mucronate.

Florets. Fertile lemma lanceolate, 12–18 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma apex acuminate, mucronate or awned, 1 -awned. Principal lemma awn 1–3 mm long overall. Palea 1 length of lemma, chartaceous. Palea keels approximate. Palea apex dentate, 2 -fid, with excurrent keel veins. Apical sterile florets 1 in number, rudimentary.

Flower and Fruit. Lodicules 3, veined, ciliate. Anthers 6, purple, anther tip smooth. Filaments free. Stigmas 2–3. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp, oblong or obovoid, 12.5 mm long.

$2n = 72$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia, Tropical Asia, South America.

Country /Province /State. China. China South Central. **Indian Subcontinent, Indo-China.** Assam. Myanmar. **Caribbean.**

TDWG4. Yunnan. Assam, Nagaland. Bihar.

Cephalostachyum perrieri A.Camus. *Bull. Soc. Bot. France*, 72: 85 (1925).

Accepted by: 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: "Madagascar orient.: Manombo (Masoala), ctte nord-est, bois, alt. 400 mhtres.", *Perrier de la Bbthie 10781* (HT: P).

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

Derivation (Clifford & Bostock 2007): In honor of Joseph Marie Henri Alfred Perrier de la Bathie (1872–1958) French botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose. Leaf-sheath auricles erect. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 5–8 cm long, 10–14 mm wide. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, globose, 10–12 cm long, dense, with spathaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 11 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume ovate, 9–11 -veined. Lower glume apex acuminate. Upper glume ovate, chartaceous, without keels, 9–11 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 9 mm long, chartaceous, shiny, without keel, 9–11 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex acuminate. Palea tightly convolute around flower, 10 mm long, chartaceous. Palea keels approximate. Palea surface pubescent, hairy on back, hairy all along. Palea apex truncate.

Flower and Fruit. Lodicules 3, ciliate. Anthers 6. Ovary with a steeple-like appendage. Caryopsis with free brittle pericarp, obovoid, 6 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cephalostachyum scandens Bor. *Kew Bull.* 1957, 419 (1958).

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:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Myanmar: Hkinlum, North Triangle, in forest, 1200 m, 23 Aug. 1953, *F. Kingdon-Ward 20262* (HT: K).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 59).

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, woody. Culm-internodes terete, smooth, distally glabrous. Lateral branches dendroid. Branch complement several. Culm-sheaths present. Leaf-sheath oral hairs setose. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 8–22 cm long, 11–22 mm wide, glaucous. Leaf-blade venation without cross veins. Leaf-blade surface papillose, rough adaxially, glabrous or pilose, sparsely hairy. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence bractiferous, globose, dense, with glumaceous subtending bracts, bracts 15 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3 empty glumes, persistent, shorter than spikelet. Lower glume lanceolate, 6 mm long, membranous, 1-keeled, keeled above, 3 -veined. Lower glume surface pilose. Lower glume apex acuminate. Upper glume ovate, 6.5 mm long, membranous, without keels, 9–11 -veined. Upper glume lateral veins with cross-veins. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 8 mm long, chartaceous, without keel, 9–11 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface smooth, glabrous. Lemma apex truncate. Palea oblong, tightly convolute around flower, 8–9 mm long, chartaceous, 2 -veined. Palea keels approximate.

Flower and Fruit. Lodicules 3, 4.5 mm long. Anthers 6, 6 mm long. Ovary with a steeple-like appendage. Caryopsis with free brittle pericarp.

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

Country /Province /State. China. China South Central. **Indo-China.** Myanmar.

TDWG4. Yunnan.

Cephalostachyum viguieri A.Camus. *Bull. Soc. Bot. France*, 72: 85 (1925).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: "prov. d'Andovoranto, distr. de Moramanga, forjt d'Analamazoatra; bois sur la riv. Rainany; forjt de Tamatave; sans loc.", *Viguiet 1045*, *Perrier 10841*, *10914*; *10843*; *Scott-Elliot s.n.*;... (ST: P) ...Humblot 527, Baron 6004.

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

Derivation (Clifford & Bostock 2007): In honor of Rene Viguiet (1880–1931) French botanist who collected in Madagascar.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 15–30 mm diam., woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths reticulately veined, hirsute. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles erect. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 9–13 cm long, 20–25 mm wide. Leaf-blade venation with 10 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, globose, 3.5–4.5 cm long, dense, with spathaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume ovate. Upper glume ovate, chartaceous, without keels. Upper glume apex cuspidate.

Florets. Fertile lemma lanceolate, 9 mm long, chartaceous, shiny, without keel, more than 3-veined. Lemma lateral veins obscure. Lemma surface glabrous. Lemma apex acuminate. Palea tightly convolute around flower, 10 mm long, chartaceous. Palea keels approximate. Palea surface glabrous.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Ovary with a steeple-like appendage. Caryopsis with free brittle pericarp, obovoid.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cephalostachyum virgatum (Munro) Kurz. *For. Fl. Brit. Burma*, 2: 565 (1875).

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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. in Ind. or. Burmah, Keouksik ad fluv. Mogong, *Griffith s.n.*.

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

Derivation (Clifford & Bostock 2007): L. virga, broom; -ata, possessing. Inflorescence arms or culms held erect.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 5–10 mm diam., woody. Culm-internodes terete, thin-walled, 45–60 cm long, dark green, distally pubescent. Lateral branches dendroid. Culm-sheaths present, 15–20 cm long, 0.9 times as long as wide, hispid, with appressed hairs, with yellow hairs, ciliate on shoulders. Culm-sheath blade narrowly ovate, cordate, reflexed, 10–12 cm long, hispid. Leaf-sheaths keeled, striately veined. Leaf-sheath oral hairs scanty, deciduous. Leaf-sheath auricles erect. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades lanceolate or oblong, 15–30 cm long, 30–40 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 20 secondary veins, with obscure cross veins. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in oblong clusters, lax, with spatheous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 2–3 empty glumes, persistent, shorter than spikelet. Upper glume ovate, chartaceous, without keels. Upper glume apex acuminate, mucronate.

Florets. Fertile lemma ovate, 10 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acuminate, mucronate. Palea chartaceous. Palea keels approximate. Palea apex dentate, 2 -fid, with excurrent keel veins.

Flower and Fruit. Lodicules 3, veined, ciliate. Anthers 6, anther tip smooth. Filaments free. Stigmas 2–3. Ovary with a steeple-like appendage, glabrous. Caryopsis with free brittle pericarp.

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

Country /Province /State. China. China South Central. Indian Subcontinent, Indo-China. India. Myanmar.

TDWG4. Yunnan.

Chaetium bromoides (Presl) Benth. *Journ. Linn. Soc.* 19: 46 (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).

Basionym or Replaced Name: *Bercholdia bromoides* J. Presl, *Rel. Haenk.* 323. t. 324 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, no date, Mexico: without locality data (PR; IT: BM, L, LE-TRIN-1070.01, MO-1837508, US-865574 (fragm. ex LE, PR)).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (124, Fig. 38), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (44, Fig. 23).

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MELINIDINAE.

Habit, Vegetative Morphology. Perennial. Culms 50–100 cm long. Ligule a fringe of hairs. Leaf-blades 10–30 cm long, 3–7 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 2–6, borne along a central axis, erect, unilateral, 3–10 cm long. Central inflorescence axis 10–23 cm long. Rhachis angular. Spikelet packing lax. Spikelets in pairs. Fertile spikelets sessile and pedicelled, 2 in the cluster. 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, plano-convex, 8–10 mm long, falling entire. Spikelet callus linear, 1.5–2.5 mm long, pilose, base obtuse, attached obliquely.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 8–10 mm long, 1 length of spikelet, herbaceous, without keels, 5–7 -veined. Lower glume surface scabrous. Lower glume apex awned, 1 -awned, awn 10–35 mm long (flexuous). Upper glume lanceolate, 8–10 mm long, herbaceous, without keels, 5–7 -veined. Upper glume surface scabrous. Upper glume awned, 1 -awned, awn 10–35 mm long (flexuous).

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 6–8 mm long, 1 length of fertile lemma, 0.9 length of spikelet, membranous, 3 -veined, setaceously acuminate. Fertile lemma ovate, 6–8 mm long, coriaceous, without keel. Lemma margins involute. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1–2 mm long overall. Palea 1 length of lemma, coriaceous. Palea apex acuminate.

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. Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Venezuela.

TDWG4. Distrito Federal, Mexico State, Morelos, Puebla. Chihuahua. Veracruz. Guerrero, Jalisco, Michoacan, Nayarit. Chiapas.

Chaetium cubanum (Wright) Hitchcock. *Contrib. U. S. Nat. Herb.* 12: 232 (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).

Basionym or Replaced Name: *Perotis cubana* C. Wright, *Sauv. Fl. Cub.* 202 (1871). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: C. Wright 735, Cuba oriental (GOET; IT: MO-2095218, MO-1837473, NY-71041). MO-183747 (labeled as Wright 734, *Bouteloua litigiosa*) is undoubtedly part of Wright 735, the only number under which Wright collected *Chaetium cubanum*. As such, it is an isotype..

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (332, Fig. 303).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Cuba.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MELINIDINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–60 cm long. Ligule a ciliate membrane. Leaf-blades flat or involute, 5–10 cm long, 1–4 mm wide. Leaf-blade surface pubescent, hairy adaxially.

Inflorescence. Inflorescence composed of racemes. Racemes 4–7, borne along a central axis, erect, unilateral, 1–3 cm long. Central inflorescence axis 4–7 cm long. Rhachis angular. Spikelet packing lax, irregular. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, 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, dorsally compressed, plano-convex, 6 mm long, falling entire. Spikelet callus linear, 1 mm long, pubescent, hairy above, base obtuse, attached obliquely.

Glumes. Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume linear, 0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acuminate, awned, 1 -awned, awn 6 mm long (flexuous). Upper glume lanceolate, 1 length of spikelet, membranous, without keels, 7 -veined. Upper glume surface asperulous. Upper glume apex acuminate, awned, 1 -awned, awn 8 mm long (flexuous).

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 0.9 length of spikelet, membranous, 5 -veined, ribbed, scaberulous, acute. Fertile lemma elliptic, 4.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acute, muticous. Palea involute, 1 length of lemma, coriaceous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba.

Chaetium festuoides Nees. *Agrost. Bras.* 270. (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *K.F.P. von Martius s.n.*, no date, Brazil: Bahia / Pernambuco (M; IT: US-3049472 (fragm. ex B, M)).

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

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

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MELINIDINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 30–70 cm long. Ligule a ciliate membrane. Leaf-blades 10–25 cm long, 4–10 mm wide. Leaf-blade surface pilose. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes numerous, borne along a central axis, closely spaced, erect, unilateral, 1–3 cm long. Central inflorescence axis 6–15 cm long. Rhachis angular. Spikelet packing lax, irregular. Spikelets in pairs. Fertile spikelets pedicelled, 2 in the cluster. Pedicels present, 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, dorsally compressed, plano-convex, 5 mm long, falling entire. Spikelet callus linear, 0.7–0.8 mm long, pilose, hairy above, base obtuse, attached obliquely.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume subulate, 15–20 mm long. Upper glume lanceolate, 0.75 length of spikelet, hyaline, without keels, 3 -veined. Upper glume lateral veins thickened, ribbed. Upper glume surface asperulous. Upper glume apex acuminate, awned, 1 -awned, awn 15–20 mm long (flexuous).

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, hyaline, 5 -veined, with thickened veins, ribbed, scaberulous, rough on veins, acute, awned. Awn of lower sterile floret flexuous, 4 mm long. Fertile lemma lanceolate, 4.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma margins involute. Lemma apex acute, awned, 1 -awned. Principal lemma awn 0.5–2 mm long overall. Palea involute, 1 length of lemma, coriaceous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America, Brazil. Venezuela. Colombia. Brazil Northeast.

Bahia, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe.

Chaetobromus involucratus (Schrad.) Nees. *Fl. Afr. Austr.* 344 (1841).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Chaetobromus dregeanus* Nees, *Fl. Afr. Austr.* 343. (1841), *Avena involucrata* Schrad., *Goett. Gel. Anz.* 3: 2075 (1821). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Isoneotype: *Verboom 4*, 18 October 1992, South Africa (MO!).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (273, Fig. 245 as *C. dregeanus* & 274, Fig.246), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (81, Fig. 41 & as *C. dregeanus* & *C. scraderei*).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (97: 340, Fig.9 (2010)).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999) (as *C. dregeanus*).

Derivation (Clifford & Bostock 2007): L. involucrium, cover; -ata, possessing. Inflorescence subtended by bracts.

Classification. Subfamily Danthonioideae. Tribe: Arundineae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial. Stolons absent or present. Culms geniculately ascending, 8–60 cm long, rooting from lower nodes. Ligule a fringe of hairs. Leaf-blades 3–55 cm long, 1–8 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, elliptic, 2–11 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear.

Fertile Spikelets. Spikelets comprising 2–6 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, 9–18 mm long, falling entire, readily shedding fertile florets. Spikelet callus linear, 2.5 mm long, bearded, base truncate. Spikelet callus hairs 0.3 length of spikelet. Floret callus elongated, 1.5–2 mm long, pubescent, with longer hairs above, pungent.

Glumes. Glumes dissimilar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 9–18 mm long, 1 length of upper glume, chartaceous, 1-keeled, keeled above, 5–10

-veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume lanceolate, 9–18 mm long, 3 length of adjacent fertile lemma, chartaceous, without keels, 3–5 -veined. Upper glume apex acute.

Florets. Fertile florets with the lowest dissimilar (deciduous with glumes). Lowest fertile lemma glabrous or hairy, awned (often 1-awned and entire). Fertile lemma oblong, 2.5–5 mm long, cartilaginous, without keel, 7–9 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex lobed, 2 -fid, incised 0.3 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 6–10 mm long overall, with twisted column. Lateral lemma awns present, arising on inner edge of lobes, 2–4 mm long, shorter than principal. Palea 1 length of lemma, 2 -veined. Palea keels approximate.

Flower and Fruit. Lodicules 2, glabrous. Caryopsis with adherent pericarp. Hilum linear, 0.8–0.9 length of caryopsis.

N = 12 (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Namibia, Northern Cape, Western Cape.

Chaetopoa pilosa W.D. Clayton. *Kew Bull.*, 32(3): 579 (1978).

Accepted by: 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: Tanzania: T7. Mbeya to Iringa, Kimani River, Mar 1970, R. Wingfield 903 (HT: K).

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 Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 15–20 cm long. Ligule an eciliate membrane. Leaf-blades 1–2 cm long, 1–3 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 2–3 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, 1 in the cluster. Companion sterile spikelets pedicelled, 6–8 in the cluster. Involucre composed of imperfect spikelets, cuneate, base bluntly stipitate, base pilose. Pedicels present, linear, glabrous or ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, lanceolate or oblong, dorsally compressed, 1–2 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes subulate, 3–5 mm long. Companion sterile spikelet lemmas 1, exerted from glumes, 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 elliptic, dorsally compressed, 2.5–3 mm long, falling entire.

Glumes. Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume oblong, 1.5 mm long, membranous, without keels, 1 -veined. 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 oblong, 1 length of spikelet, membranous, 5 -veined, ciliolate on margins, dentate, 3 -fid, acute. Fertile lemma elliptic, chartaceous, without keel, 3 -veined, more than 3-veined. Lemma margins flat, covering most of palea. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 1 mm long overall. Palea chartaceous, without keels.

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa. Tanzania.

Chaetopoa taylorii C. E. Hubbard. *Hook. Ic. Pl.* 7, p. 2 (1967).

Accepted by: W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Illustrations (Books): R.M. Polhill, F.T.E.A., *Gramineae* 3(1982):665, Fig. 152).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3646 (1967)).

Derivation (Clifford & Bostock 2007): in honor of William Ernest Taylor (1856–1927) English cleric who collected in tropical East Africa.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 30–60 cm long. Ligule an eciliate membrane. Leaf-blades 6.5–30 cm long, 2–6 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 3.5–7 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 pedicelled, 1 in the cluster, on shorter pedicels than sterile. Companion sterile spikelets pedicelled, 6–8 in the cluster. Involucre composed of imperfect spikelets, cuneate, base truncate, base glabrous. Pedicels present, linear, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate or oblong, dorsally compressed, 3.5–4 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes subulate, 2 mm long. Companion sterile spikelet lemmas 2, exerted from glumes, mucicous.

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, 4–4.5 mm long, falling entire.

Glumes. Glumes one the lower absent or obscure or two, shorter than spikelet, thinner than fertile lemma. Lower glume subulate (when present). Upper glume subulate, 3.5 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, membranous, 7 -veined, ciliolate on margins, entire, acuminate, awned. Awn of lower sterile floret 1–1.5 mm long. Fertile lemma elliptic, chartaceous, without keel, 3 -veined, more than 3-veined. Lemma margins flat, covering most of palea. Lemma apex acuminate, mucicous. Palea chartaceous, without keels.

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

Country /Province /State. East tropical Africa. Tanzania.

Chaetopogon fasciculatus (Link) Hayek. Fedde, *Repert. Beih.* . 3: 335 (1932).

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: *Chaeturus fasciculatus* Link, *Schrad. Journ.* 2: 313. (1799).

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

Derivation (Clifford & Bostock 2007): *L. fascis*, bundle; -ulus, diminutive. -ata, possessing. With spikelets or branches clustered in the inflorescence.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending or decumbent, 4–20 cm long. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades 1–8 cm long, 0.5–1 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or oblong, 0.5–12 cm long. 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 lanceolate, laterally compressed, 3 mm long, falling entire. Spikelet callus oblong, 0.3–0.5 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 3–9 mm long. Upper glume lanceolate, 3 mm long, 1.1 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins ribbed. Upper glume surface scabrous, rough on veins. Upper glume apex acute.

Florets. Fertile lemma elliptic, 3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute. Palea 0.5 length of lemma, hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3, 1.8 mm long. Ovary glabrous.

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). : Portugal, Spain. : Italy, Yugoslavia. Northern Africa. Morocco.

Chamaeraphis hordeacea R. Br. *Prod.* 1: 194 (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>: *vide* TROPICOS and Kew Synonymy Database: T: *R. Brown 8059*, Australia ((fragm., US-865695)).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3140 (1930)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Derivation (Clifford & Bostock 2007): L. -acea, resembling. Inflorescence as with *Hordeum*.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe SETARIINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 25–60 cm long. Ligule a ciliolate membrane. Leaf-blade base broadly rounded. Leaf-blades 3–10 cm long, 2–3 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes numerous, borne along a central axis, closely spaced, in a bilateral false spike, 20–60 cm long, bearing 1 spikelet. Central inflorescence axis 3–5 cm long, flattened. Rhachis deciduous from axis, terminating in a barren extension, extension bristle-like. Spikelet packing abaxial. Raceme-bases linear, 1.5–3 mm long, pubescent, shed with the raceme, pungent. 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 linear, dorsally compressed, 6–8 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes one the lower absent or obscure, exceeding apex of florets. Upper glume linear, 6–8 mm long, 1.5 length of adjacent fertile lemma, coriaceous, 2-keeled, 7 -veined. Upper glume primary vein scaberulous. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret linear or oblong, 1 length of spikelet, coriaceous, 7 -veined, scaberulous, rough on veins (above), acute. Fertile lemma lanceolate, 4–6 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea cartilaginous, without keels.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Northern Territory, Queensland.

TDWG4. Darwin & Gulf, Victoria R & Barkly Tableland. North.

Chandrasekharania keralensis V.J. Nair, V.S. Ramachandran & P.V. Sreekumar. *Proc. Indian Acad. Sci., Pl. Sci.*, 91(2): 80 (1982).

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. -ensis, denoting origin. From Kerala, India.

Classification. Subfamily Panicoideae. Tribe: Tristachyideae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 20–40 cm long, rooting from lower nodes. Ligule an eciliate membrane. Leaf-blade base cordate. Leaf-blades lanceolate, 2–4.5 cm long, 5–8 mm wide. Leaf-blade surface pilose, sparsely hairy or moderately hairy, hairy on both sides, with tubercle-based hairs. Leaf-blade margins tuberculate-ciliate.

Inflorescence. Inflorescence a panicle. Panicle capitate, ovate, 1.5–2.5 cm long, 1–1.5 cm wide. Primary panicle branches accrescent to a central axis, with evident branchlets on axis or with lateral stumps on axis. Panicle axis angular. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–1.5 mm long, scabrous.

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 laterally compressed, 5–6 mm long, falling entire.

Glumes. Glumes similar, subequal in width, exceeding apex of florets. Lower glume ovate, 3.5–4 mm long, 0.6–0.7 length of upper glume, chartaceous, without keels, 7 -veined. Lower glume lateral veins ribbed. Lower glume surface pilose, hairy above, with tubercle-based hairs. Lower glume margins ciliolate. Lower glume apex acute, awned, 1 -awned, awn 3 mm long. Upper glume ovate, 5–6 mm long, 1.2 length of adjacent fertile lemma, chartaceous, without keels, 7 -veined. Upper glume surface scabrous, rough on veins. Upper glume margins ciliolate. Upper glume apex acuminate, awned, 1 -awned, awn 3 mm long.

Florets. Fertile lemma elliptic, 4–5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma midvein scaberulous. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn 1.5–2 mm long overall, limb scabrous. Palea elliptic, 1 length of lemma, hyaline, 2 -veined. Palea keels ciliolate. Palea surface pubescent. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 1.25 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, 1 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Kerala.

Chascolytrum altimontanum Essi, Souza-Chies & Longhi-Wagner. *Novon* 20 (2): 149 (2010).

TYPE from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chuquisaca: Yamparaez, on the ascent, ca 3 km E toward La Cienaga, 16 Mar. 1996, J.R.I. Wood 10841 (holo: LPB; iso: K).

Illustrations (Journals): *Novon* 20 (2): 150, Fig.1 (2010).

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Chascolytrum ambiguum (Hack.) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 327 (2011).

Accepted 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 *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Brazil. **Basionym or Replaced Name:** *Briza ambigua* Hack, *Oesterr. Bot. Z.* 52: 308 (1902). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A.F.M. Glaziou 17956, 1888–1889, Brazil: Rio de Janeiro (W-17140; IT: B, BAA-361 (fragm. ex B), CP, G, LE, US-865537 (fragm. ex W)).

Recent Synonyms: *Poidium ambiguum* (Hack.) Matthei, *Willdenowia, Beih.* 8: 121 (1975).

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

Derivation (Clifford & Bostock 2007): L. uncertain. Species that may be readily confused with others or do not necessarily belong in the genus in which they have been placed or are intermediate in characters between other genera.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 40–70 cm long, 2-noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2 mm long. Leaf-blades flat, 5–20 cm long, 3–5 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface ungrooved, scabrous, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, 10–20 cm long. Primary panicle branches 5–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–15 mm long, pubescent.

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, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.4–0.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume orbicular, 3.5–3.6 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume apex obtuse. Upper glume orbicular, 3.8–4.1 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 4–4.5 mm long, coriaceous, much thinner on margins, keeled, 5-veined, more than 3-veined. Lemma apex mucronate. Palea lanceolate or elliptic, 2.5–2.8 mm long, coriaceous, 2-veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, lanceolate, 0.6–0.7 mm long, membranous, acute. Anthers 1, 0.8–1.6 mm long. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chascolytrum bidentatum (Roseng., B.R.Arrill. & Izag) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 327 (2011).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Eragrostis monandra* Hack., *Repert. Spec. Nov. Regni Veg.* 7: 320 (1909). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: C. Jürgens 166, Dec 1905, Brazil: Rio Grande do Sul: Rio Pardo Mun.: prope Fazenda Soledade, 70 m (BAA-1057 (fragm. ex B), US-2941534, US-1127145).

Recent Synonyms: *Briza bidentata* Roseng., Arrill. de Maffei & Izag. de Artucio, *Bol. Univ. Republ. Fac. Agron. Montevideo*, No. 105, 24 (1968). *Rhombolytrum monandrum* (Hack.) E.G.Nicora & Z.E.Rugolo de Agrasar, *Darwiniana*, 23(1): 302 (1981).

Illustrations (Books): B.Rosengurt, *Gramineas Uruguayas I* (1970) (106, Fig. 37 as *Briza bidentata*), H.M. Longhi-Wagner, *Flora Ilustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza bidentata*).

Derivation (Clifford & Bostock 2007): Gk. monos, one; aner, man. Florets with one stamen.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 50–70 cm long. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 2–4 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 6–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, scabrous.

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 oblong, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.2 mm long. Floret callus pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume oblong, 1 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume apex obtuse. Upper glume oblong, 1 length of adjacent fertile lemma, chartaceous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, thickened on margins at base, dorsally compressed, 2.5–3.5 mm long, membranous, firmer on margins, keeled, lightly keeled, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy below. Lemma margins ciliate, hairy below. Lemma apex acute. Palea 2 -veined. Palea keels ciliate. Palea surface pilose, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 1. Ovary glabrous. Caryopsis with adherent pericarp, oblong, dorsally compressed, concavo-convex. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil South. Uruguay. Catarina, Rio Grande do Sul.

Chascolytrum brachychaetum (Ekman) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 327 (2011).

Accepted 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 *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Brazil. **Basionym or Replaced Name:** *Briza brachychaete* Ekman, *Ark. Bot.* 13(10): 60, t. 4, f. 3 (1913). T.<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. Dusén 13390*, 15 Feb 1911, Brazil: Paraná: Curitiba, caespiten unicum in campo (S; IT: B, BAA-367 (fragm. ex B), L, US-865538 (fragm. ex S), US-601229 (fragm. ex S), W-39083).

Recent Synonyms: *Poidium brachychaetum* (Ekman) Matthei, *Willdenowia, Beih.* 8: 107 (1975).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (308, Fig. 103 as *Microbriza brachychaeta*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (243, Fig. 54), H.M. Longhi-Wagner, *Flora Ilustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza*).

Derivation (Clifford & Bostock 2007): Gk brachys, short; chaete, bristle. Awn of lemma shorter than that of related species.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 30–70 cm long, 2 -noded. Culm-nodes glabrous. Leaf-sheaths pubescent. Ligule an eciliate membrane, 1 mm long. Leaf-blades flat, 20–30 cm long, 3–6 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface ungrooved, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or elliptic, 10–30 cm long. Primary panicle branches 3–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.2–2 mm long, glabrous.

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 orbicular, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.1 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2–2.3 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume apex acute. Upper glume elliptic, 2–2.3 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume apex acute.

Florets. Fertile lemma elliptic, 1.7–2 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma apex awned, 1 -awned. Principal lemma awn 1–2 mm long overall. Palea elliptic, 1 length of lemma, membranous, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, lanceolate, 0.4 mm long, membranous, acute. Anthers 1, 0.6–0.7 mm long. Ovary glabrous. Caryopsis with adherent pericarp, trigonous, 0.8–1 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Chascolytrum brasiliense (Nees ex Steud.) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 328 (2011).

Accepted 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 *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Brazil. **Basionym or Replaced Name:** *Poideum brasiliense* Nees ex Steud., *Syn.Pl.Glum.* 1 (3): 288 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Sellow 4848*, Brazil: Paraná (B (destroyed)); IT: BAA-368 (fragm. ex B), US (fragm. ex B; florets fallen, *fide* ASH)). NT: *Glaziou 6774*, Brazil (P). NT designated by Matthei, *Willdenowia* 8: 112 (1975).

Recent Synonyms: *Briza brasiliensis* (Nees ex Steud.) Ekman, *Ark.Bot.* 13(10): 57 (1913).

Illustrations (Books): H.M. Longhi-Wagner, *Flora Ilustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza*).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Brazil.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 45–90 cm long, 2-noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.8–2 mm long. Leaf-blades flat or involute, 6–25 cm long, 2–5 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface ungrooved, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, 13–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long, glabrous.

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 orbicular, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.2–0.3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2.1–2.9 mm long, 1 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume apex acute. Upper glume ovate, 2.1–2.9 mm long, 1–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume apex acute.

Florets. Fertile lemma orbicular, 2–2.5 mm long, coriaceous, much thinner on margins, keeled, 5-veined, more than 3-veined. Lemma apex obtuse. Palea elliptic, 1.7–2.3 mm long, coriaceous, 2-veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, lanceolate, 0.4 mm long, membranous, acute. Anthers 1, 0.4 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ovoid, trigonous, 1.4–1.5 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South. Minas Gerais, Rio de Janeiro, Espirito Santo.

Chascolytrum bulbosum (Parodi) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 328 (2011).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Erianthecium bulbosum* L. Parodi, *Not. Mus. La Plata, Bot.*, 8: 77 (1943). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uruguay: Minas: cerro Arequita, frecuente en pedregal arbustivo y pratense, 15 Oct 1939, *B. Rosengurt 3154* (HT: Herb. Parodi).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (276, Fig. 88), B.Rosengurt, *Gramineas Uruguayas I* (1970) (114, Fig. 41), H.M. Longhi-Wagner, *Flora Ilustrada do Rio Grande do Sul, Gramineae, Poeae* (1987).

Derivation (Clifford & Bostock 2007): L. bulbos, onion; -osa, abundance. Culm-bases swollen.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 30–45 cm long, 2–3-noded, swollen at the base, forming an ovoid corm or moniliform corms. Ligule an eciliate membrane, 3–4 mm long, obtuse. Leaf-blades 10–20 cm long, 3–5 mm wide. Leaf-blade surface pilose, hairy on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or lanceolate or elliptic, 3–7 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 ovate, laterally compressed, 4–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes clavate, 0.5–1 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3–4 mm long, 0.8–1 length of upper glume, membranous, 1-keeled, 5-veined. Lower glume apex acute. Upper

glume ovate, 3–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 7 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, 3–4.5 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 1.5–2.5 mm long overall. Palea 2 -veined. Palea keels ciliate. Palea surface pubescent, hairy on back.

Flower and Fruit. Anthers 3, 1.5 mm long. Stigmas 2, terminally exerted, pubescent. Ovary glabrous. Hilum elliptic.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Uruguay.

Chascolytrum calothea (Trinius) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 328 (2011).

Accepted 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 *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Brazil. **Basionym or Replaced Name:** *Eragrostis calothea* Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 1(4): 414 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: 22, Brazil: near Paulo (LE).

HT: Riedel (*Langsdorff*) 5, Oct 1825, Brazil: São Paulo: in fruticetis locis humidis prope Jundiáhy (LE-TRIN-2315.02; IT: LE, US-2891459 (fragm.)).

Recent Synonyms: *Briza calothea* (Trin.) Hack., *Bull. Herb. Boissier, sér. 2, 4(3): 282 (1904)*. *Poidium calothea* (Trinius) Matthei, *Willdenowia, Beih.* 8: 116 (1975).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (243, Fig. 54), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (62, Fig 14 as *Briza*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (108, Fig. 38), H.M. Longhi-Wagner, *Flora Ilustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza*).

Derivation (Clifford & Bostock 2007): Gk. kalos, beautiful; theke, cup. The lemma margins extend as lateral wings.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 60–150 cm long, 2 -noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.8–2.3 mm long. Leaf-blades flat, 9–30 cm long, 2–10 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface ungrooved, scabrous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 10–35 cm long, contracted about primary branches. Primary panicle branches 4–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–20 mm long, puberulous.

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 orbicular, laterally compressed, 3.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.3–0.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.9–3 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliolate. Lower glume surface scabrous. Lower glume apex acute. Upper glume ovate, 2.2–3.5 mm long, 0.75–0.85 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume primary vein ciliolate. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma oblate, 2.8–4 mm long, coriaceous, much thinner on margins, keeled, 5 -veined, more than 3-veined. Lemma surface scaberulous. Lemma margins eciliate or ciliolate, hairy at base. Lemma apex mucronate. Palea lanceolate or elliptic, 2.2–2.7 mm long, coriaceous, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, lanceolate, 0.6–0.7 mm long, membranous, acute. Anthers 1(–3), 1–1.7 mm long. Ovary glabrous. Caryopsis with adherent pericarp, obovoid, trigonous, 1.6 mm long. Hilum elliptic.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, and Southern South America. Colombia. Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay.

TDWG4. Mato Grosso, Minas Gerais, Rio de Janeiro, Espírito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Corrientes, Entre Rios, Misiones.

Chascolytrum erectum (Lam.) Desv. *Nouv. Bull. Sci. Soc. Philom. Paris* 2: 190 (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 (as *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Briza*).

Basionym or Replaced Name: *Briza erecta* Lam., *Illustr. Gen.* 1: 187 (1791). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. Commerson s.n.*, no date, Uruguay: Montevideo (P-LAM; IT: US-865541 (fragm. P-Lam.)).

Recent Synonyms: *Briza macrostachya* (J. Presl) Steud., *Nom. ed.* 2(1) 225. (1840).

Illustrations (Books): A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (64, Fig. 16 as *Briza*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (95, Fig. 31 as *Briza*), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza*).

Derivation (Clifford & Bostock 2007): L. held upright. Spikelets or inflorescence branches held erect.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 17–70 cm long, 2-noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–4 mm long. Leaf-blades flat or involute, 10–20 cm long, 1–5 mm wide. Leaf-blade midrib scarcely raised beneath. Leaf-blade surface ribbed, glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 3–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5 mm long, glabrous.

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 orbicular, laterally compressed, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.1–0.2 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 3.5–4.5 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume apex acute. Upper glume ovate, 3.7–5 mm long, 0.66 length of adjacent fertile lemma, membranous, 1-keeled, 5-veined. Upper glume apex acute.

Florets. Fertile lemma oblate, auriculate at base, 5.5–7 mm long, 5.5–7 mm wide, coriaceous, much thinner above, much thinner on margins, keeled, winged on margins, 5-veined, more than 3-veined. Lemma apex dentate, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, 0.5–1 mm long overall. Palea orbicular, 2.6–3 mm long, 0.5 length of lemma, coriaceous, 2-veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 2–2.7 mm long, membranous, truncate. Anthers 3, 1.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, 2 mm long. Hilum elliptic.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil South. Argentina Northeast, Paraguay, Uruguay.

TDWG4. Catarina, Rio Grande do Sul. San Luis. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, Misiones, Santa Fe.

Chascolytrum itatiaiae (Ekman) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 328 (2011).

Accepted 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 *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Brazil. **Basionym or Replaced Name:** *Briza itatiaiae* Ekman, *Ark. Bot.* 13(10): 58, t. 4, f. 1 (1913). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Glaziou 6774*, Brasil: "loco mihi ignoto (forte in monte Serra do Itatiaia?) (S; IST: B, BAA-374 (fragm. ex B), R, US). ST: *Dusén 292*, 19 May 1902, Brazil: Minas Gerais: Serra do Itatiaia, in monticulo Serra da Pedra Assentada, 2400 m (GB; IST: US-1199858, US-87198 (fragm.)). OM: *Glaziou 11625*, 1887, Brazil (W-17171). Possible type.

Recent Synonyms: *Poidium itatiaiae* (Ekman) E.G.Nicora & Z.E.Rugolo de Agrasar, *Darwiniana*, 23(1): 306 (1981).

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

Derivation (Clifford & Bostock 2007): from Serra Itatiaia, Brazil.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 50–70 cm long, 1 mm diam., 2-noded, with 0.5 of their length below uppermost node. Culm-internodes terete, striate, smooth, distally glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths mostly shorter than adjacent culm internode, smooth, glabrous on surface. Ligule an eciliate membrane, 1 mm long. Leaf-blades conduplicate, 15–30 cm long, 2.5 mm wide. Leaf-blade venation with 10–12 secondary veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 13–18 cm long, 10 cm wide, with spikelets clustered towards branch tips. Primary panicle branches spreading, 2-nate. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present.

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 obovate, laterally compressed, 2.5–3 mm long, 2.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 2.5–2.8 mm long, 1 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume primary vein scaberulous. Lower glume apex acute. Upper glume oblong, 2.5–2.8 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 5-veined. Upper glume primary vein scaberulous. Upper glume apex acute.

Florets. Fertile lemma orbicular, 2 mm long, cartilaginous, much thinner on margins, keeled, 5-veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface tuberculate. Lemma apex obtuse. Palea oblong, 2-veined. Palea keels scabrous. Palea apex emarginate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, ovate, membranous, acute. Anthers 1, 0.8 mm long. Ovary glabrous. Caryopsis with adherent pericarp, oblong, trigonous, sulcate on hilar side, 1.3 mm long, light brown. Hilum elliptic.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chascolytrum juergensii (Hack.) Essi, Souza-Chies & Longhi-Wagner. *Novon* 20 (2): 153 (2010).

Accepted 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 *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Brazil. **Basionym or Replaced Name:** *Briza juergensii* Hack., *Verh. K.K. Zool.-Bot. Ges. Wien* 65(1–2): 76 (1915). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Rio Grande do Sul: Pinheiral, municipio rio Pardo, alt. 70 m, 1909, *C. Juergens s.n.* (HT: W).

Poidium juergensii (Hack.) Matthei, *Willdenowia, Beih.* 8: 114 (1975).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza*).

Illustrations (Journals): *Novon* 20 (2): 155, Fig.3 (2010), as var. *angustilemma*.

Derivation (Clifford & Bostock 2007): in honor of Carlo Juergens (fl. 1905) who collected in Brazil.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 25–80 cm long, 2–3-noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–4 mm long. Leaf-blades flat, 15–50 cm long, 2–10 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface ungrooved, glabrous or puberulous.

Inflorescence. Inflorescence a panicle. Panicle open, 4–20 cm long. Primary panicle branches 6–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–15 mm long, glabrous.

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 ovate, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.2–0.5 mm long, pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2.6–3.1 mm long, 1 length of upper glume, membranous, 1-keeled, 3-veined. Lower glume surface pubescent. Lower glume apex obtuse. Upper glume ovate, 2.6–3.1 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 5-veined. Upper glume surface pubescent. Upper glume apex obtuse.

Florets. Fertile lemma trullate, 3–3.7 mm long, membranous, much thinner on margins, keeled, winged on margins, 5-veined, more than 3-veined. Lemma surface glabrous or puberulous. Lemma apex cuspidate, mucronate. Palea lanceolate or elliptic, 2.3–2.6 mm long, membranous, 2-veined. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, lanceolate, 0.5–0.6 mm long, membranous, acute. Anthers 1(–3), 0.1–0.2 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, trigonous, 1.2 mm long. Hilum elliptic.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil. Colombia. Brazil Southeast, Brazil South.

Chascolytrum koelerioides (Trin.) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 328 (2011).

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:** *Poa koelerioides* Trin., *Bull. Sc. Acad. Petersb.* 1: 69 (1838). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Quillota: Bertero 947 (LE syn) ; Chile: Cuming (LE syn).

Recent Synonyms: *Gymnachne koelerioides* (Trin.) L. Parodi, *Rev. Argent. Agron.* 29: 19 (1963).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (284, Fig. 92).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Koeleria* especially with respect to the inflorescence.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 40–65 cm long, 2 mm diam., 3 -noded. Culm-nodes brown, glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long, lacerate. Leaf-blades flat or convolute, 15–20 cm long, 3–4 mm wide. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 8–10 cm long, 0.75 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear.

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 lanceolate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.2–0.5 mm long. Floret callus pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume elliptic, 1 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume surface asperulous. Lower glume apex obtuse. Upper glume elliptic, 3 mm long, 1 length of adjacent fertile lemma, chartaceous, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface asperulous. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, thickened on margins at base, dorsally compressed, 3 mm long, membranous, firmer on margins, keeled, lightly keeled, 5 -veined, more than 3-veined. Lemma midvein scaberulous. Lemma surface asperulous. Lemma margins eciliate or ciliate, hairy below. Lemma apex dentate, 2 -fid, muticous or mucronate. Palea 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 1, 0.5–1 mm long. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile Central, Chile South.

Valparaiso, Maule, Biobio, La Araucania. Los Lagos.

Chascolytrum lamarckianum (Nees) Matthei. *Willdenowia* Beiheft 8: 74 (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 (as *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006) (as *Briza*).

Basionym or Replaced Name: *Briza lamarckiana* Nees, *Agrost. Bras.* 481. (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *F. Sellow s.n. [3857]*, no date, Brazil: Rio Grande Do Sul: in finibus regni Paraguayani (L; ILT: BAA-379 (fragm. ex B), LE-TRIN-2547.02, US-865544 (fragm. ex B)). LT designated by Matthei, *Willdenowia*, Beih. 8: 74 (1975).

Recent Synonyms: *Briza fusca* (Parodi) Parodi, *Rev. Fac. Agron. Vet.* 4: 93 (1922).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (228, Fig. 50 as *Chascolytrum*), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (64, Fig. 16 as *B. fusca*), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (95, Fig. 31 as *B. lindmanii*), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poeae* (1987).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. As for *Lamarckia*..

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 20–80 cm long, 2 -noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades involute, 6–15 cm long, 0.5–3 mm wide. Leaf-blade midrib scarcely raised beneath. Leaf-blade surface ribbed, glabrous.

Inflorescence. Inflorescence a panicle, comprising 18–20 fertile spikelets. Panicle open, elliptic, 5–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–10 mm long, pubescent.

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 orbicular, laterally compressed, 3.6–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume orbicular, 2.1–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous, hairy above. Lower glume apex acute. Upper glume orbicular, 2.1–2.7 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface puberulous, hairy above. Upper glume apex obtuse.

Florets. Fertile lemma oblate, auriculate at base, 2.4–2.6 mm long, 2.4–2.6 mm wide, coriaceous, much thinner on margins, light brown, keeled, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, mucicous or awned, 1 -awned. Principal lemma awn from a sinus. Palea orbicular, 1.5–1.8 mm long, coriaceous, 2 -veined. Palea surface puberulous, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.5–0.6 mm long, membranous, truncate. Anthers 1, 0.5–0.7 mm long. Ovary glabrous. Caryopsis with adherent pericarp, orbicular, 1–1.4 mm long. Hilum punctiform or elliptic.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil Southeast, Brazil South. Argentina Northeast.

TDWG4. Sao Paulo Parana, Catarina, Rio Grande do Sul. Corrientes, Entre Rios, Santa Fe.

Chascolytrum latifolium Essi, Souza-Chies & Longhi-Wagner. *Novon* 20 (2): 151 (2010).

TYPE from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Santa Catarina: Urubici. Faz. Arno Philippi, 7 Dec. 2006, *H.M.Longhi-Wagner, A.Zanin & L.Souza 10228* (holo:ICH; iso: FLOR, K, MO).

Illustrations (Journals): *Novon* (20 (2): 152, Fig.2 (2010)).

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Chascolytrum monandrum (Hack.) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 329 (2011).

Accepted 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 *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Peru. **Basionym or Replaced Name:** *Poa monandra* Hack., *Oesterr. Bot. Z.* 52(10): 376 (1902). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. von Jekski 402*, May 1879, Peru: prope Cutervo (W-41656; IT: US-88757 (fragm. ex W), W-14194).

Recent Synonyms: *Briza monandra* (Hack.) Pilger, *Notizbl. Bot. Gart. Berlin*, 10: 725 (1929). *Poidium monandrum* (Hack.) Matthei, *Willdenowia, Beih.* 8: 103 (1975).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (130, Fig 32 as *Briza*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (243, Fig. 54).

Illustrations (Journals): *Ruizia* (13:138, Fig14a-c (1993)).

Derivation (Clifford & Bostock 2007): Gk. monos, one; aner, man. Florets with one stamen.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 30–50 cm long. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades 7–15 cm long, 0.5–2 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 6–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

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 or ovate, laterally compressed, 3.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 1.5–1.8 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex obtuse. Upper glume ovate, 2–2.2 mm long, 0.9–1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex obtuse.

Florets. Fertile lemma obovate, 2–2.8 mm long, membranous, much thinner above, keeled, lightly keeled, 5 -veined, more than 3-veined. Lemma surface asperulous, rough above. Lemma margins ciliate, hairy below. Lemma apex obtuse. Palea 0.9 length of lemma, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.4 mm long. Anthers 1, 0.2–1 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, 1–1.6 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, and Southern South America. Bolivia, Colombia, Ecuador, Peru. Brazil South. Argentina Northwest.

TDWG4. Jujuy, Salta, Tucuman.

Chascolytrum paleapiliferum (Parodi) Matthei. *Willdenowia* Beiheft 8: 88 (1975).

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

Basionym or Replaced Name: *Briza paleapilifera* Parodi, *Rev. Fac. Agron. Vet.* 3: 124 (1920). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Castillon in Lillo hb 14653*, Argentina: Ctamarca (El Rodeo): San Luis y Catamarca: sierras de Cordoba

ST: *Lizer 1910*, Argentina: Cordoba: Capital

ST: *F. Pastore*, 1913, Argentina: Sierra de Morro

ST: *R. Baez 111*, 1920, Argentina: Cuesta del Mogote Bayo.

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (287, Fig. 94).

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 15–60 cm long, 1-noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades involute, 10–20 cm long, 1–2 mm wide. Leaf-blade midrib scarcely raised beneath. Leaf-blade surface ribbed, glabrous.

Inflorescence. Inflorescence a panicle, comprising 7–16 fertile spikelets. Panicle contracted, linear, 7–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–5 mm long, puberulous.

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 ovate or orbicular, laterally compressed, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 3.2–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 5-veined. Lower glume apex acute. Upper glume ovate, 3.5–5 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3-veined. Upper glume apex acute.

Florets. Fertile lemma oblate, 4–6 mm long, 3.5–5.5 mm wide, coriaceous, much thinner on margins, mid-green, keeled, winged on margins, 5-veined, more than 3-veined. Lemma apex acute. Palea ovate or orbicular, 2.3–3 mm long, coriaceous, 2-veined. Palea surface puberulous, hairy on back, hairy below. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.7–0.8 mm long, membranous, truncate. Anthers 3, 1.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp, orbicular or obovoid, 1.5–1.8 mm long. Hilum elliptic.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia.

TDWG4. Catamarca, La Rioja, Mendoza, San Luis. Cordoba.

Chascolytrum parodianum (Roseng., B.R. Arrill. & Izag.) Matthei. *Willdenowia*, Beiheft 8: 68 (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 (as *Briza*).

Basionym or Replaced Name: *Briza parodiana* Roseng. Arrill. de Maffei & Izag. de Artucio, *Bol. Univ. Republ. Fac. Agron. Montevideo*, No. 105, 26 (1968). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uruguay, *Rosengurt B-5273* (HT: MVFA).

Illustrations (Books): B.Rosengurt, *Gramineas Uruguayas I* (1970) (106, Fig. 33), H.M. Longhi-Wagner, *Flora Ilustrada do Rio Grande do Sul, Gramineae, Poeae* (1987).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. As for *Parodiocloa*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 50–80 cm long, 1-noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–3.5 mm long. Leaf-blades involute, 15–50 cm long, 1–2.5 mm wide. Leaf-blade midrib scarcely raised beneath. Leaf-blade surface ribbed, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 7–14 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–10 mm long, glabrous.

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 ovate, laterally compressed, 3.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.3–0.4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2.5–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume ovate, 2.5–3.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma orbicular, 2.5–3.5 mm long, coriaceous, much thinner on margins, keeled, 5 -veined, more than 3-veined. Lemma apex acute. Palea obovate, coriaceous, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.5 mm long, membranous, truncate. Anthers 3, 1.2–1.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil South. Uruguay.

Chascolytrum poomorphum (Presl) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 329 (2011).

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

TYPE from Peru. **Basionym or Replaced Name:** *Panicum poaemorphum* J. Presl, *Reliq. Haenk.* 1(4–5): 310 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, no date, Peru: Huánuco (PR; IT: B, BAA-x (fragm. ex B), US-975970 (fragm. ex PR)). Locality in error, probably from Uruguay.

Recent Synonyms: *Microbriza poaemorpha* (Presl) Parodi ex E.G. Nicora & Z.E. Rugolo de Agrasar, *Darwiniana*, 23(1): 295 (1981). *Poidium poomorphum* (Presl) Matthei, *Willdenowia, Beih.* 8: 108 (1975).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (302, Fig. 100 as *Microbriza*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (243, Fig. 54), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (62, Fig 14 as *Briza poaemorpha*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (95, Fig.31 as *Briza poaemorpha*), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza*).

Derivation (Clifford & Bostock 2007): *L. morpha*, shape. Resembling *Poa* in that the spikelets are somewhat compressed.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 20–70 cm long, 2–3 -noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades flat, 30–50 cm long, 3–6 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface ungrooved, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 3–16 cm long. Primary panicle branches 1–7 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–1 mm long, glabrous.

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, 1.2–1.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.1 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume orbicular, 1–1.2 mm long, 0.75 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliolate. Lower glume apex obtuse. Upper glume orbicular, 1.2–1.5 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliolate. Upper glume apex obtuse.

Florets. Fertile lemma orbicular, 1–1.2 mm long, coriaceous, much thinner on margins, keeled, 5 -veined, more than 3-veined. Lemma surface scabrous. Palea elliptic, 0.7–1.1 mm long, coriaceous, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, lanceolate, 0.4 mm long, membranous, acute. Anthers 1, 0.5–0.6 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, trigonous, 1–1.1 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, Southern South America. Peru. Brazil South. Paraguay, Uruguay.

TDWG4. Corrientes, Entre Rios, Misiones.

Chascolytrum rhomboideum (Link) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 329 (2011).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Rhombolytrum rhomboideum*. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Anon.*, Chile (B; IT: BAA-2759 (fragm. ex B), P [as Bertero 277; Link 24], US-946981b)). According to A. Chase notes, the P specimen says Link 24 and Bertero 277..

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (310, Fig. 104 as *Rhombolytrum*).

Derivation (Clifford & Bostock 2007): Gk. rhombos, rhombus; -oidea, resemblance. Spikelets rhomboid in outline.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 50–70 cm long. Ligule an eciliate membrane. Leaf-blades 10–20 cm long, 2–4 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5 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 rhomboid, laterally compressed, 4.5–5.5 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, 1 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 3.5–4.5 mm long, 1 length of adjacent fertile lemma, chartaceous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, thickened on margins at base, dorsally compressed, 3.5–4.5 mm long, membranous, firmer on margins, keeled, lightly keeled, 5 -veined, more than 3-veined. Lemma surface glabrous. Lemma margins pubescent, hairy below. Lemma apex dentate, 2 -fid, muticous or mucronate. Palea 0.75–0.85 length of lemma, 2 -veined. Palea keels pubescent. Palea surface glabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 1. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG), Continent. South America.

Country /Province /State. Southern South America. Chile Central.

Valparaiso, Santiago, O'Higgins.

Chascolytrum rufum J. Presl., *Reliq. Haenk.* 1(4–5): 282 (1830).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Peru. **Basionym or Replaced Name:** *Chascolytrum rufum* J. Presl, *Reliq. Haenk.* 1(4–5): 282 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *T. Haenke s.n.*, no date, Peru (PR(fragm., US-865688)).

Recent Synonyms: *Briza rufa* (Presl) Steud., *Nom. ed.* 2, 1: 225 (1840). *Poidium rufum* (Presl) Matthei, *Willdenowia, Beih.* 8: 98 (1975).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (243, Fig. 54), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (75, Fig. 19 as *Briza*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (95, Fig. 31 as *Briza*), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poeae* (1987).

Derivation (Clifford & Bostock 2007): L. reddish. Inflorescence purple to red.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 20–100 cm long. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 6–25 cm long, 5–10 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate or ovate, 3–9 cm long, 0.5–3 cm wide. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear.

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 ovate, laterally compressed, 2.5–3.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas. Floret callus pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume orbicular, 1.4–1.7 mm long, 0.8–0.9 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface asperulous. Lower glume apex acute. Upper glume orbicular, 1.7–2 mm long, 1 length of adjacent fertile lemma, chartaceous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume apex obtuse.

Florets. Fertile lemma oblate, thickened on margins at base, gibbous, 1.7–2 mm long, coriaceous, much thinner above, dark brown, glandular on veins (base of marginal veins), without keel, 7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins flat or involute. Lemma apex obtuse. Palea 0.9 length of lemma, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.4–0.6 mm long. Anthers 3, 0.8–1 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, 1–1.4 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Australasia, South America.

Country /Province /State. **New Zealand.** New Zealand North I. **Brazil and Southern South America.** Brazil South. Uruguay.

TDWG4. Buenos Aires, Corrientes, Entre Rios.

Chascolytrum scabrum (Nees ex Steud.) Matthei. *Willdenowia*, Beiheft 8: 77 (1975).

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

Basionym or Replaced Name: *Briza scabra* Syn. Nees ex Steud., *Pl. Gram.* 276 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *Rosengurtt & del Puerto 8984*, 3 Nov 1962, Brazil: Rio Grande do Sul: Campo entre Panabi y Palmeiras (MFVA). NT designated by Matthei, *Willdenowia*, Beih. 8: 77 (1975).

OM: (LE-TRIN-2484.01 (fragm. & illust. 311 ex hrbr. Bras. Berol. (Pan. Isachne))).

Illustrations (Books): A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (62, Fig. 14), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poaceae* (1987).

Derivation (Clifford & Bostock 2007): L. rough or gritty to the touch. Plants with rough leaf-blades, spikelets or stems.

Classification. Subfamily Pooideae. Tribe: Poaceae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 60–70 cm long, 2-noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5–2 mm long. Leaf-blades flat or involute, 7–15 cm long, 0.8–2 mm wide. Leaf-blade midrib scarcely raised beneath. Leaf-blade surface ribbed, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, 8–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–2.5 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 orbicular, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.2–0.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume orbicular, 2.2–2.4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume orbicular, 2.2–2.4 mm long, 1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma orbicular, 2–2.2 mm long, coriaceous, much thinner on margins, yellow, keeled, 5 -veined, more than 3-veined. Palea orbicular, 1.6 mm long, coriaceous, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.5 mm long, membranous, truncate. Anthers 1. Ovary glabrous. Caryopsis with adherent pericarp, orbicular, 1.2 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Brazil, Southern South America.** Brazil South. Argentina Northeast, Uruguay.

TDWG4. Entre Rios.

Chascolytrum subaristatum (Lam.) Desv. *Nouv. Bull. Sci. Soc. Philom. Paris* 2: 190 (1810).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Chascolytrum*), 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).

Basionym or Replaced Name: *Briza subaristata* Lam, *Illustr.* 1: 187 (1791). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. Commerson s.n.*, no date, Uruguay: Montevideo (P-LAM); IT: CP, LE-TRIN-2555.01, (fragm. & Illustr.), R, US-865549 (fragm. ex P-LAM)).

Recent Synonyms: *Briza reniformis* (Presl) Steud., *Nom. ed.* 2(1) 225 (1840). *Briza stricta* (Hook & Arn.) Steud., *Nom. ed.* II. 1: 225 (1840).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (172), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (341, Fig. 45), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), S.A.Renvoize, *Gramineas de Bolivia*

(1998) (127, Fig 31), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (228, Fig. 50 & 238, Fig. 53 as *Chascolytrum*), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (64, Fig. 15 & as *B. stricta*), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (77, Fig. 20 as *Briza*), M.N.Correra, *Flora Patagonica Parte III, Gramineae* (1978) (74, Fig. 36 as *B. reniformis*), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (106, Fig.37 as var. *subaristata* & var. *interrupta*), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poeae* (1987).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. sub, approaching; arista, bristle. Lemma sharply acute.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 30–60 cm long, 2 -noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–3 mm long. Leaf-blades flat or involute, 6–25 cm long, 1.5–4 mm wide. Leaf-blade midrib scarcely raised beneath. Leaf-blade surface ribbed, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open or contracted, lanceolate or elliptic, 2.5–15 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–7 mm long, pubescent.

Fertile Spikelets. Spikelets comprising 6–11 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 orbicular, laterally compressed, 3.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.1–0.4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume orbicular, 1.5–3.1 mm long, 1 length of upper glume, membranous, 1-keeled, 3–7 -veined. Lower glume surface puberulous. Lower glume apex acute. Upper glume orbicular, 1.5–3.3 mm long, 0.66–0.75 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface puberulous. Upper glume apex acute.

Florets. Fertile lemma oblate, auriculate at base, 1.8–5 mm long, 1.8–5 mm wide, coriaceous, much thinner on margins, mid-green, keeled, winged on margins, 5 -veined, more than 3-veined. Lemma apex dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus, 0.5–1 mm long overall. Palea orbicular, 1–2.5 mm long, coriaceous, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.3–0.6 mm long, membranous, truncate. Anthers 1, 0.8–1.1 mm long. Ovary glabrous. Caryopsis with adherent pericarp, orbicular, 1–1.5 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Africa, Australasia, North America, South America.

Country /Province /State. Southern Africa (*). Western Cape, Eastern Cape. **Australia.** New South Wales, A.C.T. **Mexico.** Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Guatemala. Bolivia, Colombia, Peru. Brazil South. Argentina Northeast, Argentina South, Argentina Northwest, Chile Central, Chile South, Juan Fernandez Is, Paraguay, Uruguay.

TDWG4. Coast, Tablelands. Jujuy, Salta, Santiago del Estero, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, La Pampa, Misiones, Santa Fe. Chubut, Neuquén, Río Negro. Coquimbo, Valparaiso, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos. Distrito Federal, Mexico State, Puebla. Aguascalientes, Neuvo Leon, Queretaro, San Luis Potosi, Zacatecas. Veracruz. Michoacan, Oaxaca. Chiapas.

Chascolytrum uniolae (Nees) Essi, Longhi-Wagner & Souza-Chies. *Novon* 21 (3): 329 (2011).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Briza*), U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Brazil. **Basionym or Replaced Name:** *Eragrostis uniolae* Nees, *Fl. Bras. Enum. Pl.* 2(1): 494–495 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow*, Brasilia (B; IT: BAA-405 (fragm. ex B), LE-TRIN-2405.01).

Recent Synonyms: *Briza uniolae* (Nees) Steud., *Syn. Pl. Gram.* 283 (1854). *Poidium uniolae* (Nees) Matthei, *Willdenowia, Beih.* 8: 93 (1975).

Illustrations (Books): S.A.Renouze, *Gramineas de Bolivia* (1998) (130, Fig 32 as *Briza*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (243, Fig. 54), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (62, Fig 15 as *Briza*), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (108, Fig. 38 as *Briza*), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poeae* (1987) (as *Briza*).

Derivation (Clifford & Bostock 2007): resembling *Uniola*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms erect, 30–150 cm long, 2 -noded. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane,

0.5–3 mm long. Leaf-blades flat, 11–25 cm long, 2–10 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface ungrooved, scabrous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 5–22 cm long. Primary panicle branches 1–5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.2–4 mm long, puberulous.

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 orbicular, laterally compressed, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.8–2.8 mm long, 0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous. Lower glume apex acute. Upper glume orbicular, 2–3 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex obtuse.

Florets. Fertile lemma orbicular, 2.4–3.4 mm long, coriaceous, much thinner on margins, keeled, 5 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface papillose. Lemma apex mucronate. Palea linear or lanceolate, 1.5–2.1 mm long, coriaceous, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, lanceolate, 0.4–0.6 mm long, membranous, acute. Anthers 1, 0.6–1 mm long. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, trigonous, 1.3–1.5 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean, Western South America, Brazil, Southern South America. Bolivia. Brazil Southeast, Brazil South. Argentina Northeast, Argentina South, Argentina Northwest, Paraguay, Uruguay.

TDWG4. Jujuy, Salta, Tucuman. Buenos Aires, Chaco, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe. Río Negro.

Chasmanthium curvifolium (Valdes, Morden & Hatch) J.K. Wipff & S.D. Jones. *Phytologia*, 69(6): 469 (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).

Basionym or Replaced Name: *Gouldochloa curvifolia* Valdis-Reyna, Morden & S.L. Hatch, *Syst. Bot.*, 11(1): 112 (1986). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Valdes & M.A. Carranza VR-1486*, 26 May 1982, Mexico: Tamaulipas (TAES).

IT: *Valdis VR-1486*, 26 mayo 1982, Mexico (US-2986777, US-3037659).

IT: *Valdiz VR-1486*, 26 mayo 1982, Mexico (MO!).

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: Chasmanthieae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms erect or geniculately ascending to decumbent, slender, 30–60 cm long, 0.8–2.6 mm diam. Culm-internodes distally glabrous. Culm-nodes glabrous or pubescent. Lateral branches lacking. Leaves distichous. Leaf-sheaths 1.5–5 cm long, pubescent. Leaf-sheath oral hairs pubescent. Ligule a ciliate membrane, 0.1–0.2 mm long, membranous. Leaf-blades ascending, linear, flat to involute, 3–7 cm long, 2–3.1 mm wide.

Inflorescence. Inflorescence a panicle, without bracts or bracteate at pedicel base (lowermost spikelet of primary branch). Panicle contracted, linear. Primary panicle branches appressed, distant, indistinct the panicle almost racemose. Spikelets appressed, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 0–1 basal sterile florets, 1–2 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 cuneate, laterally compressed, 8–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 4.6–6.5 mm long, herbaceous, much thinner on margins, light green, 1-keeled, 7–9 -veined. Lower glume lateral veins prominent. Lower glume apex acute. Upper glume ovate, herbaceous, light green, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1 or 2 or more, male, with palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, herbaceous, 1-keeled, acute. Fertile florets increasing in size upwards. Fertile lemma ovate, 5.5–8 mm long, herbaceous, light green, keeled, 7–9 -veined, more than 3-

veined. Lemma apex acuminate. Palea gaping, bowed outwards, 3–6–8 mm long, 2 -veined. Palea keels winged, narrowly winged. Palea apex dentate, 2 -fid. Apical sterile florets distinct from fertile.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 1, (1.1–)1.5–2.1 mm long, yellow. Caryopsis with adherent pericarp, ovoid, laterally compressed, exposed between gaping lemma and palea at maturity, 2–3 mm long, yellow or light brown.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Northeast Mexico.

TDWG4. Tamaulipas.

Chasmanthium latifolium (Michx.) Yates. *Southwest. Nat.* 11: 416 (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).

Basionym or Replaced Name: *Uniola latifolia* Michx., *Fl. Bor. Am.* 1: 71. (1803). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Michaux s.n.*, USA: Illinois (P; IT: LE-TRIN-2495.03). mis. am. Lehmann 4.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (347), F.W.Gould, *The Grasses of Texas* (1975) (53, Fig. 16), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (137, Fig. 30).

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

Derivation (Clifford & Bostock 2007): *L. latus*, broad; *folium*, leaf. Leaf-blades broad or relatively broad with respect to related species.

Classification. Subfamily Panicoideae. Tribe: Chasmanthieae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms 100–150 cm long. Ligule a ciliolate membrane. Leaf-blades lanceolate, 9–20 cm long, 10–20 mm wide. Leaf-blade venation with distinct cross veins.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 10–15(–35) cm long. Primary panicle branches drooping. Spikelets pendulous, solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1–2 basal sterile florets, 5–15(–24) 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, 20–40 mm long, 6–16 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 5–7 mm long, 1 length of upper glume, herbaceous, 1-keeled, 5–7 -veined. Lower glume apex acute. Upper glume ovate, 5–7 mm long, 0.5–0.7 length of adjacent fertile lemma, herbaceous, 1-keeled, 5–7 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1 or 2 or more, similar, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, elliptic, 6–8 mm long, herbaceous, 1-keeled, 7–11 -veined, acute. Fertile florets decreasing in size upwards. Fertile lemma ovate, 9–12 mm long, herbaceous, keeled, 11–15 -veined, more than 3-veined. Lemma midvein ciliolate. Lemma apex entire or dentate, 2 -fid, acute. Palea bowed outwards, 2 -veined. Palea keels winged, conspicuously winged, ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 1, 4 mm long, yellow. Caryopsis with adherent pericarp, ovoid, laterally compressed, 2–2.5 mm long.

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, Mexico.** Illinois, Iowa, Kansas, Missouri, North Dakota, Nebraska, Oklahoma, South Dakota. New Jersey, Pennsylvania, West Virginia. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Northeast Mexico.

Neuvo Leon.

Chasmanthium laxum (L.) Yates. *Southwest. Nat.* 11: 433 (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).

Basionym or Replaced Name: *Holcus laxus* L., *Sp. Pl.* 1048 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Clayton 589*, USA: Virginia (LINN-1212.11; ILT: BM). LT

designated (as holotype) by Yates, Southw. Naturalist 11: 433, 440, 442, f. 6 (1966); also superfluously by Clark, Ann. Missouri Bot. Gard. 77: 601 (1990).

Illustrations (Books): 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. loose. Inflorescence much branched either as a single panicle or from branching of the culms.

Classification. Subfamily Panicoideae. Tribe: Chasmanthieae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms 70–150 cm long. Leaf-sheaths glabrous on surface (rarely) or pubescent or hirsute. Ligule a ciliolate membrane. Collar pubescent. Leaf-blades 10–40 cm long, 4–12 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted or glomerate, linear, interrupted, 15–50 cm long. Primary panicle branches 0.5–9 cm long. Spikelets solitary. Fertile spikelets pedicelled or sessile. Pedicels present.

Fertile Spikelets. Spikelets comprising 1–2 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 cuneate, laterally compressed, 5–8 mm long, 3–5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1–2.5 mm long, 1 length of upper glume, herbaceous, 1-keeled, 1–3 -veined. Lower glume apex acute. Upper glume ovate, 1–2.5 mm long, 0.33–0.5 length of adjacent fertile lemma, herbaceous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1 or 2 or more, similar, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 1.5–2.5 mm long, herbaceous, 1-keeled, 3–5 -veined, acute. Fertile florets increasing in size upwards. Fertile lemma ovate, 3–5 mm long, herbaceous, keeled, 7–9 -veined, more than 3-veined. Lemma apex acuminate. Palea gaping, bowed outwards, 0.8 length of lemma, 2 -veined. Palea keels winged, narrowly winged, scabrous. Apical sterile florets distinct from fertile, 1 in number, male, linear, 3 mm long.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 1, 1.5–2 mm long. Caryopsis with adherent pericarp, ovoid, laterally compressed, exposed between gaping lemma and palea at maturity, 2–3 mm long. Embryo 0.5 length of caryopsis.

Distribution (TDWG). Continent. North America.

Country /Province /State. North-central USA, Northeast USA, South-central USA, Southeastern USA. Connecticut, New Jersey. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia.

Chasmanthium nitidum (Baldw. ex Ell.) Yates. *Southwest. Nat.* 11: 448 (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).

Basionym or Replaced Name: *Uniola nitida* Baldw. ex Ell., *Sketch*, 1: 167 (1816). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: NT: *Baldwin s.n.*, USA: Georgia: Camden Co.: Crooked River Bridge (DWC; INT: LE-TRIN-2492.01). NT designated by Yates, Southw. Naturalist 11: 448, 453–454 (1966); spec. e Schweinitz.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (347).

Derivation (Clifford & Bostock 2007): L. niteo, shine; Spikelets or lemmas shiny.

Classification. Subfamily Panicoideae. Tribe: Chasmanthieae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 70–120 cm long, 0.5–1 mm diam. Culm-nodes brown. Ligule a ciliolate membrane. Leaf-blades 9–15 cm long, 4–8 mm wide. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Inflorescence composed of racemes. Racemes 1–6, single or borne along a central axis, distant, spreading, 2–14 cm long, bearing few fertile spikelets, bearing 2–6(–12) fertile spikelets on each. Central inflorescence axis 8–16 cm long. Spikelet packing distant. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–5 mm long.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, (2–)4–8(–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 oblong or cuneate, laterally compressed, (8–)11–18(–23) mm long, (6–)8–13(–16) mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, (2–)3–5(–7) mm long, 1 length of upper glume, chartaceous, 1-keeled, 9–11 -veined. Lower glume apex acute. Upper glume lanceolate,

(2–)3–5(–7) mm long, 0.5 length of adjacent fertile lemma, chartaceous, 1-keeled, 9–11 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 5–8 mm long, chartaceous, 1-keeled, 9–11 -veined, acute. Fertile florets divergent, free at tip, increasing in size upwards. Fertile lemma lanceolate, 6–10 mm long, chartaceous, keeled, 11–13 -veined, more than 3-veined. Lemma apex acute or acuminate. Palea bowed outwards, 1 length of lemma, 2 -veined. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 1, 1–1.5 mm long, red or purple. Caryopsis with adherent pericarp, ovoid, 2.5–3 mm long, dark brown or black.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southeastern USA. Alabama, Florida, Georgia, North Carolina, South Carolina.

Chasmanthium ornithorhynchum (Steud.) Yates. *Southwest. Nat.* 11 : 443 (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).

Basionym or Replaced Name: *Uniola ornithorhyncha* (Nees) Steud., *Syn. Pl. Gram.* 280. (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Alabama, *Drummond s.n.*.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (347).

Derivation (Clifford & Bostock 2007): Gk. ornithos, bird; rhynchos, beak. Spikelets shaped like the beak of a bird.

Classification. Subfamily Panicoideae. Tribe: Chasmanthieae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms 50–85 cm long, 0.5 mm diam. Lateral branches lacking or sparse. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule a ciliolate membrane. Collar pubescent. Leaf-blades 6–13 cm long, 3–7 mm wide. Leaf-blade margins ciliate, hairy at base.

Inflorescence. Inflorescence a panicle. Panicle contracted, 3–10 cm long. Primary panicle branches 2–4 cm long, bearing 4–7 fertile spikelets on each lower branch. Panicle axis glabrous or pilose. Panicle branches pubescent in axils. Spikelets solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–4 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, (4–)7–12 mm long, 11–17 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2–3 mm long, 1 length of upper glume, herbaceous, 1-keeled. Lower glume apex acuminate. Upper glume ovate, 2–3 mm long, 0.33–0.5 length of adjacent fertile lemma, herbaceous, 1-keeled. Upper glume apex acuminate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, ovate, 3–5 mm long, herbaceous, 1-keeled, acute. Fertile florets increasing in size upwards. Fertile lemma ovate, 4–7 mm long, herbaceous, keeled, 11–13 -veined, more than 3-veined. Lemma midvein scabrous. Lemma apex acuminate. Palea 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged. Apical sterile florets distinct from fertile.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers yellow. Caryopsis with adherent pericarp, ovoid, laterally compressed, exposed between gaping lemma and palea at maturity, 2–3 mm long, dark brown.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southeastern USA. Alabama, Florida, Mississippi, North Carolina, South Carolina.

Chasmanthium sessiliflorum (Poir.) Yates. *Southwest. Nat.* 11: 426 (1966).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Uniola sessiliflora* Poir., *Encyc.* 8: 185. (1808). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Bosc s.n.*, USA: "Caroline" (P; IT: US (fragm.)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (348), F.W.Gould, *The Grasses of Texas* (1975) (53, Fig. 17).

Derivation (Clifford & Bostock 2007): L. sessilis, sessile; flos, flower. Origin uncertain, not given by the author.

Classification. Subfamily Panicoideae. Tribe: Chasmanthieae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms erect, slender, 70–150 cm long. Culm-nodes glabrous or pubescent. Lateral branches lacking. Leaf-sheaths glabrous on surface to hirsute. Ligule a ciliolate membrane. Collar pubescent. Leaf-blades 10–40 cm long, 4–12 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 15–50 cm long. Primary panicle branches appressed, distant, 0.5–9 cm long. Spikelets appressed, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 1–2 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 cuneate, laterally compressed, 5–8 mm long, 3–5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1–2.5 mm long, 1 length of upper glume, herbaceous, 1-keeled. Lower glume apex acute. Upper glume ovate, 1–2.5 mm long, 0.33–0.5 length of adjacent fertile lemma, herbaceous, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1 or 2 or more, similar, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to upper glume, ovate, 1.5–3 mm long, herbaceous, 1-keeled, acute. Fertile florets increasing in size upwards. Fertile lemma ovate, 3–5 mm long, herbaceous, keeled, 7–9 -veined, more than 3-veined. Lemma apex acuminate. Palea gaping, bowed outwards, 2 -veined. Palea keels winged, narrowly winged. Apical sterile florets distinct from fertile.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 1.5–2 mm long, brown. Caryopsis with adherent pericarp, ovoid, laterally compressed, exposed between gaping lemma and palea at maturity, 2–3 mm long, dark brown or black.

Distribution (TDWG). Continent. North America.

Country /Province /State. North-central USA, South-central USA, and Southeastern USA. Oklahoma. Texas. Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee.

Chasmopodium afzelii (Hack.) Stapf. *Prain, Fl. Trop. Afr.* 9: 77 (1917).

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

Basionym or Replaced Name: *Rottboellia afzelii* Hack., *DC Monog. Phan.* 6: 300. (1889).

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

Derivation (Clifford & Bostock 2007): in honor of Adam Afzelius (1750–1837) Swedish botanist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms 200–400 cm long, with prop roots. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades 25–50 cm long, 10–45 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, smoothly terete, 5–13 cm long. Rhachis fragile at the nodes, semiterete, 3–4 mm wide, glabrous on margins or ciliate on margins. Rhachis internodes cuneate, 5 mm long, 0.75 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, cuneate, flattened, glabrous or ciliate, tip rectangular.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong, asymmetrical, as long as fertile, separately deciduous. Companion sterile spikelet glumes coriaceous, winged on keels, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes.

Apical sterile spikelets male, 1 in number (10–25 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, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, yellow, 2-keeled, keeled above, winged on keel, winged narrowly, 20–35 -veined. Lower glume intercarinal veins distinct. Lower glume apex entire or dentate, 2 -fid, obtuse. Upper glume oblong, coriaceous, 1-keeled, keeled above, winged on keel, winged near apex, 7–9 -veined. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret oblong, hyaline, 3 -veined, ciliolate on margins. Fertile lemma oblong, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex obtuse. Palea hyaline, 2 -veined.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa. Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierre Leone, Togo.

Chasmopodium caudatum (Hack.) Stapf. Prain, *Fl. Trop. Afr.* 9 :77 (1917).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Rottboellia caudata* Hack., *DC. Monog. Phan.* 6: 298. (1889). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Buchner* 36, Angola (B; IT: L (fragm.)).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (284, Fig. 220).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3082 (1922)).

Derivation (Clifford & Bostock 2007): *L. cauda*, tail; -ata, possessing. Glumes elongated.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms 200–400 cm long, with prop roots. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades 25–50 cm long, 10–45 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, smoothly terete, 5–13 cm long. Rhachis fragile at the nodes, semiterete, 3–4 mm wide, glabrous on margins or ciliate on margins. Rhachis internodes cuneate, 5 mm long, 0.75 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, cuneate, flattened, glabrous or ciliate, tip rectangular.

Sterile Spikelets. Companion sterile spikelets well-developed, male, ovate, asymmetrical, as long as fertile, separately deciduous. Companion sterile spikelet glumes coriaceous, winged on keels, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes.

Apical sterile spikelets male, 1 in number (10–25 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, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pubescent, base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume ovate, 1 length of spikelet, coriaceous, yellow, 2-keeled, keeled above, winged on keel, winged narrowly, 20–35 -veined. Lower glume intercarinal veins obscure. Lower glume apex entire or dentate, 2 -fid, obtuse. Upper glume ovate, coriaceous, 1-keeled, keeled above, winged on keel, winged near apex, 7–9 -veined. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret ovate, hyaline, 3 -veined, ciliolate on margins. Fertile lemma ovate, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex obtuse. Palea hyaline, 2 -veined.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, West-central tropical Africa, Northeast tropical Africa, South tropical Africa. Burkina, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierre Leone, Togo. DRC. Sudan. Angola.

Chevalierella dewildemanii (Vanderyst) Van der Veken ex Compere. *Bull. Jard. Bot. Brux.* 3: 393 (1963).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from DRC. **Basionym or Replaced Name:** *Ichnanthus dewildemanii* Vanderyst, *Bull. Agric. Congo Belg.* 10: 249 (1919). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Zaire, Tenga Tenga: *Vanderyst* 5482bis (BR holo, K).

Recent Synonyms: *Chevalierella congoensis* A.Camus, *Rev. Bot. Appliq.* 13: 422 (1933).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (140, Fig. 65).

Derivation (Clifford & Bostock 2007): In honor of Emile Auguste Joseph De Wildeman (1866–1947) Belgian botanist.

Classification. Subfamily Panicoideae. Tribe: Centothecae.

Habit, Vegetative Morphology. Perennial. Culms 80–120 cm long. Ligule a ciliolate membrane. Leaf-blade base with a false petiole. Leaf-blades elliptic, 32–40 cm long, 45–50 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes numerous, borne along a central axis, unilateral, 3–7 cm long. Central inflorescence axis 30–35 cm long. Rhachis angular. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 0.5–2 mm long, scaberulous.

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, 5–5.5 mm long, falling entire. Spikelet callus pubescent. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 3–3.2 mm long, 0.8–0.9 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, 3.5 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, mucronate.

Florets. Fertile lemma oblong, 3.5 mm long, membranous, without keel, rounded except near apex, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma midvein scaberulous. Lemma lateral veins obscure. Lemma apex acute, awned, 1 -awned. Principal lemma awn curved, 2–2.5 mm long overall, limb scaberulous. Apical sterile florets 1 in number, barren, oblong, 2–2.2 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 1.5 mm long.

Flower and Fruit. Anthers 2.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa. DRC.

Chikusichloa aquatica Koidz. *Bot. Mag., Tokyo*, 9: 23 (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), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan: Kiushiu, prov. Higo, Kumagori, Kawamura, Ohmura, et Tarakimura., *K. Mayebaru s.n.* (HT: ?).

Illustrations (Books): R.Pilger, *Die Natürlichen Pflanzenfamilien* 14d (1956) (152, Fig. 41), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 249).

Derivation (Clifford & Bostock 2007): *L. aqua*, water; -ica, belonging to. Growing in or close to water.

Classification. Subfamily Ehrhartoideae. Tribe: Zizaniinae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 90–150 cm long, 3–6 mm diam., 5–7 -noded. Leaves cauline. Ligule an eciliate membrane or a ciliate membrane, 1.5–2.5 mm long, truncate. Leaf-blades 24–50 cm long, 6–12 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, elliptic or oblong, 40–65 cm long, 6–9 cm wide. Primary panicle branches 1–5 -nate, 4–14 cm long, bearing spikelets almost to the base. Panicle branches smooth or 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 lanceolate, dorsally compressed, compressed slightly, 7–11 mm long, falling entire. Spikelet callus linear, 4–7 mm long.

Glumes. Glumes both absent or obscure.

Florets. Fertile lemma lanceolate, 3–4 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma midvein scaberulous. Lemma lateral veins ribbed. Lemma surface scaberulous, rough on veins. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 4–6 mm long overall, limb scabrous. Palea 0.8 length of lemma, 2–3 -veined, without keels.

Flower and Fruit. Lodicules 2. Anthers 1, 1.2–1.5 mm long. Caryopsis with adherent pericarp, ellipsoid, 2–2.5 mm long.

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

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China, Eastern Asia. China Southeast. Japan. Japan Honshu, or Kyushu.

TDWG4. Jiangsu.

Chikusichloa brachyathera Ohwi. *Acta Phytotax. & Geobot., Kyoto*, 11: 255 (1942).

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 neighbouring regions* (1987).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (26, Fig. 3).

Derivation (Clifford & Bostock 2007): *Gk. brachys*, short; *ather*, ear or spike of wheat. Spikelet with a minute rachilla projection; lemma with a short awn.

Classification. Subfamily Ehrhartoideae. Tribe: Zizaniinae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–70 cm long, 2–3 mm diam. Leaves cauline. Ligule a ciliolate membrane, 1–2 mm long, truncate. Leaf-blades 20–35 cm long, 7–10 mm wide. Leaf-blade surface scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 12–30 cm long, 2.5–4 cm wide. Primary panicle branches 1–4-nate. 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, dorsally compressed, compressed slightly, 5–7 mm long, falling entire. Spikelet callus linear, 2–3.5 mm long.

Glumes. Glumes both absent or obscure.

Florets. Fertile lemma elliptic or ovate, 3.2–3.7 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins ribbed. Lemma surface hispidulous, hairy on veins. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 1.5–1.8 mm long overall. Palea 0.8 length of lemma, 3 -veined, without keels. Palea surface scaberulous (on veins).

Flower and Fruit. Lodicules 2. Anthers 1. Caryopsis with adherent pericarp, ellipsoid or oblong, 1.7 mm long.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Eastern Asia. Nansei-Shoto.

Chikusichloa mutica Keng. *Journ. Wash. Acad. Sc.* 21 : 527 (1931).

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*).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangxi: Nan'ning Xian, 24 Oct. 1928, *R.C. Ching 8200* (HT: NAS; IT: US).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 250).

Derivation (Clifford & Bostock 2007): L. blunt. Lacking awns or lemmas and/or glumes truncate.

Classification. Subfamily Ehrhartoideae. Tribe: Zizaniinae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 70–90 cm long. Leaves cauline. Ligule an eciliate membrane, 3–5 mm long, truncate. Leaf-blades 25–30 cm long, 10–15 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 30–40 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, dorsally compressed, compressed slightly, 3.5–5 mm long, falling entire. Spikelet callus linear, 0.5–1.5 mm long.

Glumes. Glumes both absent or obscure.

Florets. Fertile lemma elliptic, 3–3.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins ribbed. Lemma surface scabrous, rough on veins. Lemma apex acuminate, mucous. Palea 0.8 length of lemma, 3 -veined, without keels. Palea surface scaberulous (on veins).

Flower and Fruit. Lodicules 2. Anthers 1. Caryopsis with adherent pericarp.

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

Country /Province /State. China. Hainan, China Southeast. **Malesia.** Sumatra. Guangdong, Guangxi.

Chimaerochloa archboldii (Hitchc.) Pirie & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 347 (2010).

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 *Chionochloa*).

TYPE from New Guinea. **Basionym or Replaced Name:** *Danthonia archboldii* Hitchc. *Brittonia* 2(2): 114 (1936). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Brass 4194*, Jun-Sep 1933, (NY; IT: US-1614427).

Recent Synonyms: *Chionochloa archboldii* (Hitchc.) Conert, *Senckenberg.Biol.* 56: 156. 1975. *Cortaderia archboldii* (Hitchc.) Connor & Edgar, *Taxon.*, 23(4): 596 (1974).

Danthonia macgregorii Jansen, *Reinwardtia* 2. 262 (1953).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (97: 347, Fig.14 (2010)).

Derivation (Clifford & Bostock 2007): in honor of Richard Archbold (1907–1976) United States explorer and mammalogist.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–90 cm long. Leaf-sheaths glabrous on surface or pilose. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 1–1.3 mm long. Leaf-blades flat or involute, 15–30 cm long, 2–4 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong or ovate, 10–12 cm long, 4–7 cm wide. Primary panicle branches 3–8 cm long. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 cuneate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pilose.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 5–6 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex attenuate. Upper glume lanceolate, 5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex attenuate.

Florets. Fertile florets female. Fertile lemma oblong, 4–5 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface villous, without hair tufts. Lemma hairs 1 mm long. Lemma apex dentate, 2 -fid, incised 0.1 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, straight or curved, 5–10 mm long overall, without a column. Lateral lemma awns present, arising on apex of lobes, 2–3 mm long. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, ciliate. Anthers 3. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female. Male spikelets resembling female.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuaia. New Guinea.

Chimonobambusa angustifolia C.D.Chu & C.S.Chao. *J. Nanjing Techn. Coll. Forest Prod.*, 1981(3): 36 (1981).

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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangxi: Rongshui, 13 Sept. 1980, C.D. Chu et al. 7904 (HT: NFU).

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. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200 cm long, 10 mm diam., woody, with root thorns from the nodes. Culm-internodes quadrangular, 8–15 cm long, distally glabrous. Culm-nodes purple. Lateral branches dendroid. Branch complement three, in a horizontal line. Culm-sheaths present, tardily deciduous, chartaceous, brown, glabrous, hairy on margins, concave at apex, without auricles, glabrous on shoulders. Culm-sheath blade inconspicuous. Leaves cauline, 1–3 per branch. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs scanty. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 8–17 cm long, 7–12 mm wide, fleshy. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

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

TDWG4. Shanxi. Guangxi. Guizhou, Hubei, Sichuan.

Chimonobambusa armata (Gamble) Hsueh & T.P. Yi. *J. Bamboo Res.*, 2(1): 38 (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).

Basionym or Replaced Name: *Arundinaria armata* Gamble, *Ann. Bot. Gard. Calc.* 7: 130. (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Myanmar: 'hills of Upper Burma... Bernardmyo', Mr. J.W. Oliver 1894 (HT: K).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 206).

Derivation (Clifford & Bostock 2007): *L. armed*. Lower glume has stiff hairs on its margin.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 500–900(–1200) cm long, 35–50(–80) mm diam., woody, with root thorns from the nodes. Culm-internodes quadrangular, thin-walled, 12–20 cm long, mid-green, smooth or scaberulous, distally glabrous. Culm-nodes flush with internodes, pubescent. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, tardily deciduous, 1–1.1 length of internode, chartaceous, green or purple, distinctly mottled with last colour, pilose, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 2–3 mm high, ciliate. Culm-sheath blade triangular, erect, 0.5–1.3 cm long, pubescent. Leaves cauline, 3–5 per branch. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath oral hairs scanty. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades persistent, lanceolate or oblong, 15–23 cm long, 20–30 mm wide, light green. Leaf-blade venation with 12 secondary veins, with distinct cross veins. Leaf-blade surface scaberulous, rough abaxially, pubescent, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty, with glumaceous subtending bracts, with axillary buds at base of spikelet.

Fertile spikelets sessile.

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, 50–80 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3–4 empty glumes, persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma ovate, 8–9 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acute. Palea 1 length of lemma. Palea apex entire or dentate, 2-fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with fleshy pericarp. Endosperm evanescent.

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

Country /Province /State. **China.** China South Central, Tibet. **Indian Subcontinent, Indo-China.** Assam, India, Myanmar.

TDWG4. Sichuan, Yunnan.

Chimonobambusa brevinoda C.J.Hsueh & W.P.Zhang. *J. Bamboo Res.*, 7(1): 14 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Malipo Xian, 1650 m, 10 Nov. 1985, W.P. Zhang 840332 (HT: Herb. Inst. Silv. Merid. Occ.).

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

Derivation (Clifford & Bostock 2007): *L. brevis*, short; *nodus*, knot. Culms with short internodes.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200–300 cm long, 10 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete or quadrangular, solid, 7–8 cm long, smooth. Culm-nodes swollen, pubescent. Lateral branches dendroid. Bud complement 3. Branch complement three or several, in a horizontal line. Culm-sheaths present, persistent, chartaceous, hispid, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath blade inconspicuous. Leaves cauline, 3–5 per branch. Leaf-sheaths 3.5 cm long. Leaf-sheath oral hairs setose, 13 mm long. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 13–16 cm long, 10 mm wide, fleshy, dark green and grey-green, discolorous with last colour beneath. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. **China.** China South Central.

TDWG4. Yunnan.

Chimonobambusa callosa (Munro) Nakai. *Journ. Arnold Arb.* 6: 151 (1925).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Arundinaria callosa* Munro, *Trans. Linn. Soc.* 26: 30. (1868). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Hooker f. & Thompson 1504*, 6 Jul 1850, India: Meghalaya, Myrung (K). LT designated by Chao & Renvoize, *Kew Bull.* 44: 366 (1989), and data updated by Stapleton, *Edinb. J. Bot.* 51: 327 (1994).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (514, Fig. 8).

Derivation (Clifford & Bostock 2007): L. hard-skinned. Florets in some way thickened.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 400–700 cm long, 12–25 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, 12–25 cm long, grey, smooth. Culm-nodes swollen. Lateral branches dendroid. Culm-sheaths present, 1 length of internode, chartaceous, pubescent, hairy at the base, hairy on margins, truncate at apex, ciliate on shoulders. Culm-sheath ligule 2 mm high, fimbriate. Culm-sheath blade linear, 1.2–2.5 cm long, pubescent. Leaves cauline. Leaf-sheaths pubescent, hairs tawny, outer margin hairy. Leaf-sheath oral hairs setose. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.7 cm long. Leaf-blades deciduous at the ligule, lanceolate or oblong, 20–33 cm long, 17–32 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 10–16 secondary veins, with distinct cross veins. Leaf-blade surface scabrous, rough adaxially, pubescent, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, scanty, lax, with glumaceous subtending bracts, without axillary buds at base of spikelet, without prophylls.

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 linear, laterally compressed, 50–75 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, curved, 5 mm long, eventually visible between lemmas, glabrous.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Lower glume oblong, 6–7 mm long, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume oblong, 6–7 mm long, membranous, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume apex acute.

Florets. Fertile lemma ovate, 5–9 mm long, membranous, without keel, 3–7 -veined, 0–3 -veined or more than 3-veined. Lemma margins ciliolate, hairy above. Lemma apex acute, mucronate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Assam, Eastern Himalaya. Myanmar. Arunachal Pradesh, Bhutan. Assam, Meghalaya, Nagaland.

Chimonobambusa communis (C.J. Hsueh & T.P. Yi) K.M. Lan. *Fl. Guizhouensis*, 5: 308 (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).

Basionym or Replaced Name: *Qiongzhuea communis* (Keng) C.J.Hsueh & T.P.Yi, *Taxon* 45:219 (1996). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: 13 Aug. 1975, *T.P. Yi 75403* (HT: SFS; IT: SWFC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 214).

Derivation (Clifford & Bostock 2007): L. ordinary. Commonly encountered species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 400–700 cm long, 10–30 mm diam., woody, without nodal roots. Culm-internodes channelled or quadrangular, thin-walled, 12–25 cm long, smooth, distally glabrous. Culm-nodes flush with internodes, glabrous. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, chartaceous, green or brown, glabrous, without auricles, glabrous on shoulders. Culm-sheath ligule entire. Culm-sheath blade linear, erect, 0.5–1.1 cm long, glabrous on surface. Leaves cauline, 2–3 per branch. Leaf-sheaths 2–4 cm long, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 1 mm long, truncate. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule,

lanceolate, 8–12 cm long, 13–20 mm wide. Leaf-blade venation with 8–10 secondary veins, with distinct cross veins. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Synflorescence bractiferous, paniculate, with glumaceous subtending bracts or spathaceous subtending bracts, bracts 15–25 mm long, with axillary buds at base of spikelet, with ultimate bract subtending a compact bracteolate fascicle of spikelets.

Fertile spikelets pedicelled. Pedicels present, 3–10 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, 5–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, 7–13 mm long, membranous, without keels, 7–10 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 8–13 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute. Palea 7–11 mm long. Palea keels ciliate. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 5–6.5 mm long. Stigmas 2. Caryopsis with fleshy pericarp. Endosperm evanescent.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Guizhou, Hubei, Sichuan.

Chimonobambusa convoluta Q.H. Dai & X.L. Tao. *Acta Phytotax. Sin.*, 20(2): 212 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Guangxi: Tianlin, Laoshan, 800–1400 m, 13 Sept. 1980, Q.H. Dai & X.L. Tao 8048 (HT: GXFI).

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

Derivation (Clifford & Bostock 2007): L. rolled up longitudinally. Leaf-blades rolled length-wise.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200–300 cm long, 10–20 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, 12–16 cm long, mid-green, smooth, distally pubescent. Culm-nodes swollen, pubescent. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, chartaceous, hispid, with tawny hairs, hairy on margins, without auricles, glabrous on shoulders or ciliate on shoulders. Culm-sheath blade linear, erect, 1–2 cm long, glabrous on surface. Leaves cauline, 3–4 per branch. Leaf-sheaths tight, pubescent, hairs tawny, outer margin hairy. Leaf-sheath oral hairs setose, erect, 8–10 mm long. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, linear or lanceolate, 16–20 cm long, 10–12 mm wide. Leaf-blade venation with 8–10 secondary veins, with distinct cross veins. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Synflorescence bractiferous, scanty (1–3 spikelets), with glumaceous subtending bracts, with axillary buds at base of spikelet.

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, 20–50 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3–7 empty glumes, persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma ovate, 8.5 mm long, 6 mm wide, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface pubescent. Lemma hairs tawny. Lemma apex acute, mucronate. Palea 1.1 length of lemma. Palea keels ciliate. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with fleshy pericarp. Endosperm evanescent.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China Southeast.

Guangxi.

Chimonobambusa damingshanensis C.J. Hsueh & W.P. Zhang. *Bamboo Res.*, 1988(3): 5 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangxi: low mountain slopes ca. 1300 m.,

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150–200 cm long, 6–8 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, thick-walled, 10–13 cm long, smooth, distally glabrous or pubescent. Culm-nodes flush with internodes or swollen, pubescent. Lateral branches dendroid. Branch complement one or two or three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, persistent, 1.1 length of internode, chartaceous, green or white, distinctly mottled with last colour, hispid, with tawny hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule ciliolate. Culm-sheath blade linear, deciduous, erect, 0.3–0.4 cm long. Leaves cauline, 4–6 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, 11 mm long. Ligule an eciliate membrane, 6 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 15–18 cm long, 11–13 mm wide. Leaf-blade venation with distinct cross veins.

Inflorescence. Synflorescence bractiferous, scanty, with glumaceous subtending bracts, with axillary buds at base of spikelet.

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 elliptic, laterally compressed, 12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma lanceolate or ovate, 10 mm long, 3–4 mm wide, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex setaceously acuminate. Palea 6–7 mm long, 0.6–0.8 length of lemma. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with fleshy pericarp. Endosperm evanescent.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China Southeast. Guangxi.

Chimonobambusa fansipanensis

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. -ensis*, denoting origin. From Mt Fansipan, Vietnam.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–400 cm long, 10–20 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, 14–18 cm long, striate. Lateral branches dendroid. Branch complement three, in a horizontal line. Culm-sheaths present, persistent, 1 length of internode, 2.5 times as long as wide, coriaceous, hairy on margins, auriculate, glabrous on shoulders. Culm-sheath ligule 1–1.5 mm high, entire. Culm-sheath blade narrowly ovate, 4–7 cm long, 4–6 mm wide. Leaves cauline, 3–5 per branch. Leaf-sheath oral hairs setose. Leaf-sheath auricles falcate. Ligule an eciliate membrane, 2–2.5 mm long, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.3–0.4 cm long. Leaf-blades lanceolate, 8–12 cm long, 7–10 mm wide, fleshy. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface puberulous, sparsely hairy, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Chimonobambusa grandifolia C.J.Hsueh & W.P.Zhang. *J. Bamboo Res.*, 7(1): 17 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Pingbian, Dawei Shan, 1978, *Y.M. Li & Y.M. Dao* 32 (HT: Herb. Inst. Silv. Merid. Occid.).

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

Derivation (Clifford & Bostock 2007): *L. grandis*, large; *folium*, leaf. Leaf-blades large.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 400 cm long, 10–15 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled, 20–25 cm long, distally pilose. Lateral branches dendroid. Bud complement 3. Branch complement three, in a horizontal line. Culm-sheaths present, tardily deciduous, 0.3–0.5 length of internode, chartaceous, pilose, with appressed hairs, with tawny hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 0.5–1 mm high. Culm-sheath blade triangular, deciduous, 0.5–0.7 cm long. Leaves cauline, 6–8 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, erect, 15 mm long. Ligule an eciliate membrane, 2 mm long. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades oblong, 30–35 cm long, 25 mm wide, fleshy. Leaf-blade venation with 14–16 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chimonobambusa hejiangensis C.D. Chu & C.S. Chao. *J. Nanjing Techn. Coll. Forest Prod.*, 1981(3): 36 (1981).

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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Hejiang, 700–1200 m, *C.D. Chu et al.* 76004 (HT: NFU).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 209).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Hejiang Xian, Guizhou Province, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 500–700 cm long, 20–30 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, 20 cm long, mid-green, smooth, distally pubescent. Culm-nodes constricted, purple, glabrous. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, persistent, coriaceous, green, concolorous, hispid, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath blade triangular, erect, 0.7–1.4 cm long. Leaves cauline, 3–5 per branch. Leaf-sheaths deciduous. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, linear or lanceolate, 11–20 cm long, 10–20 mm wide. Leaf-blade venation with 8–12 secondary veins, with distinct cross veins. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, paniculate, with glumaceous subtending bracts, with axillary buds at base of spikelet.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 9–10 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, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma ovate, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acute. Palea 1 length of lemma. Palea apex emarginate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with fleshy pericarp. Endosperm evanescent.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central, China Southeast.

TDWG4. Jiangsu. Guizhou, Sichuan.

Chimonobambusa hirtinoda C.S.Chao & K.M.Lan. *Bamboo Res.*, 1982(1): 2 (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).

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

Derivation (Clifford & Bostock 2007): *L. hirtus*, hairy; *nodus*, noded. Young culms having hairy nodes.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 500 cm long, 25 mm diam., woody, with root thorns from the nodes. Culm-internodes quadrangular, 12–16 cm long, antrorsely scabrous, distally glabrous or hispid, with tubercle-based hairs. Lateral branches dendroid. Branch complement three, in a horizontal line. Culm-sheaths present, persistent, chartaceous, brown, concolorous, hispid, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath blade linear, 0.1–0.2 cm long. Leaves cauline, 2–3 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, fleshy. Leaf-blade venation with 8–10 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Guizhou.

Chimonobambusa hsuehiana D. Z. Li & H. Q. Yang. *Fl. China 22*: 155 (2006).

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: : Based on *Qiongzhueta intermedia* ;:

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 214).

Derivation (Clifford & Bostock 2007): In honor of Chi-Ju Hsueh (1921-) Chinese botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150–350 cm long, 4–10 mm diam., woody. Culm-internodes terete or quadrangular, thick-walled, 10–15 cm long, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid. Branch complement three or several. Culm-sheaths present, deciduous, chartaceous, glabrous or hispid, with tawny hairs. Culm-sheath ligule 1 mm high, ciliate. Culm-sheath blade triangular, 0.5–0.8 cm long. Leaves cauline, (1–)3–5 per branch. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–20 cm long, 20–30 mm wide. Leaf-blade venation with 10–14 secondary veins. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan.

Chimonobambusa jainii*

Habit, Vegetative Morphology. Perennial, woody bamboo, culms solitary. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–700 cm long, 10–15 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled, 14.5–20 cm long, yellow or grey, scaberulous. Culm-nodes swollen, pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, 8.4–11.5 cm long, 1–2 times as long as wide, yellow, pilose, hairy at the base, hairy on margins, setose on shoulders. Culm-sheath ligule fimbriate. Culm-sheath blade linear, 0.2–1 cm long. Leaves cauline. Leaf-sheaths striately veined, antrorsely scabrous, outer margin hairy. Leaf-sheath oral hairs setose. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 12–18 cm long, 15–20 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 8–10

secondary veins, with distinct cross veins. Leaf-blade surface scabrous, rough abaxially. Leaf-blade apex acute. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent.

Chimonobambusa lactistriata W.D. Li & Q.X. Wu. *J. Bamboo Res.*, 4(1): 46 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Ce-heng Xian, c. 500 m, in sylvis, Z. P. Wang et al. G8317 (HT: NJU; IT: GZFI).

Recent Synonyms: *Chimonobambusa rivularis* T.P. Yi, *J. Bamboo Res.*, 8(3): 18 (1989).

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

Derivation (Clifford & Bostock 2007): *L. lactius*, milk-white; *stria*, furrow; *-ata*, possessing. Leaf-sheaths with white stripes.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 250–500 cm long, 12–20 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, 10–12 cm long, papillose, distally hispid, with tubercle-based hairs. Lateral branches dendroid. Culm-sheaths present, deciduous, 1 length of internode, chartaceous, green and purple, striped, glabrous or hispid, hairy on margins. Culm-sheath ligule 1 mm high. Culm-sheath blade linear, erect, 0.4–2 cm long, 1.2–2 mm wide. Leaves cauline, 1–2(–3) per branch. Leaf-sheath oral hairs scanty, 1 mm long. Leaf-sheath auricles absent. Ligule a ciliolate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 7–11 cm long, 8–13 mm wide, mid-green and glaucous, discolorous with last colour beneath. Leaf-blade venation with 6–10 secondary veins, with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, with glumaceous subtending bracts, without axillary buds at base of spikelet, without prophylls, leafless between clusters.

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 linear, laterally compressed, 12–41 mm long, 2–3 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–8 mm long.

Glumes. Glumes several, 2–5 empty glumes, persistent, similar, shorter than spikelet. Lower glume oblong, 2.5 mm long, membranous, without keels. Lower glume apex acute. Upper glume oblong, 9.5 mm long, membranous, without keels, 11 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, 9–11 mm long, membranous, without keel, 11–13 -veined, more than 3-veined. Lemma apex apiculate. Palea 8–10 mm long. Palea keels eciliate or ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2 mm long, ciliate. Anthers 3, 5–6 mm long, yellow or purple. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, 5–9 mm long.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Guizhou.

Chimonobambusa leishanensis T.P. Yi. *Acta Bot. Yunnanica*, 13(2): 144 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Leishan, 1620 m, 1 Aug. 1987, T.P. Yi 87461 (HT: SFS).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Leishan Country, Guizhan Province, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150–300 cm long, 6–10 mm diam., woody, with aerial roots from the nodes. Culm-internodes channelled, thick-walled, 14 cm long, distally hispid, with tubercle-based hairs. Lateral branches dendroid. Bud complement 3. Branch complement three, in a horizontal line. Culm-sheaths present, persistent, chartaceous, hispid, with yellow hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath

ligule 1 mm high, ciliate. Culm-sheath blade linear, erect, 0.6–2.8 cm long, 0.8–1.2 mm wide. Leaves cauline, 1–2 per branch. Leaf-sheaths glabrous on surface or pilose, outer margin hairy. Leaf-sheath oral hairs setose, erect, 2–4 mm long. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades lanceolate, 6–20 cm long, 9–25 mm wide, fleshy. Leaf-blade venation with 10–12 secondary veins, with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Guizhou.

Chimonobambusa luzhiensis (Keng) K.M. Lan. *Fl. Guizhouensis*, 5: 309 (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).

Basionym or Replaced Name: *Qiongzhueta luzhiensis* (Keng) C.J.Hsueh & T.P.Yi, *Taxon* 45:219 (1996). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Luzhi Xian, 1700–1900 m, 12 Aug. 1981, *T.P. Yi 81106* (HT: SFS).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Luizhi Xian, Guizhou Province, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 250–500 cm long, 10–20 mm diam., woody, 20–26 -noded. Culm-internodes terete or quadrangular, thick-walled, 14–18 cm long, distally glabrous. Culm-nodes flush with internodes, glabrous. Lateral branches dendroid, ascending. Bud complement 3. Branch complement three, in a horizontal line. Culm-sheaths present, persistent, 9–12 cm long, 2 times as long as wide, coriaceous, hispid, with tawny hairs, truncate at apex, without auricles, setose on shoulders, shoulders with straight hairs or curved hairs, shoulders with 2–5 mm long hairs. Culm-sheath ligule 1 mm high, ciliolate. Culm-sheath blade triangular, narrower than sheath, erect, 0.2–0.9 cm long, 1–2 mm wide, glabrous on surface. Leaves cauline, 2–4 per branch. Leaf-sheaths 3.5–8 cm long, outer margin hairy. Leaf-sheath oral hairs setose, erect or curly, 3–5 mm long, dark. Ligule an eciliate membrane, 1 mm long, truncate. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 7–30 cm long, 11–24 mm wide, fleshy. Leaf-blade venation with 10–14 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Guizhou.

Chimonobambusa macrophylla T.H. Wen & D. Ohrnberger. D. Ohrnberger, *Bamboos of the World: gen. Chimonobambusa*: 21 (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).

Basionym or Replaced Name: *Qiongzhueta macrophylla* (Wen & Ohrnb.) Hsueh & T.P. Yi, *Taxon* 45:419 (1996). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Leibo, 1500 m, 11 April 1984, *T.P. Yi 84044* (HT: Herb. Forestry School Sichuan).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 207 as var. *leiboensis*).

Derivation (Clifford & Bostock 2007): Gk *makros*, large; *phyllon*, leaf. Leaf-blades large.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150–500 cm long, 10–20 mm diam., woody. Culm-internodes channelled, thick-walled, 18–21 cm long, distally glabrous. Culm-nodes flanged. Lateral branches dendroid. Branch complement three, in a horizontal line. Culm-sheaths present, deciduous, 7–11 cm long, 2 times as long as wide, chartaceous, glabrous, triangular at apex, without auricles, glabrous on shoulders. Culm-sheath ligule 0.5–1 mm high, ciliolate. Culm-sheath blade linear, 0.3–0.9 cm long, 1–1.5 mm wide, glabrous on surface. Leaves cauline, 1–4 per branch. Leaf-sheaths 4.5–7.2 cm long, outer margin glabrous or hairy. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.5–1 mm long, brown or purple, truncate or obtuse. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.15–0.4 cm long, petiole glabrous.

Leaf-blades lanceolate or oblong, 11–21 cm long, 16–39 mm wide, fleshy. Leaf-blade venation with 10–16 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan.

Chimonobambusa marmorea (Mitf.) Makino. *Bot. Mag. Tokyo*, 28: 154 (1914).

Accepted by: R.J.Soreng et al., *Catalogue of 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.Tsvelev, *Grasses of the Soviet Union* (1983).

Basionym or Replaced Name: *Bambusa marmorea* Mitford, *Garden*, 46: 547 (1894).

Illustrations (Books): D.Farrelly, *The Book of Bamboo* (1984), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 204).

Derivation (Clifford & Bostock 2007): *L. marmor*, marble; -ea, indicating resemblance.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200–300 cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, purple, smooth. Culm-nodes swollen. Lateral branches dendroid. Branch complement three or several, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, persistent, chartaceous, purple, distinctly mottled with last colour, pubescent, hairy at the base, with yellow hairs, glabrous on shoulders. Culm-sheath blade inconspicuous. Leaves cauline, 3–4 per branch. Leaf-sheath oral hairs setose. 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, 6–15 cm long, 8–12 mm wide. Leaf-blade venation with distinct cross veins.

Inflorescence. Synflorescence bractiferous, scanty, with glumaceous subtending bracts, without axillary buds at base of spikelet, without prophylls.

Fertile spikelets sessile.

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, 20–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–4 mm long, eventually visible between lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 6–8 mm long, 1 length of upper glume, membranous, without keels, 5 -veined. Lower glume apex acute. Upper glume oblong, 6–8 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 6–7 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acute. Palea 1 length of lemma, 8 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2 mm long, ciliate. Anthers 3, 3.5–4 mm long. Stigmas 2. Caryopsis with adherent pericarp, 6 mm long.

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Caucasus, China, Eastern Asia.** China South Central, China North-Central, China Southeast. Nansei-Shoto.

TDWG4. Shaanxi. Fujian, Zhejiang. Hubei, Sichuan.

Chimonobambusa metuoensis Hsueh & T.P. Yi. *J. Bamboo Res.*, 2(1): 34 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Xizang: Medog, 15 Aug. 1977, T.P. Yi 76282 (HT: SFS).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 209).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Medong Xian, Xizang Autonomous Region, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 500–700 cm long, 10–25 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, mid-green, distally pubescent. Culm-nodes pubescent. Lateral branches dendroid.

Branch complement three. Culm-sheaths present, tardily deciduous, 8–13 cm long, 0.7 length of internode, coriaceous, red or purple, hairy on margins, without auricles. Culm-sheath ligule 1 mm high, ciliate. Culm-sheath blade triangular, erect, 0.15–0.2 cm long, 1–1.5 mm wide, glabrous on surface. Leaves cauline, 2–3 per branch. Leaf-sheaths 4–8 cm long, glabrous on surface. Ligule an eciliate membrane, 1 mm long, purple, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 12–33 cm long, 10–16 mm wide. Leaf-blade surface glabrous. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. Tibet.

TDWG4.

Chimonobambusa microfloscula McClure. *Lingnan Univ. Sci. Bull.*, No. 9, 17 (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).

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

Derivation (Clifford & Bostock 2007): Gk. mikros, small; L. flos, flower; -ula, diminutive. Spikelets small.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 400–600 cm long, 15–20 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, purple, distally hispid. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid. Branch complement three, with subequal branches. Culm-sheaths present, pubescent, with appressed hairs, with white hairs, without auricles, ciliate on shoulders. Culm-sheath blade linear. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, pale. Leaf-sheath auricles absent. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades linear or lanceolate, 9.5–19 cm long, 10–13 mm wide. Leaf-blade surface pilose, hairy abaxially. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, open, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, 8–24 cm long overall.

Fertile spikelets pedicelled. Pedicels present, 1–5 mm long, glabrous or puberulous.

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 linear, laterally compressed, 50–75 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 4–5 mm long, membranous, 1-keeled, 5 -veined. Lower glume surface puberulous. Lower glume apex obtuse. Upper glume oblong, 5–6 mm long, membranous, without keels, 7 -veined. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 7–9 mm long, membranous, purple, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Palea 1 length of lemma. Palea surface scabrous. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 3. Caryopsis with adherent pericarp.

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

Country /Province /State. China. China South Central. **Indo-China.** Vietnam.

TDWG4. Yunnan.

Chimonobambusa montigena (Yi) D. Ohrnberger. *Bambusbrief*, 1990(4): 11 (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).

Basionym or Replaced Name: *Qiongzhueta montigena* T.P. Yi, *J. Bamboo Res.*, 9(3): 28 (1990). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Zhaotong Xian, 2320–2500 m, 8 Sept. 1988, *T.P. Yi 88168* (HT: SFS).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 210).

Derivation (Clifford & Bostock 2007): *L. mons*, mountain; *gigno*, beget. Growing on mountains.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150–300 cm long, 7–14 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 13–19 cm long, smooth, distally mealy. Culm-nodes flush with internodes, bearded. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, coriaceous, hispid, hairy at the base, with dark brown hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath blade lanceolate, erect, 0.8–1.5 cm long. Leaves cauline,

2–5 per branch. Leaf-sheath oral hairs scanty. Ligule an eciliate membrane, 1 mm long, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 8–15 cm long, 10–26 mm wide. Leaf-blade venation with 8–10 secondary veins, with distinct cross veins.

Inflorescence. Synflorescence bractiferous, linear, with glumaceous subtending bracts, with axillary buds at base of spikelet.

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 linear, laterally compressed, 20–32 mm long, 3–5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–4 mm long, glabrous.

Glumes. Glumes one the lower absent or obscure, 1 empty glumes, persistent, shorter than spikelet. Upper glume lanceolate, 10–20 mm long, membranous, without keels, 9–11 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 9–13 mm long, chartaceous, without keel, 9–11 -veined, more than 3-veined. Lemma apex acute. Palea 9–13 mm long, 8–10 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2–2.5 mm long, membranous, glabrous or ciliate. Anthers 3, 5–6 mm long. Stigmas 2–3. Caryopsis with fleshy pericarp, 7–13 mm long. Endosperm evanescent.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chimonobambusa ningnanica J.R. Xue & L.Z. Gao. *J. Bamboo Res.*, 6(2): 13 (1987).

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: Sichuan: Ningnan, 2555 m, 26 March 1985, *SWFC Bamboo Exped. J85045* (HT: SWFC).

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

Derivation (Clifford & Bostock 2007): *L. -ica*, belonging to. From Ningnan, Sichuan Province, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, (600–)1000–1400 cm long, 20–30 mm diam., woody, with root thorns from the nodes. Culm-internodes terete or quadrangular, thin-walled, 20 cm long, papillose. Culm-nodes without obvious supra-nodal ridge, pubescent. Lateral branches dendroid. Branch complement three. Culm-sheaths present, deciduous, chartaceous, hispid, with tawny hairs, hairy on margins. Culm-sheath ligule 0.5 mm high, ciliate. Culm-sheath blade linear, 3–6 cm long, 3 mm wide. Leaves cauline, 3 per branch. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath oral hairs ciliate, 4–5 mm long, pale. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–23 cm long, 15–20 mm wide. Leaf-blade venation with 8–10 secondary veins, with distinct cross veins. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan, Yunnan.

Chimonobambusa opienensis (Keng) T.H. Wen & D. Ohrnberger. D. Ohrnberger, *Bamboos of the World: gen. Chimonobambusa*: 30 (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:** *Qiongzhueta opienensis* (Keng) C.J.Hsueh & T.P.Yi, *Taxon* 45:220 (1996). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Sichuan: Ebian, 31 Aug. 1974, *T.P. Yi 74217* (HT: SFS).

Recent Synonyms: *Chimonobambusa maculata* T.H.Wen, *J. Bamboo Res.*, 7(1): 31 (1988).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 213).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Opien (Ebian) Xian, Sichuan Province, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 400–700 cm long, 10–30 mm diam., woody, without nodal roots. Culm-internodes

channelled or quadrangular, thin-walled, smooth, distally glabrous. Culm-nodes flush with internodes, glabrous. Lateral branches dendroid. Branch complement two or three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, chartaceous, antrorsely scabrous, hispid, with yellow hairs, without auricles, glabrous on shoulders. Culm-sheath ligule entire. Culm-sheath blade linear, erect, glabrous on surface. Leaves cauline, 1 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 1 mm long, truncate. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 8–12 cm long, 13–20 mm wide. Leaf-blade venation with 8–10 secondary veins, with distinct cross veins. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan.

Chimonobambusa pachystachys J.R. Xue & T.P. Yi. *J. Yunnan Forest. Coll.*, 1982(1): 33 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Gulin, *Yi Tongpei* 76282 (HT: SFS) 17 June 1976.

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 212).

Derivation (Clifford & Bostock 2007): as for *pachystachya*. Spike densely beset with spikelets and bristles.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–600 cm long, 10–30 mm diam., woody, with root thorns from the nodes. Culm-internodes quadrangular, thick-walled, 15–22 cm long, smooth, distally hispid. Culm-nodes swollen, pubescent. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, tardily deciduous, chartaceous, green or white, distinctly mottled with last colour, hispid, with tawny hairs, without auricles, glabrous on shoulders. Culm-sheath ligule entire. Culm-sheath blade linear, demarcated but persistent, erect, 0.3–0.4 cm long. Leaves cauline, 1–3 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty. Ligule an eciliate membrane, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 10–18 cm long, 11–21 mm wide. Leaf-blade venation with 8–12 secondary veins, with distinct cross veins. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, paniculate, with glumaceous subtending bracts, with axillary buds at base of spikelet.

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 linear, laterally compressed, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma oblong, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface glabrous or puberulous. Lemma apex apiculate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with fleshy pericarp, oblong. Endosperm evanescent.

$2n = 48$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Guizhou, Sichuan.

Chimonobambusa paucispinosa T.P. Yi. *J. Bamboo Res.*, 9(3): 24 (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Suijiang Xian, 1450 m, 23 Aug. 1988, *T.P. Yi* 88156 (HT: Herb. Forestry School of Sichuan Province).

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–500 cm long, 10–20 mm diam., woody. Culm-internodes terete, thick-walled, 6–14 cm long, distally pubescent. Lateral branches dendroid. Bud complement 1. Branch complement three, in a horizontal line. Culm-sheaths present, deciduous, coriaceous, glabrous or pilose, glabrous on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 0.5 mm high. Culm-sheath blade linear or triangular, erect, 0.3–0.6 cm long, 1–2 mm wide. Leaves cauline, 1–2(–4) per branch. Leaf-sheaths 2.2–3.2 cm long, outer margin glabrous. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.3 mm long, truncate. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 4.5–13 cm long, 6–15 mm wide, fleshy, mid-green and glaucous, discoloured with last colour beneath. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chimonobambusa puberula (Keng) K.M. Lan. *Fl. Guizhouensis*, 5: 308 (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:** *Qiongzhueta puberula* (Keng) C.J.Hsueh & T.P.Yi, *Taxon* 45:220 (1996). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Guizhou: Luzhi Xian, 1600 m, 11 Nov. 1981, *T.P. Yi 81132* (HT: SFS).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 213).

Derivation (Clifford & Bostock 2007): *L. pubes*, hair of adulthood; *-ula*, diminutive. Plant covered in whole or part with short hairs.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 400–500 cm long, 15–25 mm diam., woody, 25–32 -noded. Culm-internodes terete or quadrangular, thin-walled, 8–20 cm long, dark green or purple, scaberrulous, distally pubescent. Lateral branches dendroid. Bud complement 3. Branch complement three or several, in a horizontal line. Culm-sheaths present, tardily deciduous, 10–13 cm long, 2 times as long as wide, coriaceous, brown, hispid, with dark brown hairs, hairy on margins, truncate at apex or convex at apex, without auricles, ciliate on shoulders, shoulders with curved hairs, shoulders with 1–4 mm long hairs. Culm-sheath ligule 1 mm high, brown, entire. Culm-sheath blade triangular, narrower than sheath, erect, 0.2–1.3 cm long, 1–2 mm wide. Leaves cauline, 2–4 per branch. Leaf-sheaths 3–4 cm long, outer margin hairy. Leaf-sheath oral hairs setose, erect or curly, 3–5 mm long, dark. Ligule an eciliate membrane, 1 mm long, truncate or obtuse. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, fleshy, mid-green and grey-green, discoloured with last colour beneath. Leaf-blade venation with 6–12 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Guizhou.

Chimonobambusa pubescens T.H. Wen. *J. Bamboo Res.*, 5(2): 20 (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>: *vide* TROPICOS and Kew Synonymy Database: China: Sichuan: Jingxian, broad-leaved forests, *S.C. Chen CX84514* (HT: ZJFI).

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

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. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200 cm long, 8 mm diam., woody. Culm-internodes terete, solid, 8–14 cm long, distally glabrous or pubescent. Lateral branches dendroid. Branch complement three, in a horizontal line. Culm-sheaths present, persistent, glabrous, hairy on margins, without auricles. Culm-sheath ligule 0.2 mm high. Culm-sheath blade inconspicuous. Leaves cauline, 3 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, pale. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 9–12 cm long, 7–9 mm wide, fleshy. Leaf-

blade venation with 10 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China Southeast.

TDWG4. Hunan.

Chimonobambusa purpurea J.R. Xue & T.P. Yi. *J. Yunnan Forest. Coll.*, 1982(1): 36 (1982).

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: Sichuan: Guanxian, hills, 800–1500 m, *T.P. Yi 68003* (HT: SFS).

Recent Synonyms: *Chimonobambusa neopurpurea* T.P. Yi, *Acta Bot. Yunnan* 14(2):137 (1992).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 204).

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, 400–800 cm long, 2–3 mm diam., woody, with root thorns from the nodes. Culm-internodes quadrangular, thin-walled, 10–16 cm long, smooth, distally glabrous. Culm-nodes flush with internodes or swollen, pubescent. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, persistent, chartaceous, purple or white, distinctly mottled with last colour, hispid, hairy at the base, with tawny hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule ciliate. Culm-sheath blade linear, demarcated but persistent, erect, 0.1–0.3 cm long. Leaves cauline, 2–4 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, pale. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 10–19 cm long, 10–20 mm wide. Leaf-blade venation with 8–12 secondary veins, with distinct cross veins. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty (1–3 spikelets), with glumaceous subtending bracts, with axillary buds at base of spikelet.

Fertile spikelets sessile.

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, laterally compressed, 20–30 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. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma oblong, chartaceous, without keel, 7–8 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acute. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with fleshy pericarp, 4–7 mm long. Endosperm evanescent.

Distribution (TDWG). Continent. Temperate Asia.

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

TDWG4. Shanxi. Hubei, Sichuan.

Chimonobambusa quadrangularis (Fenzi) Makino. *Bot. Mag. Tokyo*, 28: 153 (1914).

Accepted by: R.J.Soreng et al., *Catalogue of 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.Tsvelev, *Grasses of the Soviet Union* (1983).

Basionym or Replaced Name: *Bambusa quadrangularis* Fenzi, *Bull. Soc. Tosc. Ort.* 5: 401. (1880).

Illustrations (Books): D.Farrelly, *The Book of Bamboo* (1984) (165), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 212).

Derivation (Clifford & Bostock 2007): L. quatuor, four; angulus, angle; -aris, pertaining to. Culms square in cross-section.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–800 cm long, 10–40 mm diam., woody. Culm-internodes quadrangular, thin-walled,

8–20 cm long, distally hispid, with tubercle-based hairs. Lateral branches dendroid. Bud complement 3. Branch complement three, in a horizontal line. Culm-sheaths present, persistent, chartaceous, green and purple, distinctly mottled with last colour, glabrous, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath blade triangular. Leaves cauline, 2–5 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose. Ligule a ciliolate membrane, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 8–29 cm long, 20–27 mm wide, fleshy. Leaf-blade venation with 8–14 secondary veins, with distinct cross veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acute. Flowering specimens unknown.

Flower and Fruit. $2n = 48$ (1 ref TROPICOS).

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **China, Eastern Asia.** China Southeast. Japan, Taiwan. **New Zealand.** New Zealand North I.

TDWG4. Anhui, Fujian, Guangxi, Hunan, Jiangsu, Jiangxi, Zhejiang.

Chimonobambusa rigidula (Hsueh & Yi) T.H. Wen & D. Ohrnberger. *D. Ohrnberger, Bamboos of the World: gen. Chimonobambusa*: 42 (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:** *Qiongzhueta rigidula* C.J.Hsueh & T.P.Yi, *Acta Phytotax. Sin.*, 21(1): 96 (1983). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Muquan, 1300 m, 19 Jan. 1981, *Y.Q. Li* 1 (HT: SFS).

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 Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200–600 cm long, 15–30 mm diam., woody, without nodal roots. Culm-internodes terete or quadrangular, thick-walled, 10–24 cm long, smooth, distally glabrous. Culm-nodes flush with internodes, glabrous. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, chartaceous or coriaceous, glabrous or hispid, with tawny hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule entire. Culm-sheath blade linear, deciduous, erect. Leaves cauline, 1–3 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 7–13 cm long, 8–17 mm wide. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, paniculate, with glumaceous subtending bracts, with axillary buds at base of spikelet.

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 linear, laterally compressed, 17–25 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 4–5 empty glumes, persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, 3–6 mm long, membranous, without keels, 7–11 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 8–14 mm long, chartaceous, without keel, 9–13 -veined, more than 3-veined. Lemma apex acute. Palea 7–12 mm long. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 1.5–3 mm long, membranous, ciliate. Anthers 3, 5–7 mm long, purple. Stigmas 2. Caryopsis with fleshy pericarp, oblong, 8–11 mm long. Endosperm evanescent.

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

Country /Province /State. **China.** China South Central.

TDWG4. Sichuan.

Chimonobambusa sichuanensis (T.P. Yi) T.H. Wen. *J. Bamboo Res.* 6(3): 33 (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. **Basionym or Replaced Name:** *Sinobambusa sichuanensis* T.P. Yi, *Bull. Bot. Res. North-East. Forest. Inst.*, 2(4): 105 (1982). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Guang Xian, 710 m, T.P. Yi 68005 (HT: SFS).

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

Derivation (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Sichuan Province, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, woody, without nodal roots. Culm-internodes terete, 38 cm long, distally glabrous. Culm-nodes pubescent. Lateral branches dendroid. Branch complement three or several, with subequal branches. Culm-sheaths present, persistent, coriaceous, without auricles, glabrous on shoulders or ciliate on shoulders. Culm-sheath blade linear or triangular, erect or reflexed, 1.2–3.5 cm long, 1.5–2.5 mm wide. Leaves cauline. Leaf-sheath auricles absent. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–26 cm long, 15–30 mm wide. Leaf-blade venation with 10–14 secondary veins.

Inflorescence. Synflorescence bractiferous, scanty, with glumaceous subtending bracts, without axillary buds at base of spikelet, without prophylls.

Fertile spikelets sessile.

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 linear, laterally compressed, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several (1–2), persistent, similar, shorter than spikelet.

Florets. Fertile lemma oblong, chartaceous, without keel, 7–11 -veined, more than 3-veined. Lemma apex setaceously acuminate. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 3, 5–6 mm long. Stigmas 2. Caryopsis with adherent pericarp, oblong.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan.

Chimonobambusa szechuanensis (Rendle) P. C. Keng. *Techn. Bull. Nat. For. Res. Bur. China*, No. 8 : 1 (1948).

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: *Arundinaria szechuanensis* Rendle, Sargent, *Pl. Wilson* .2: 64 (1914). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *E.H. Wilson 3408*, June 1908, China: Sichuan (US-539802, US-2809000).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 208).

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–400 cm long, 10–20 mm diam., woody, with root thorns from the nodes. Culm-internodes channelled, 18–22 cm long, smooth, distally glabrous. Culm-nodes flush with internodes, pubescent. Lateral branches dendroid. Branch complement three, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, tardily deciduous, chartaceous, green, concolorous, glabrous, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 0.5–1 mm high, entire. Culm-sheath blade linear, erect, 0.3–0.5 cm long. Leaves cauline, 1–3 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 3–5 mm long, pale. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate or oblong, 18–20 cm long, 12–15 mm wide. Leaf-blade venation with 8–12 secondary veins, with distinct cross veins. Leaf-blade apex caudate.

Inflorescence. Synflorescence bractiferous, scanty (2–3 spikelets), with glumaceous subtending bracts, with axillary buds at base of spikelet.

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 linear, laterally compressed, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Lower glume lanceolate, 2–4 mm long, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, 4–5 mm long, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma lanceolate or ovate, 7 mm long, chartaceous, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acuminate. Palea 1 length of lemma. Palea apex emarginate or obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with fleshy pericarp, oblong or ovoid, 15 mm long. Endosperm evanescent.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan.

Chimonobambusa tuberculata J.R. Xue & L.Z. Gao. *J. Bamboo Res.*, 6(2): 11 (1987).

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: Yunnan: Yongshan, 1350 m, 12 April 1985, *SWFC Bamboo Exped. J85060* (HT: SWFC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 205).

Derivation (Clifford & Bostock 2007): *L. tuberculus*, wart; *-ata*, possessing. Culms bearing abundant wart-like projections.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–400 cm long, 12 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, thick-walled, 14–18 cm long, papillose, distally hispid. Culm-nodes without obvious supra-nodal ridge, pubescent. Lateral branches dendroid. Culm-sheaths present, tardily deciduous, chartaceous, green and brown, distinctly mottled with last colour, hispid, with tawny hairs. Culm-sheath ligule 0.2 mm high. Culm-sheath blade triangular, 0.1–0.2 cm long. Leaves cauline, 3–4 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs scanty, deciduous. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 20–25 cm long, 20–30 mm wide. Leaf-blade venation with 12–18 secondary veins, with distinct cross veins. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan, Yunnan.

Chimonobambusa tumidissinoda D.Ohrnberger, nom nov. *Bamboos of the World: gen.*

Chimonobambusa: 45 (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. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Sichuan: Leibo Xian, 15 May 1965, *F.Y. Wang, Z.Q. Xiong & K.T. Yang 11563 fl. & fr.* (HT: SCFI).

Recent Synonyms: *Chimonobambusa tumidinoda* (Hsueh & Yi) T.H. Wen, nom nud., *J. Bamboo Res.*, 10(1): 17 (1991).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 207).

Derivation (Clifford & Bostock 2007): *L. tumidus*, swollen; *nodus*, knot. Nodes swollen.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300–600 cm long, 10–30 mm diam., woody, without nodal roots. Culm-internodes channelled, solid, 15–25 cm long, mid-green, smooth, distally glabrous. Culm-nodes flanged, glabrous or pubescent. Lateral branches dendroid. Branch complement three or several, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, chartaceous, purple, hispid, with tawny hairs, hairy on margins, without auricles, setose on shoulders, shoulders with 2–3 mm long hairs. Culm-sheath ligule 1–1.3 mm high, ciliolate. Culm-sheath blade linear, deciduous, erect, 0.5–1.7 cm long. Leaves cauline, 2–4 per branch. Leaf-sheaths 2–2.5 cm long, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs scanty. Ligule an eciliate membrane, truncate or obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 5–14 cm long, 6–12 mm wide. Leaf-blade venation with 4–8 secondary veins, with distinct cross veins. Leaf-blade surface smooth or scaberulous, rough on both sides, glabrous.

Inflorescence. Synflorescence bractiferous, paniculate, with glumaceous subtending bracts, with axillary buds at base of spikelet.

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 linear, laterally compressed, 30–45 mm long, 2.5–4 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, 2 empty glumes, persistent, similar, shorter than spikelet. Lower glume lanceolate, membranous, without keels. Lower glume apex acute. Upper glume lanceolate, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma lanceolate or ovate, 10–14 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma apex acute. Palea 8–12 mm long. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 1.5–2.5 mm long, membranous, ciliate. Anthers 3, 4–8 mm long, purple. Stigmas 2. Caryopsis with fleshy pericarp, 10–12 mm long. Endosperm evanescent.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan, Yunnan.

Chimonobambusa unifolia T.H. Wen. D. Ohrnberger, *Bamboos of the World: gen. Chimonobambusa*: 46 (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Changning Xian, 600 m, 29 Nov. 1988, *Gua Hong 8801* (HT: Herb. Forestry School of Sichuan Province).

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

Derivation (Clifford & Bostock 2007): *L. unus*, one; *folium*, leaf. Culms with a single leaf.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 100–160 cm long, 3–5 mm diam., woody, 12–15 -noded. Culm-internodes terete, thick-walled, 12–15 cm long, distally pubescent. Culm-nodes flanged. Lateral branches suffrutescent, ascending. Bud complement 1. Branch complement three or several, in a horizontal line. Culm-sheaths present, deciduous, 3.5–8.5 cm long, 4 times as long as wide, hispid, hairy below, without auricles, glabrous on shoulders. Culm-sheath ligule 0.5 mm high, entire. Culm-sheath blade triangular, erect, 0.15–1.2 cm long, 0.8–2 mm wide. Leaves cauline, 1 per branch. Leaf-sheaths outer margin glabrous. Leaf-sheath oral hairs lacking. Ligule absent. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole glabrous or pubescent. Leaf-blades lanceolate, 7–20 cm long, 11–25 mm wide, fleshy. Leaf-blade venation with 8–12 secondary veins, with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan.

Chimonobambusa utilis (Keng) P. C. Keng, *Techn. Bull. Nat. For. Res. Bur. China*, No. 8 :1 (1948).

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: *Oreocalamus utilis* Keng, *Sunyatsenia*, 4:148 (1940) .

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 208, 211).

Derivation (Clifford & Bostock 2007): *L. useful*.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 300 cm long, 10 mm diam., woody, with root thorns from the nodes. Culm-internodes quadrangular, thick-walled, purple, smooth, distally glabrous or pubescent. Lateral branches dendroid. Branch complement three or several. Culm-sheaths present. Leaves cauline. Leaf-sheaths 4.5–5 cm long. Leaf-sheath oral hairs lacking. Ligule a ciliolate membrane, 1–2 mm long, pubescent on abaxial surface, truncate or obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.5 cm long, petiole glabrous. Leaf-blades lanceolate or oblong, 5.5–12.5 cm long, 12–23 mm wide, dark green or grey-

green, discoloured with last colour beneath. Leaf-blade venation with 10–14 secondary veins, with distinct cross veins. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty, with spathaceous subtending bracts, bracts 8–20 mm long, without axillary buds at base of spikelet, without prophylls.

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 linear, laterally compressed, 25–45 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 4–6 mm long, glabrous.

Glumes. Glumes several, 1–3 empty glumes, persistent, similar, shorter than spikelet. Lower glume oblong, 6–9 mm long, membranous, without keels, 7–9 -veined. Lower glume apex acute. Upper glume oblong, 6–9 mm long, membranous, without keels, 7–9 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, 10–12 mm long, membranous, without keel, 9–11 -veined, more than 3-veined. Lemma apex acute. Palea 8–10 mm long, 6–10 -veined. Palea apex entire or dentate, 2 -fid, acute. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2–3 mm long, glabrous or ciliate. Anthers 3, 5–6 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, 10–15 mm long.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Guizhou, Sichuan, Yunnan.

Chimonobambusa verruculosa T.H. Wen & D. Ohrnberger. D. Ohrnberger, *Bamboos of the World: gen. Chimonobambusa*: 47 (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Gulin Xian, banks of streams, 1100 m, 27 Oct. 1986, *T.P. Yi 86531* (HT: SCFI).

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

Derivation (Clifford & Bostock 2007): *L. verruca*, wart; *-ula*, diminutive; *-osa*, abundance. Lemma surface warty.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150–200 cm long, 10–15 mm diam., woody, 17–24 -noded. Culm-internodes terete, solid, 10–15 cm long, mid-green, distally glabrous. Lateral branches suffrutescent. Bud complement 3. Branch complement three or several, in a horizontal line. Culm-sheaths present, tardily deciduous, 7–12 cm long, 2 times as long as wide, hispid, with tawny hairs, hairy on margins, without auricles, ciliate on shoulders, shoulders with 1 mm long hairs. Culm-sheath ligule 0.5 mm high, purple. Culm-sheath blade inconspicuous. Leaves cauline, (1–)2–3(–4) per branch. Leaf-sheaths 2.2–4.3 cm long, glabrous on surface. Leaf-sheath oral hairs scanty or lacking, 2 mm long. Ligule an eciliate membrane, 0.5 mm long, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.15–0.2 cm long, petiole glabrous. Leaf-blades lanceolate, 5–18 cm long, 9–16 mm wide, fleshy. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan.

Chimonocalamus burmaensis (C.S. Chao & Renvoize) D.Z.Li. *Acta Bot. Yunnanica*, 16(1): 40 (1994).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Sinarundinaria burmaensis* C.S.Chao & S.A.Renvoize, *Kew Bull.*, 43(3): 409 (1988). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Myanmar;

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Burma, now Myanmar.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200–300 cm long, 7–8 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, 14–21 cm long, dark green, smooth, distally glabrous. Culm-nodes swollen. Lateral branches

dendroid. Bud complement 1. Branch complement three or several, in an irregular line. Culm-sheaths present, 7.5–8 cm long, 3 times as long as wide, chartaceous, pubescent, hairy at the base, without auricles, glabrous on shoulders. Culm-sheath ligule 1 mm high, ciliate. Culm-sheath blade triangular, reflexed, 0.5 cm long. Leaves 4–9 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, erect, 4–7 mm long, pale. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 4.5–10.5 cm long, 5–9 mm wide, light green. Leaf-blade venation with 4–6 secondary veins, with distinct cross veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Myanmar.

Chimonocalamus cibarius T.P. Yi & J.Y. Shi. *Bull. Bot. Res., Harbin* 28(2): 133–134, f. 1 (2008).

TYPE from China. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Yunnan: Yongde, Wumulong, Niutou Shan, 99°41'38.1"E, 24°08'10"N, 23 Sept. 2007, culture, *T.P. Yi 07027* (HT: SIFS=SAUD).

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

Classification. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, erect at the tip, 600–800 cm long, 20–40(–50) mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled, (10–)20–30(–33) cm long, light green. Culm-nodes swollen. Lateral branches dendroid. Bud complement 1. Branch complement many, in a horizontal line, with 3 branches dominant. Culm-sheaths present, deciduous, coriaceous, green and brown, distinctly mottled with last colour, without auricles, glabrous on shoulders. Culm-sheath ligule 2–2.5 mm high, entire. Culm-sheath blade linear or triangular, reflexed, 1–11.5 cm long, 4–6 mm wide. Leaves 3–4(–5) per branch. Leaf-sheaths 3–3.5 cm long. Leaf-sheath oral hairs setose, erect, 5–6.5 mm long, pale. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.5 mm long, truncate. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades linear, (6.5–)8–11 cm long, 5–8 mm wide. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

Chimonocalamus delicatus J.R. Xue & T.P. Yi. *Acta Bot. Yunnan.* 1(2): 77–78, pl. 1 (1979).

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: Yunnan: Jinping, evergreen broad-leaved forests, 1400–2000 m, 30 March 1977, *S.Z. Yang et al.* 79–27 (HT: YNFC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 133).

Derivation (Clifford & Bostock 2007): *L. delicata*. Dainty, usually of habit.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 600–800 cm long, 40–80 mm diam., woody. Culm-internodes quadrangular (slightly), 20–30 cm long, yellow, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Branch complement three or several. Culm-sheaths present, deciduous, coriaceous, hispid, with tawny hairs, triangular at apex, without auricles, setose on shoulders. Culm-sheath ligule 3–4 mm high. Culm-sheath blade lanceolate, 5–17 cm long, 13–25 mm wide. Leaves 4–8 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose, 8 mm long. 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 linear or lanceolate, 10–16 cm long, 6–13 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open. 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, 27–45 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, 4–6 mm long, pilose.

Glumes. Glumes two, persistent, similar, shorter than spikelet, similar to fertile lemma in texture.

Florets. Fertile lemma lanceolate, 7–10 mm long, chartaceous, without keel, more than 3-veined. Palea 1–1.1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, obovate, membranous. Anthers 3, 6 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

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

Country /Province /State. **China.** China South Central.

TDWG4. Yunnan.

Chimonocalamus dumosus J.R. Xue & T.P. Yi. *Acta Bot. Yunnan.* 1(2): 81–82, pl. 7 (1979).

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: Yunnan: Xichou, montane evergreen broad-leaved forests, 26 Dec. 1978, *T.P. Yi 77344* (HT: YNFC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 136 as *Chimonocalamus dumosus* var. *dumosus*).

Derivation (Clifford & Bostock 2007): *L. dumus*, thorn-bush; *-osus*, well developed. Habit decidedly bushy.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 150–300 cm long, 5–15 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled or thick-walled, 10–16 cm long. Culm-nodes glabrous. Lateral branches dendroid. Culm-sheaths present, deciduous, chartaceous, pilose, with tawny hairs, convex at apex, without auricles. Culm-sheath ligule 1.5 mm high, dentate. Culm-sheath blade linear, 4–11 cm long, 4–5 mm wide, pubescent. Leaves 3–7 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 5–10 mm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, 4–5 mm long, pubescent on abaxial surface, obtuse. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 3–16 cm long, 3–12 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open. Panicle branches pubescent. 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 linear, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, 4–5 mm long, pilose.

Glumes. Glumes two, persistent, similar, shorter than spikelet, similar to fertile lemma in texture.

Florets. Fertile lemma lanceolate, 8–10 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Palea 1–1.1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, ovate, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 3.5–8.5 mm long, light brown, glabrous.

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

Country /Province /State. **China.** China South Central.

TDWG4. Yunnan.

Chimonocalamus fimbriatus J.R. Xue & T.P. Yi. *Acta Bot. Yunnan.* 1(2): 78–79, pl. 3 (1979).

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: Yunnan: Gengme, 19 Feb. 1978, *Hsueh 1269* (HT: YNFC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 136).

Derivation (Clifford & Bostock 2007): *L. fimbriata*, fringe; *-ata*, possessing. With fringed glumes or lemmas.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 300–800 cm long, 20–50 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, 20–36 cm long, dark green or purple, distally pubescent. Culm-nodes glabrous or pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, coriaceous, hispid, with appressed hairs, with tawny hairs, concave at apex or truncate at apex, without auricles, setose on shoulders. Culm-sheath ligule 10–15 mm high, fimbriate. Culm-sheath blade lanceolate, erect or spreading, 6–16 cm long, 4–6 mm wide. Leaves 3–6 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs

setose, 5–11 mm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1 mm long, scaberulous on abaxial surface, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 5–15 cm long, 5–11 mm wide. Leaf-blade apex attenuate, filiform. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chimonocalamus gallatlyi (Gamble) Hsueh & T.P. Yi. *J. Bamboo Res.*, 2(1): 38 (1983).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Myanmar. **Basionym or Replaced Name:** *Arundinaria gallatlyi* Gamble, *Ann. Bot. Gard. Calc.* 7: 23. (1896). T:<Type of Basionym>; *vide* TROPICOS and Kew Synonymy Database: Burma: Hills of S. Burma; gathered on Moolyet Hill, Tenasserim, *G. Gallatly* 276 (HT: K).

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

Derivation (Clifford & Bostock 2007): in honor of Gallatly (fl. 1876) who collected in Myanmar.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 450–750 cm long, 20–25 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, 20–30 cm long, mid-green, distally glabrous. Lateral branches dendroid. Culm-sheaths present, 10–15 cm long, 3.5 times as long as wide, chartaceous. Culm-sheath blade lanceolate, 3–5 cm long. Leaf-sheaths striately veined. Leaf-sheath oral hairs scanty. Ligule an eciliate membrane, pubescent on abaxial surface. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3 cm long. Leaf-blades deciduous at the ligule, lanceolate or oblong, 8–10 cm long, 15–20 mm wide, light green. Leaf-blade venation with 12 secondary veins, with distinct cross veins. Leaf-blade margins scabrous. Leaf-blade apex acuminate, filiform, antrorsely scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate. 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, 40–60 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, 7 mm long, eventually visible between lemmas, pilose, hairy all along but hairs longer above.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 5 mm long, chartaceous, 1-keeled, 3 -veined. Lower glume margins ciliate. Lower glume apex acute. Upper glume lanceolate or ovate, 7 mm long, chartaceous, without keels, 5 -veined. Upper glume margins ciliate. Upper glume apex acute, mucronate.

Florets. Fertile lemma lanceolate or ovate, 11 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma margins ciliate, hairy above. Lemma apex acute. Palea 12 mm long, 1.1 length of lemma. Palea apex dentate, 2 -fid, pubescent. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2–3 mm long, membranous, veined, ciliate. Anthers 3, 6 mm long. Stigmas 3. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Myanmar.

Chimonocalamus griffithianus (Munro) C.J. Hsueh & T.P. Yi. *Acta Bot. Yunnanica*, 1(2): 83 (1979).

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: *Arundinaria griffithiana* Munro, *Trans. Linn. Soc.* 26: 20. (1868). T:<Type of Basionym>; *vide* TROPICOS and Kew Synonymy Database: India: Assam: Khasia Mts., *Griffith Assam Dept.* 39 (HT: ?; ST: K) ST: *Hooker s.n.*, Moflong (K).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 134).

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 Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 300–1000 cm long, 25–35 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, 18–25 cm long, dark green. Culm-nodes pubescent. Lateral branches dendroid. Branch complement several, in an irregular line, with subequal branches. Culm-sheaths present, 15–25 cm long, 1.5–1.8

times as long as wide, chartaceous, pubescent, hairy throughout and at the base, with tawny hairs, hairy on margins, convex at apex, auriculate. Culm-sheath ligule fimbriate. Culm-sheath blade triangular, 0.5–2.5 cm long, pubescent, acute. Leaf-sheaths striately veined, smooth, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose. Ligule an eciliate membrane, pubescent on abaxial surface. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades deciduous at the ligule, linear or lanceolate, 10–13 cm long, 8–12 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade venation with 8–10 secondary veins, with distinct cross veins. Leaf-blade surface smooth, glabrous. Leaf-blade margins smooth. Leaf-blade apex acuminate, filiform.

Inflorescence. Inflorescence a panicle. Panicle open, ovate. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 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, 25–35 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, clavate, 5–7 mm long, eventually visible between lemmas, pilose, hairy at tip.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate or ovate, 5 mm long, chartaceous, 1-keeled, 5–9 -veined. Lower glume primary vein ciliate. Lower glume surface scabrous, puberulous. Lower glume apex acute, mucronate. Upper glume lanceolate or ovate, 7 mm long, chartaceous, without keels, 5–7 -veined. Upper glume surface scabrous, puberulous. Upper glume apex acuminate, mucronate.

Florets. Fertile lemma lanceolate, 12 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex setaceously acuminate. Palea 1 length of lemma. Palea keels ciliolate. Palea apex dentate, 1 -fid, with excurrent keel veins. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3, anther tip penicillate. Stigmas 3. Ovary glabrous. Caryopsis with adherent pericarp.

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

Country /Province /State. **China.** China South Central, Tibet. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya. Myanmar.

TDWG4. Yunnan. Assam, Meghalaya, Mizoram, Nagaland.

Chimonocalamus longiligulatus C.J.Hsueh & T.P.Yi. *Acta Phytotax. Sin.*, 23(3): 236 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Luchun, 2000 m, 19 Sept. 1983, T.P. Yi 83157 (HT: Herb. Forestry School Sichuan).

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

Derivation (Clifford & Bostock 2007): *L. longus*, long; *ligula*, small tongue; *-ata*, possessing. Ligule long.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 250–350 cm long, 10–18 mm diam., woody, 20–25 -noded, with root thorns from the nodes. Culm-internodes terete, thin-walled, 6–22 cm long, mid-green. Lateral branches dendroid. Branch complement three, in an irregular line, with subequal branches. Culm-sheaths present, deciduous, 20–36 cm long, 5 times as long as wide, coriaceous, hispid, with appressed hairs, with dark brown hairs, without auricles, glabrous on shoulders or ciliate on shoulders. Culm-sheath ligule 8–15 mm high, purple, entire or lacerate. Culm-sheath blade lanceolate, reflexed, 0.7–9 cm long, 2.5–3.5 mm wide, glabrous on surface. Leaves 3–6 per branch. Leaf-sheaths 2.5–4 cm long, glabrous on surface, outer margin glabrous. Leaf-sheath oral hairs setose, erect or curly, 2.5–8 mm long, pale. Leaf-sheath auricles absent. Ligule a ciliolate membrane, 1 mm long. 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, 4.5–14 cm long, 4–11 mm wide, fleshy. Leaf-blade venation with 4–8 secondary veins, with distinct 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.

TDWG4. Yunnan.

Chimonocalamus longiusculus J.R. Xue & T.P. Yi. *Acta Bot. Yunnan.* 1(2): 80–81, pl. 6. 1979.

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: Yunnan: Xichou, evergreen broad-leaved forests, 1600–1700 m, 31 May 1977, S.W. Xian 6979? (HT: YNFC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 134).

Derivation (Clifford & Bostock 2007): *L. longius*, longer; *-ula*, tendency. Somewhat long.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 400–600 cm long, 10–20 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled, 17 cm long. Culm-nodes pubescent. Lateral branches dendroid. Culm-sheaths present, tardily deciduous, chartaceous, pubescent, with tawny hairs, convex at apex, without auricles. Culm-sheath ligule 1–1.5 mm high, ciliate. Culm-sheath blade linear, 3–5 cm long, 2 mm wide, pubescent. Leaves 3–5 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1 mm long, obtuse. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear, 5–14 cm long, 5–9 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open. 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 linear, laterally compressed, 25–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes flattened, 4–5 mm long, pilose.

Glumes. Glumes two, persistent, similar, shorter than spikelet, similar to fertile lemma in texture.

Florets. Fertile lemma lanceolate, 9–10 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Palea 1–1.1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, obovate, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chimonocalamus lushaiensis D. Ohrnberger, nom nov. *Bamboos of the World Intro.* 3: 14 (1996).

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. -ensis*, denoting origin. From Lushui Xian, Yunnan Province, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, woody, with root thorns from the nodes. Culm-internodes terete, distally glabrous. Culm-nodes pubescent. Lateral branches dendroid. Branch complement several, in an irregular line, with subequal branches. Culm-sheaths present. Leaves 2–3 per branch. Leaf-sheaths outer margin glabrous or hairy. Leaf-sheath oral hairs setose, erect. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blade base cuneate, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 7–14 cm long, 8–15 mm wide. Leaf-blade venation with 6–8 secondary veins, with distinct cross veins. Leaf-blade surface smooth, glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 8.8–14 cm long, 4–7 cm wide. Panicle axis puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–20 mm long, pubescent.

Fertile Spikelets. Spikelets comprising (3–)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, 40–80 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 8–10 mm long, eventually visible between lemmas, pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate or ovate, 6 mm long, chartaceous. Lower glume apex acute. Upper glume lanceolate or ovate, 7–8 mm long, chartaceous, without keels. Upper glume surface asperulous, rough at apex. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 12 mm long, chartaceous, without keel, 5–7 -veined, more than 3-veined. Lemma apex acuminate. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2 mm long, membranous, ciliate. Anthers 3, 6.5 mm long. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Assam.
Assam.

Chimonocalamus makuanensis J.R. Xue & T.P. Yi. *Acta Bot. Yunnan.* 1(2): 80, pl. 5. 1979.

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: Yunnan: Maguan, evergreen broad-leaved forests, 1700–1900 m, 26 Jan. 1978, *W.M. Chu* 8378 (HT: YNFC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 135).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Maguan Xian, Yunnan Province, China.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500–600 cm long, 15–25 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, 10–27 cm long, light green, distally glabrous. Culm-nodes pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, coriaceous, yellow and green, striped, hispid, with appressed hairs, with tawny hairs, truncate at apex, without auricles. Culm-sheath ligule 5–7(–12) mm high, fimbriate. Culm-sheath blade lanceolate, erect, 5–7 cm long, 5–7 mm wide. Leaves 3–4 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 4–7 mm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1.5 mm long, pubescent on abaxial surface, obtuse. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 9–11 cm long, 9–13 mm wide. Leaf-blade apex attenuate, filiform. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chimonocalamus montanus J.R. Xue & T.P. Yi. *Acta Bot. Yunnan.* 1(2): 79–80, pl. 4. 1979.

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: Yunnan: Tengchong, Gaoligong Shan, ca. 1700 m, 21 Sept. 1977, *J.R. Xue* 1196 (HT: YNFC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 135).

Derivation (Clifford & Bostock 2007): *L. mons*, mountain; *-ana*, indicating connection. Growing on mountains.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500 cm long, 15 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, 33 cm long, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Culm-sheaths present, deciduous, coriaceous, hispid, with erect hairs, with tawny hairs, hairy on margins, truncate at apex, without auricles, setose on shoulders, shoulders with 20 mm long hairs. Culm-sheath ligule 2 mm high. Culm-sheath blade linear or lanceolate, reflexed, 7–10 cm long, 3–5 mm wide. Leaves 2–4 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 10 mm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, pubescent on abaxial surface, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 14 cm long, 10 mm wide. Leaf-blade apex attenuate, filiform. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chimonocalamus nagalandianus

Country /Province /State. Nagaland.

Chimonocalamus pallens J.R. Xue & T.P. Yi. *Acta Bot. Yunnan.* 1(2): 78, pl. 2. (1979).

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: Yunnan: Jinping, evergreen broad-leaved forests, 1400–2000 m, 5 Dec. 1974, *J.R. Hsueh 851* (HT: YNFC).

Recent Synonyms: *Chimonocalamus bicorniculatus* S.F. Li & Z.P. Wang, *Acta Phytotax. Sin.*, 33(6): 614 (1995).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 133).

Derivation (Clifford & Bostock 2007): L. pale. Inflorescences pale.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 400–600 cm long, 20–30 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, 15–25 cm long, light green, distally mealy and pubescent. Lateral branches dendroid. Branch complement three, in an irregular line. Culm-sheaths present, coriaceous, green and purple, striped, hispid, with dark brown hairs, without auricles, glabrous on shoulders. Culm-sheath ligule 3–8 mm high, dentate. Culm-sheath blade triangular, erect, glabrous on surface. Leaves 2–5 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty or lacking. 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, linear or lanceolate, 5–20.5 cm long, 10–20 mm wide. Leaf-blade venation with 8–12 secondary veins. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chionachne biaurita Hackel. *Philipp. Journ. Sci. i. Suppl.* 263 (1906).

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*).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Elmer D. Merrill BS 4282*, 2 Oct 1905, Philippines: Luzon: Prov. Benguet: Bued River (W; IT: B, BRI, K, L, NY, P, US-727224).

Illustrations (Journals): *Blumea* (47:557 (2002)).

Derivation (Clifford & Bostock 2007): L. *bi-*, two; *auris*, ear; *-ita*, associated with. Dispersal unit terminating in two ears.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms erect, robust, 40–50 cm long. Lateral branches ample. Leaf-sheaths loose, mostly shorter than adjacent culm internode, hispid, with tubercle-based hairs. Ligule a fringe of hairs. Leaf-blades 12–24 cm long, 5–10 mm wide, flaccid. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 2 cm long, scarious. Racemes 1, single, 1.5–2 cm long, bearing few fertile spikelets, bearing 4 fertile spikelets on each. Rhachis fragile at the nodes, subterete. Rhachis internodes linear, 0.66–1 length of fertile spikelet, bearing a sterile companion laterally. Rhachis internode tip transverse, cupuliform. Sexes mixed, with 5 male spikelets per branch. Spikelets embracing internode, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 1 in a cluster (as companion) or 3 in a cluster (as terminal triad). Pedicels present, fused to internode, united wholly, filiform.

Sterile Spikelets. Companion sterile spikelets represented by barren pedicels (the 2 lower pairs) or well-developed (above), male, lanceolate, 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 oblong, dorsally compressed, 7–7.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 1.5 mm long, base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, without keels, winged on margins, winged broadly, winged above. Lower glume surface asperulous, rough on flanks, not waisted, glabrous. Lower glume apex dentate, 2 -fid. Upper glume ovate, 4.5 mm long, chartaceous, 5–7 -veined. Upper glume apex acuminate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 4.5 mm long, membranous, 3 -veined, scaberulous. Fertile florets female. Fertile lemma ovate, 4.5 mm long, hyaline, without keel, 0–3 -veined. Palea linear, hyaline, without keels. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules absent. Anthers 3, 3 mm long. Caryopsis with adherent pericarp, oblong, dorsally compressed, 2.5 mm long, pallid. Embryo 0.75 length of caryopsis. Hilum punctiform (and depressed).

Male spikelets distinct from female, with pedicels fused to rhachis, lanceolate, 5 mm long. Male spikelet glumes 2.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Chionachne cyathopoda (F.Muell.) F. Muell. ex Benth. *Fl. Austral.* 7: 516 (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), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

Basionym or Replaced Name: *Sclerachne cyathopoda* F. Muell., *Fragm.* 8: 116 (1873). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *F. von Mueller s.n.*, Dec 1855, Australia: Northern Territory: Victoria River, Sandy Island (MELB; ILT: K, L (fragm.)). LT designated by Henrard, Meded. Rijks-Herb. 67: 12, 17 (1931).

Illustrations (Books): C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (355, Pl. 103), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1132, Fig. 326), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (152), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (267, Fig. 40), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Blumea* (47:558 (2002)).

Derivation (Clifford & Bostock 2007): Gk. kyathos, cup; pous, foot. Apex of peduncle is cup-shaped.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated, scaly. Culms erect, reed-like, 200–300 cm long. Culm-internodes channelled. Culm-nodes glabrous or pubescent. Lateral branches lacking or sparse. Leaves cauline. Ligule a ciliolate membrane, 1–1.5 mm long. Leaf-blades 40–60 cm long, 10–30 mm wide. Leaf-blade margins cartilaginous, spinulose. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 1, single, 6–12 cm long, bearing few fertile spikelets. Rhachis fragile at the nodes. Rhachis internodes linear, bearing a sterile companion laterally. Rhachis internode tip transverse, crateriform. Sexes segregated, on bisexual branches, with male above. Spikelets embracing internode, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 2 in a cluster. Pedicels present, of companion sterile spikelets fused to internode, united wholly.

Sterile Spikelets. Companion sterile spikelets rudimentary, 1 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, 15 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 15 mm long, 1 length of spikelet, indurate, pallid, 2-keeled, keeled above, keeled laterally, winged on keel, winged above. Lower glume surface not waisted. Lower glume apex obtuse. Upper glume ovate, cartilaginous. Upper glume apex cuspidate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, hyaline. Fertile florets female. Fertile lemma lanceolate, 8–12 mm long, hyaline, without keel, 1 -veined, 0–3 -veined. Lemma apex acute. Palea 1 length of lemma, hyaline.

Flower and Fruit. Anthers 3, 2.5–5 mm long.

Male spikelets distinct from female, with pedicels fused to rhachis, 2 flowered, lanceolate, 12 mm long. Male spikelet glumes 2. Male spikelet lemma 0–3 -veined.

Distribution (TDWG). Continent. Tropical Asia, Australasia.

Country /Province /State. Malesia, Papuasias. New Guinea PNG. New Guinea. **Australia.** Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley. Darwin & Gulf, Victoria R & Barkly Tableland. North, Central, South East.

Comments Recognised in *Sclerachne* by Soreng et al (2012).

Chionachne gigantea (J. König) Veldkamp

. *Blumea* 47(3): 559–560, f. 3 (2002).

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 *C. koenigii*, *Coix gigantea*).

TYPE from India. **Basionym or Replaced Name:** *Coix koenigii* Spreng., *Syst.* 1: 228 (1825), *Chionachne barbata* (Roxb.) R. Br., *Benn. Pl. Jav. Rar.* 18 (1838), *Coix gigantea* Koenig, *Naturforscher (Halle)* 23:211 (1788). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *J. Kvnig s.n.*, India: Andhra Pradesh: Circars [east coast of Bay of Bengal] (BM, K, UPS (herb Thunberg 21727, IDC microfiche 1036)).

Recent Synonyms: *Chionachne koenigii* (Spreng.) Thwaites, *Enum. Pl. Zeyl.* 357. 1864.

Illustrations (Books): E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (55, Pl. 17 as *Coix*), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14e (1940) (188, Fig. 101 as *C. koenigii*).

Illustrations (Journals): *Blumea* (47:559 (2002)).

Derivation (Clifford & Bostock 2007): L. very large. Culms tall compared with those of related species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms erect, 100–200 cm long. Culm-nodes bearded. Leaf-sheaths hispid, with tubercle-based hairs. Ligule a ciliate membrane. Leaf-blades 25–60 cm long, 6–18 mm wide. Leaf-blade surface hispid, with tubercle-based hairs. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 1–2 cm long, scarious. Racemes 1, single, 2.5–4 cm long, bearing few fertile spikelets, bearing 1 fertile spikelets on each (and 4–8 male spikelets). Rhachis fragile at the nodes, subterete. Rhachis internodes linear, bearing a sterile companion laterally. Rhachis internode tip transverse, cupuliform. Sexes segregated, on bisexual branches, with male above. Spikelets embracing internode, solitary or in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 0–1 in the cluster. Male spikelets sessile and pedicelled, 1–2 in a cluster. Pedicels present, fused to internode, united wholly.

Sterile Spikelets. Companion sterile spikelets absent or rudimentary, 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 oblong, dorsally compressed, 4–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume elliptic, 1 length of spikelet, indurate, pallid, without keels. Lower glume surface not waisted. Lower glume apex obtuse. Upper glume elliptic, membranous. Upper glume margins ciliate.

Florets. Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret oblong, hyaline, 3–5 -veined. Fertile florets female. Fertile lemma lanceolate, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex truncate. Palea hyaline, without keels.

Flower and Fruit. Lodicules absent. Caryopsis with adherent pericarp, 5–7 mm long. Hilum punctiform.

Male spikelets distinct from female, with pedicels fused to rhachis, 6–8.5 mm long. Male spikelet glumes 2. Male spikelet lemma 3–5 -veined.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. **Indian Subcontinent, Indo-China, Malesia.** Assam, Bangladesh, India, Pakistan, Sri Lanka, West Himalaya. Cambodia, Laos, Myanmar, Thailand, Vietnam. Java, Malaya.

TDWG4. Manipur. Andhra Pradesh, Bihar, Gujarat, Kerala. Madhya Pradesh, Maharashtra.

Chionachne hubbardiana Henrard. *Blumea*, 3: 162 (1938).

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: *F. von Mueller s.n.*, Australia: Queensland: Sturt's Creek (K; IT: L (fragm.), MELB).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Blumea* (47:561 (2002)).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Charles Edward Hubbard (1900–1980) English agrostologist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms erect, robust, 30–100 cm long. Culm-internodes channelled, distally hispid. Culm-nodes bearded. Lateral branches ample. Leaf-sheaths hispid, with tubercle-based hairs. Ligule a ciliolate membrane, 2 mm long. Leaf-blade base broadly rounded. Leaf-blades 15–40 cm long, 5–15 mm wide. Leaf-blade margins cartilaginous, spinulose. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Synflorescence compound.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole lanceolate, 4–6 cm long. Peduncle widened at apex. Racemes 1, single, 3–5 cm long, bearing few fertile spikelets, bearing 5–6 fertile spikelets on each. Rhachis fragile at the nodes. Rhachis internodes linear, 5 mm long, bearing a sterile companion laterally. Rhachis internode tip transverse, crateriform. Sexes segregated, on bisexual branches, with male above, with 2–6 male spikelets per branch. Spikelets embracing internode, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 2 in a cluster. Pedicels present, of companion sterile spikelets fused to internode, united wholly.

Sterile Spikelets. Companion sterile spikelets rudimentary, 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, dorsally compressed, 9–11 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 9–11 mm long, 1 length of spikelet, indurate, pallid, 2-keeled, keeled above, keeled laterally, winged on keel, winged broadly, winged above. Lower glume surface not waisted. Lower glume apex emarginate. Upper glume ovate, cartilaginous. Upper glume apex cuspidate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, hyaline. Fertile florets female. Fertile lemma lanceolate, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex acute. Palea 1 length of lemma, hyaline.

Flower and Fruit. Anthers 3, 2 mm long.

Male spikelets distinct from female, with pedicels fused to rhachis, 2 flowered, lanceolate, 7 mm long. Male spikelet glumes 2.

Distribution (TDWG). Continent. Tropical Asia, Australasia.

Country /Province /State. **Malesia.** Java, Lesser Sunda Is. **Australia.** Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley, Darwin & Gulf, Victoria R & Barkly Tableland. North, Central, South East, Inland.

Chionachne javanica (Henr.) W.D. Clayton. *Kew Bull.*, 35(4): 813 (1981).

Accepted by: W.D. Clayton & K. Harman, *GrassBase* (2008) and online, J.F. Veldkamp, *Poaceae ms (Flora Malesiana)*.

Basionym or Replaced Name: *Polytoca javanica* Henrard, *Blumea*, 3: 241 (1939). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Backer 36799*, 1 Apr 1929, Indonesia: Java: Besuki, south coast near Puger, base of the G. Watangan (L-938.297–134; IT: BO, G, K, SING).

Illustrations (Journals): *Blumea* (47:562 (2002)).

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms erect, robust, 100–200 cm long. Culm-internodes terete, 10 cm long, distally glabrous. Lateral branches ample. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blade base with a false petiole, petiole 2 cm long. Leaf-blades lanceolate or oblong, 10 cm long, 30 mm wide. Leaf-blade surface glabrous. Leaf-blade margins undulate. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate. Racemes 1, single, 2–3 cm long, bearing few fertile spikelets, bearing 2–3 fertile spikelets on each. Rhachis fragile at the nodes, subterete. Rhachis internodes linear, bearing a sterile companion laterally. Rhachis internode tip transverse, cupuliform. Sexes segregated, on bisexual branches, with male above. Spikelets embracing internode, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 0–1 in the cluster. Male spikelets sessile and pedicelled, 2–3 in a cluster. Pedicels present, fused to internode, united wholly.

Sterile Spikelets. Companion sterile spikelets rudimentary, 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, 7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus 1 mm long, base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, keel-less except near apex. Lower glume surface not waisted. Lower glume apex obtuse or acute. Upper glume lanceolate, coriaceous, without keels, 3–5 -veined. Upper glume lateral veins obscure. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, membranous. Fertile florets female. Fertile lemma lanceolate, hyaline, without keel, 0–3 -veined. Palea hyaline, without keels.

Flower and Fruit. Lodicules absent. Caryopsis with adherent pericarp. Hilum punctiform.

Male spikelets distinct from female, with pedicels fused to rhachis, 4–5 mm long, glabrous. Male spikelet glumes 2.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Java, Lesser Sunda Is.

Chionachne macrophylla Benth.) W.D. Clayton. *Kew Bull.*, 35(4): 814 (1981).

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*), W.D. Clayton & N. Snow, Key to Pacific Grasses (2010).

Basionym or Replaced Name: *Polytoca macrophylla* Benth., *Journ. Linn. Soc.* 19: 52. (1881). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *MacGillivray* 460, 26 Jun 1849, Louisiade Archipelago (K (sheet 1)). LT designated by Jannik & Veldkamp, *Blumea* 47(3): 563 (2002).

Illustrations (Books): E.E. Henty, *A Manual of the Grasses of New Guinea* (1969) (156, Pl. 59 as *Polytoca*).

Illustrations (Journals): *Blumea* (47:564 (2002)).

Derivation (Clifford & Bostock 2007): Gk. makros, large; phyllon, leaf. Leaf-blades large.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, robust, 200–300 cm long, with prop roots. Culm-nodes bearded. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades linear or lanceolate, 30–90 cm long, 20–80 mm wide. Leaf-blade margins scabrous. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Racemes 1, single, 5–10 cm long. Rhachis fragile at the nodes, flattened, glabrous on surface or pubescent on surface. Rhachis internodes oblong, 5–7 mm long, bearing a sterile companion laterally. Rhachis internode tip transverse, crateriform. Sexes segregated, on bisexual branches, with male above. Spikelets embracing internode, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 2 in a cluster. Pedicels present, fused to internode, united wholly.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, laterally compressed, 9–12 mm long, as long as fertile. Companion sterile spikelet glumes chartaceous, without keels.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 9–12 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, indurate, pallid, 2-keeled, keeled above, keeled laterally, winged on keel, winged above. Lower glume surface asperulous, not waisted. Lower glume apex obtuse. Upper glume ovate, cartilaginous. Upper glume apex cuspidate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, hyaline, cuspidate. Fertile florets female. Fertile lemma lanceolate, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex acute. Palea 1 length of lemma, hyaline.

Flower and Fruit. Male spikelets distinct from female, with pedicels fused to rhachis, 2 flowered, lanceolate, 9–12 mm long. Male spikelet glumes 2.

Distribution (TDWG). Continent. Tropical Asia, Pacific.

Country /Province /State. Malesia, Papuaia. Java, Moluccas. New Guinea PNG, or West Papua (Irian Jaya). New Guinea. **Southwestern Pacific, North-central Pacific.** Hawaii (*).

Chionachne massiei Balansa. Morot, *Journ. de Bot.* 4: 78 (1890).

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: Vietnam: Tonkin: Sontay, 1886, *Massie s.n.* (LT: L).

Illustrations (Books): R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (as *Polytoca*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 903).

Illustrations (Journals): *Blumea* (47:565 (2002)).

Derivation (Clifford & Bostock 2007): In honor of Joseph Massie (? -1794) English botanist who collected in Vietnam.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms decumbent, 20–75 cm long, 1–2 mm diam., rooting from lower nodes. Culm-internodes distally glabrous. Culm-nodes pubescent. Leaf-sheaths 1.3–9.4 cm long, glabrous on surface. Leaf-sheath auricles absent or erect, 0–0.5 mm long. Ligule an eciliate membrane, 0.5–1.5 mm long. Leaf-blades linear or lanceolate, 3.4–39 cm long, 7–10 mm wide. Leaf-blade venation with 4–8 secondary veins. Leaf-blade surface glabrous or pilose, with tubercle-based hairs. Leaf-blade margins cartilaginous, scaberulous. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence composed of racemes, axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 1–1.8 cm long, herbaceous. Peduncle widened at apex. Racemes 1, single, unilateral, 0.8–2.1 cm long, bearing few fertile spikelets, bearing 1–3 fertile spikelets on each (and 2(-6) male almost enfolded by topmost female spikelet). Rhachis fragile at the nodes, subterete, glabrous on surface. Rhachis internodes linear, 4–5 mm long, bearing a sterile companion laterally. Rhachis internode tip cupuliform. Sexes segregated, on bisexual branches, with male above. Spikelets embracing internode, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 2 in a cluster. Pedicels present, fused to internode, united wholly.

Sterile Spikelets. Companion sterile spikelets rudimentary or well-developed, linear or lanceolate, 1.5–3.25 mm long, shorter than fertile, deciduous with the 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 oblong, dorsally compressed, 7–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, without keels, winged on margins, winged near apex. Lower glume surface asperulous, transversely waisted, glabrous. Lower glume apex emarginate. Upper glume ovate or orbicular, 4.5–5.2 mm long, herbaceous or coriaceous, without keels, 15–17 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic or ovate, 4.5–5 mm long, hyaline, 3 -veined, acute. Fertile florets female. Fertile lemma oblong or ovate, 4–4.5 mm long, hyaline, without keel. Lemma apex acute. Palea present, oblong or ovate, 3–4 mm long, hyaline.

Flower and Fruit. Caryopsis with adherent pericarp, 2–3 mm long. Hilum punctiform.

Male spikelets resembling female, with pedicels fused to rhachis, elliptic to ovate, 2.5–5 mm long. Male spikelet glumes 2, 6–9 -veined.

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

Country /Province /State. China. Hainan. **Indo-China.** Laos, Thailand, Vietnam.

Chionachne punctata (R.Br.) Jannink. *Blumea* 47: 566 (2002).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960) (as *Sclerachne*).

TYPE from Indonesia. **Basionym or Replaced Name:** *Sclerachne punctata* R.Br., *Benn. Pl. Jav. Rar.* 15 (1838). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Horsfield s.n.*, Indonesia: Java: near Surakarta, village Jebus (BM).

Illustrations (Books): R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (189, Fig. 102 as *Sclerachne*).

Illustrations (Journals): *Blumea* (47:566 (2002)).

Derivation (Clifford & Bostock 2007): *L. pungo*, prick; -ata, possessing. Glumes spotted with color.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms decumbent, 30–70 cm long. Culm-nodes pubescent. Ligule an eciliate membrane. Leaf-blades 15–20 cm long, 6–10 mm wide. Leaf-blade margins cartilaginous, scaberulous. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence composed of racemes, axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 2–3 cm long, herbaceous. Peduncle widened at apex. Racemes 1, single, unilateral, 1–1.5 cm long, bearing few fertile spikelets, bearing 1–3 fertile spikelets on each (and 2–4 male almost enfolded by topmost female spikelet). Rhachis fragile at the nodes, subterete. Rhachis internodes linear, bearing a sterile companion laterally. Rhachis internode tip cupuliform. Sexes segregated, on bisexual branches, with male above. Spikelets embracing internode, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 2 in a cluster. Pedicels present, fused to internode, united wholly.

Sterile Spikelets. Companion sterile spikelets rudimentary, shorter than fertile, deciduous with the 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 oblong, dorsally compressed, 8–9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, without keels, winged on margins, winged near apex. Lower glume surface transversely waisted. Lower glume apex emarginate. Upper glume oblong, coriaceous, without keels. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, hyaline, 3 -veined, acute. Fertile florets female. Fertile lemma ovate, hyaline, without keel. Lemma apex acute. Palea present.

Flower and Fruit. Caryopsis with adherent pericarp. Hilum punctiform.

Male spikelets distinct from female, with pedicels fused to rhachis, 4 mm long. Male spikelet glumes 2.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China, Malesia. Cambodia, Thailand, Vietnam. Java, Lesser Sunda Is, Philippines.

Comments Recognised in *Sclerachne* by Soreng et al (2012).

Chionachne semiteres (Benth. ex Stapf) Henrard. *Meded. Rijks-Herb.*67: 16. 1931.

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, Burma. **Basionym or Replaced Name:** *Polytoca semiteres* Benth. ex Stapf, *Benth. & Hook. f. Gen.* 3: 1113. (1883). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *Wight s.n.*, Deccan Peninsula: Palamcotta LT: *Herb. Wallich* 8628, 25 Nov 1826, Burma: Taong-dong hills near Ava (near Mandalay) (K (IDC microfiche 7394)). LT designated by Jannik & Veldkamp, *Blumea* 47(3): 567 (2002).

Illustrations (Books): K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 823 & 824).

Illustrations (Journals): *Blumea* (47:568 (2002)).

Derivation (Clifford & Bostock 2007): L. semi-, half; teres, narrow cylindrical.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms decumbent, 30–70 cm long. Ligule an eciliate membrane, 3 mm long. Leaf-blades 5–20 cm long, 5–9 mm wide. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole lanceolate, 0.75–1.5 cm long, herbaceous. Racemes 1, single, 1–2.25 cm long, bearing few fertile spikelets, bearing 2 fertile spikelets on each. Rhachis fragile at the nodes, subterete. Rhachis internodes columnar, bearing a sterile companion laterally. Rhachis internode tip transverse, crateriform. Sexes segregated, on bisexual branches, with male above. Spikelets embracing internode, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 2 in a cluster. Pedicels present, fused to internode, united wholly.

Sterile Spikelets. Companion sterile spikelets represented by barren pedicels (and minute vestige).

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 4.75–5.2 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, with central peg, attached transversely.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, indurate, pallid, 2-keeled, keeled above, keeled laterally, winged on keel, winged above. Lower glume surface not waisted. Lower glume apex obtuse. Upper glume oblong, cartilaginous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline, 3 -veined. Fertile florets female. Fertile lemma oblong, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Palea hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3, 4.2–4.5 mm long.

Male spikelets distinct from female, with pedicels fused to rachis, 2 flowered, lanceolate, 8–9 mm long. Male spikelet glumes 2.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Laos, Myanmar.

TDWG4. Tamilnadu.

Chionochloa acicularis Zotov. *N. Zeal. Journ. Bot.* 1: 101 (1963).

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: Caswell Sound: Zotov (CHR holo).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);.

Derivation (Clifford & Bostock 2007): *L. acus*, needle; -ulus, diminutive; -are, pertaining to. Leaf-blades sharp-pointed.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths papery, persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 30–60 cm long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 6–12 cm long, keeled, pilose, inner surface glabrous. Leaf-sheath oral hairs bearded, 7 mm long. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades deciduous at the ligule, terete, 25–50 cm long, 1 mm wide, coriaceous, stiff. Leaf-blade surface papillose, rough adaxially, pubescent, hairy adaxially. Leaf-blade margins smooth. Leaf-blade apex attenuate, hardened.

Inflorescence. Inflorescence a panicle. Peduncle hirsute above. Panicle open, lanceolate, 5–10 cm long, bearing few spikelets. Panicle axis pilose. Panicle branches pilose, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

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, 14–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5–1 mm long, pilose, disarticulating obliquely. Floret callus hairs 1–2.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 9–11 mm long, 0.9 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute, mucicous or mucronate. Upper glume lanceolate, 10–13 mm long, 1.4 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acute, mucicous or mucronate.

Florets. Fertile lemma elliptic, 7–9 mm long, membranous, yellow, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface glabrous or pilose, hairy between veins. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 3–4 mm long, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, flat below, 11–16 mm long overall, with a straight or slightly twisted column. Column of lemma awn 1–2 mm long. Palea 5–7 mm long. Palea keels ciliate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 3–4 mm long. Caryopsis with adherent pericarp, 3 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

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

Chionochloa antarctica (Hook. f.) Zotov. *N. Zeal. Journ. Bot.* 1: 99 (1963).

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).

Basionym or Replaced Name: *Bromus antarcticus* Hook. f., *Fl. Antarct.* 97 (1845). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.D. Hooker s.n.*, Nov 1840, Lord Auckland Islands (K).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);.

Derivation (Clifford & Bostock 2007): *L. anti*, opposite; *arctica*, the Arctic. With southern hemisphere distributions south of about the latitude of the Shetland Islands.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths glossy, persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 50–100 cm long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–20 cm long, without keel, glabrous on surface, inner surface glabrous. Ligule a fringe of hairs, 2 mm long. Leaf-blades deciduous at the ligule, flat, 20–30 cm long, 4–6 mm wide, coriaceous, stiff. Leaf-blade surface papillose, rough adaxially, pubescent, hairy adaxially. Leaf-blade apex attenuate, pungent.

Inflorescence. Inflorescence a panicle. Panicle contracted, pyramidal, 10–15 cm long. Panicle branches bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 18–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 1 mm long, pilose, disarticulating obliquely. Floret callus hairs 2–3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 8–12 mm long, 0.9 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute, muticous or awned. Upper glume lanceolate, 10–15 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume margins ciliate. Upper glume apex acute, muticous or awned.

Florets. Fertile lemma elliptic, 9–12 mm long, membranous, purple, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface glabrous or pilose, hairy between veins. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 3–4 mm long, incised 0.33 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 15–20 mm long overall, with a straight or slightly twisted column. Column of lemma awn 3 mm long. Lateral lemma awns present, arising on apex of lobes, 2–3 mm long, shorter than principal. Palea 8–10 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.75 mm long, membranous, veined, ciliate. Anthers 3–3.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 42$ (2 refs TROPICOS).

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. Campbell Is.

Chionochloa australis (J. Buch.) Zotov. *N. Zeal. Journ. Bot.* 1: 103 (1963).

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).

Basionym or Replaced Name: *Danthonia raoulii* subsp. *australis* Buchanan, *Trans. New Zeal. Inst.* 4:224 (1872). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *J. Buchanan s.n.*, New Zealand: Kaikoura Mountains (WELT-59576). LT designated by Zotov, *New Zealand J. Bot.* 1: 103 (1963).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);

Derivation (Clifford & Bostock 2007): *L. of the south*. From the south in general as from Africa, America, Europe or elsewhere.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, mat forming. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms erect, 20–40 cm long. Culm-nodes glabrous. Leaves mostly basal, distichous. Leaf-sheaths 4–7 cm long, glabrous on surface, inner surface puberulous. Leaf-sheath oral hairs bearded, 7 mm long. Ligule a fringe of hairs, 1.5 mm long. Leaf-blades persistent, terete, 5–10 cm long, 0.4–0.8 mm wide, coriaceous, stiff. Leaf-blade surface papillose, rough adaxially, glabrous, hairless except near base. Leaf-blade margins smooth. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, comprising 3–5 fertile spikelets. Peduncle pilose above. Panicle open, 2–5 cm long, bearing few spikelets. Panicle branches flexuous, pilose, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 1 mm long, pilose, disarticulating obliquely. Floret callus hairs 2.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 12–14 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute, mucicous or mucronate. Upper glume lanceolate, 12–14 mm long, 2 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex acute, mucicous or mucronate.

Florets. Fertile lemma elliptic, 6–8 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 2–3 mm long, incised 0.33 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 10–15 mm long overall, with twisted column. Column of lemma awn 3–4 mm long. Lateral lemma awns present, arising on apex of lobes, 3–4 mm long, shorter than principal. Palea 7 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 3–4 mm long. Caryopsis with adherent pericarp, 3 mm long. Hilum linear.

$2n = 42$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

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

Chionochloa beddiei Zotov. *N. Zeal. Journ. Bot.* 1: 90 (1963).

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: Palliser Bay: Beddie (CHR holo).

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

Derivation (Clifford & Bostock 2007): in honor of Andrew D. Beddie (-1962) New Zealand amateur botanist and stonemason.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths yellow, persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms erect, 40–75 cm long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–15 cm long, keeled, outer margin hairy, inner surface glabrous. Leaf-sheath oral hairs ciliate, 2 mm long. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades reflexed, persistent, flat, 30–60 cm long, 2–4 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base. Leaf-blade margins smooth, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle contracted, lanceolate, 7–15 cm long, bearing few spikelets. Panicle axis pilose. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

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, 13–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 1 mm long, bearded, disarticulating obliquely. Floret callus hairs 5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 10–13 mm long, 1 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume surface scabrous, rough above. Lower glume apex acute, awned, 1 -awned. Upper glume lanceolate, 10–13 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, without keels, 1–5 -veined. Upper glume surface scabrous, rough above. Upper glume apex acute, awned, 1 -awned.

Florets. Fertile lemma elliptic, 8–9 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface glabrous or pilose, hairy between veins. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 3 mm long, incised 0.33 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 20–22 mm long overall, with twisted column. Column of lemma awn 4 mm long. Lateral lemma awns present, arising on apex of lobes, 7–8 mm long, shorter than principal. Palea 8.5 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Palea apex with excurrent keel veins. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous, veined, ciliate. Anthers 4.5 mm long. Caryopsis with adherent pericarp, 3 mm long. Hilum linear.

$2n = 42$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand North I.

Chionochloa bromoides (Hook. f.) Zotov. *N. Zeal. Journ. Bot.* 1: 90 (1963).

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).

Basionym or Replaced Name: *Danthonia bromoides* Hook. f., *Fl. N. Zeal.* 1 303. t. 68. (1853). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *W. Stephenson 102*, 1843–1844, New Zealand (K).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);.

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

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial. Butt sheaths yellow, glossy, persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms rambling, 35–70 cm long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–15 cm long, keeled, outer margin hairy, inner surface puberulous. Leaf-sheath oral hairs bearded, 4 mm long. Ligule a fringe of hairs, 1.5 mm long. Leaf-blades persistent, 25–50 cm long, 5–10 mm wide, coriaceous, stiff. Leaf-blade surface smooth, glabrous, hairless except near base. Leaf-blade margins smooth, ciliate, hairy at base. Leaf-blade apex attenuate. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 10–20 cm long. Panicle axis glabrous. Panicle branches glabrous, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

Fertile Spikelets. Spikelets comprising 0–1 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 oblong, laterally compressed, 13–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5 mm long. Floret callus elongated, 1.5 mm long, bearded, disarticulating obliquely. Floret callus hairs 5 mm long.

Glumes. Glumes persistent, similar, reaching apex of florets, similar to fertile lemma in texture. Lower glume lanceolate, 10–12 mm long, 0.75 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume surface scabrous. Lower glume apex acute or setaceously acuminate. Upper glume lanceolate, 14–16 mm long, 1.5 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume surface scabrous. Upper glume apex acute or setaceously acuminate.

Florets. Basal sterile florets absent or 1, barren, with palea. Lemma of lower sterile floret similar to fertile lemma. Fertile florets female. Fertile lemma elliptic, 10–11 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous, rough above, pilose, hairy between veins. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 2 mm long, incised 0.25 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus, curved, reflexed, flat below, 20–22 mm long overall, with a straight or slightly twisted column. Column of lemma awn 1 mm long. Lateral lemma awns absent or present, arising on apex of lobes, 0–3 mm long, shorter than principal. Palea 9–10 mm long. Palea keels scabrous, ciliate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1.75 mm long, membranous, veined, ciliate. Anthers 3–5.5 mm long. Caryopsis with adherent pericarp, 3.5 mm long. Hilum linear.

Male inflorescence bisexual similar to female.

$2n = 42$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand North I.

Chionochloa cheesemanii (Hackel ex Cheesem.) Zotov. *N. Zeal. Journ. Bot.* 1: 95 (1963).

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).

Basionym or Replaced Name: *Danthonia raoulii* var. *cheesemanii* Hack. ex Cheeseman, Cheeseman, *Man. New Zeal. Fl.* :887 (1906). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T.F. Cheeseman s.n. [1250 to Hackel]*, Jan 1881, New Zealand: forest at the source of the Takaka River, Nelson, alt. 3000 ft (AK-1633).

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

Derivation (Clifford & Bostock 2007): in honor of Thomas Frederick Cheeseman (1846–1926) English-born New Zealand botanist.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms erect, 100–200 cm

long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–20 cm long, pilose, outer margin hairy, inner surface glabrous. Leaf-sheath oral hairs bearded, 4 mm long. Ligule a fringe of hairs, 1 mm long. Leaf-blades persistent, flat or conduplicate, 40–80 cm long, 2–4 mm wide, coriaceous, stiff, dark green. Leaf-blade surface scabrous, rough abaxially, glabrous. Leaf-blade margins scabrous, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 15–35 cm long. Panicle axis glabrous or hispidulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

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 oblong, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long, glabrous or pubescent. Floret callus elongated, 1.5 mm long, bearded, disarticulating obliquely. Floret callus hairs 4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, 0.75 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex entire or dentate, 2 -fid, acute. Upper glume lanceolate, 8–10 mm long, 1.1 length of adjacent fertile lemma, hyaline, without keels, 3–5 -veined. Upper glume surface scabrous. Upper glume apex entire or dentate, 2 -fid, acute.

Florets. Fertile lemma elliptic, 7–9 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface scabrous, rough above. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 2–3 mm long, incised 0.33 of lemma length, acute or setaceously acuminate, awned, 1 -awned. Principal lemma awn from a sinus, curved, reflexed, flat below, 10–15 mm long overall, with a straight or slightly twisted column. Column of lemma awn 1 mm long. Palea 6.5 mm long. Palea keels ciliolate. Palea surface scabrous (on back above), pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1.5 mm long, membranous, veined, ciliate. Anthers 4.5 mm long. Caryopsis with adherent pericarp, 3 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand North I, New Zealand South I.

Chionochloa conspicua (G. Forst.) Zotov. *N. Zeal. Journ. Bot.* 1: 92 (1963).

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).

Basionym or Replaced Name: *Arundo conspicua* G. Forst., *Prod.* 9. (1786). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Forster 29, Arundo conspicua Prodr.* 48, New Zealand (GOET).

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

Images: E.Edgar & H.E.Connor. *Flora of New Zealand* 5, *Gramineae* (2000);

Derivation (Clifford & Bostock 2007): *L. conspicuo*, look at attentively. Leaf-blades to one metre long and one cm broad and so attract attention.

Classification. Subfamily Danthoioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Basal innovations flabellate. Culms 100–200 cm long. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades 60–100 cm long, 5–15 mm wide, coriaceous, stiff. Leaf-blade apex attenuate, pungent.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 20–50 cm long. 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, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.6–1 mm long, pilose, disarticulating obliquely.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 5.5–7 mm long, 0.9 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7.5 mm long, 1–1.2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma elliptic, 5–7 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma margins ciliate. Lemma hairs 2 mm long. Lemma apex lobed, 2 -fid, with triangular lobes, incised 0.2 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, 5–12 mm long overall, with a straight or slightly twisted column. Lateral lemma awns present, arising on apex of lobes, 0.5 mm long, shorter than

principal. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous, ciliate. Caryopsis with adherent pericarp. Hilum linear, 0.5–0.66 length of caryopsis.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand North I, New Zealand South I, Stewart Is.

Chionochloa crassiuscula (T. Kirk) Zotov. *N. Zeal. Journ. Bot.* 1: 103 (1963).

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).

Basionym or Replaced Name: *Danthonia crassiuscula* Kirk, *Trans. N. Z. Inst.* 17: 224 (1885). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *T. Kirk s.n.*, New Zealand: Stewart Island: Mount Anglem (WELT-36481).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000); (as subspecies *torta* & *directa*).

Derivation (Clifford & Bostock 2007): *L. crassius*, thicker; -ula, diminutive. With thick leaf-blades.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths red or purple, glossy, persistent and investing base of culm, with compacted dead sheaths. Basal innovations intravaginal. Culms erect, 30–65 cm long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 6–12 cm long, inner surface glabrous. Leaf-sheath oral hairs lacking or pubescent, 0.5–1 mm long. Ligule a fringe of hairs. Leaf-blades deciduous at the ligule, conduplicate, 15–30 cm long, 3–6 mm wide, coriaceous, stiff. Leaf-blade surface papillose, rough adaxially, glabrous. Leaf-blade margins cartilaginous, smooth or scaberulous, ciliate, hairy at base. Leaf-blade apex attenuate, pungent.

Inflorescence. Inflorescence a panicle. Peduncle glabrous or pubescent above. Panicle open, ovate, 7–15 cm long. Panicle axis pilose. Panicle branches flexuous, pilose, with prominent pulvini. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, ciliate.

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 oblong, laterally compressed, 14–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5 mm long. Floret callus elongated, 1 mm long, pilose, disarticulating obliquely. Floret callus hairs 2.5 mm long.

Glumes. Glumes persistent, similar, reaching apex of florets, similar to fertile lemma in texture. Lower glume lanceolate, 10–12 mm long, 0.75 length of upper glume, membranous, purple, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex entire or erose or dentate, 2 -fid, acute or setaceously acuminate, muticous or mucronate. Upper glume lanceolate, 14–16 mm long, 1.7 length of adjacent fertile lemma, membranous, purple, without keels, 5–7 -veined. Upper glume surface smooth. Upper glume margins eciliate or ciliate. Upper glume apex entire or erose or dentate, 2 -fid, acute or setaceously acuminate, muticous or mucronate.

Florets. Fertile lemma elliptic, 8–9.5 mm long, membranous, shiny, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 3.5 mm long, incised 0.33 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus, curved, reflexed, flat below, 10–12 mm long overall, with a straight or slightly twisted column. Column of lemma awn 2 mm long. Lateral lemma awns absent or present, arising on apex of lobes, 0–3 mm long, shorter than principal. Palea 7 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 2 mm long, membranous, veined, ciliate. Anthers 4 mm long. Caryopsis with adherent pericarp, 3 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand South I, Stewart Is.

Chionochloa defracta H.E. Connor. *New Zealand J. Bot.*, 25(1): 164 (1987).

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>: *vide* TROPICOS and Kew Synonymy Database: New Zealand: Dun Mt, Nelson, open slopes between Windy Point and Coppermine, 2600 ft, 14 Jan 1974, A.W. Purdie s.n. (HT: CHR-322084A; IT: CHR-322084B).

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

Derivation (Clifford & Bostock 2007): *L. defringo*, break off. Sheaths break into short segments.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths light brown, glossy, persistent and investing base of culm, with dead sheaths fracturing into segments. Basal innovations intravaginal. Culms erect, 30–65 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–25 cm long, pilose, outer margin hairy, inner surface glabrous. Leaf-sheath oral hairs bearded, 4 mm long. Ligule a fringe of hairs, 0.8 mm long. Leaf-blades deciduous with part of sheath attached, filiform, terete, 30–75 cm long, 1–1.3 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough on both sides, pilose, hairy abaxially. Leaf-blade margins cartilaginous, scabrous, ciliate. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle open, lanceolate, 10–20 cm long. Panicle axis scabrous. Panicle branches scabrous, with scattered hairs, hairy at tip, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 11–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long, glabrous or pubescent. Floret callus elongated, 1 mm long, bearded, disarticulating obliquely. Floret callus hairs 4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 9–11 mm long, 0.9 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface scabrous, rough above. Lower glume apex acute or setaceously acuminate. Upper glume lanceolate, 11–13 mm long, 1.6 length of adjacent fertile lemma, membranous, without keels, 5–7 -veined. Upper glume surface scabrous, rough above. Upper glume apex acute or setaceously acuminate.

Florets. Fertile lemma elliptic, 8 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface glabrous or pilose. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 2.5 mm long, incised 0.33 of lemma length, awned, 1–3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 11 mm long overall, with twisted column. Column of lemma awn 2.5 mm long. Lateral lemma awns absent or present, arising on apex of lobes, 0–3 mm long, shorter than principal. Palea keels ciliate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous, veined, ciliate. Anthers 3.5 mm long. Caryopsis with adherent pericarp, 3.5 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

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

Chionochloa flavescens Zotov. *N. Zeal. Journ. Bot.* 1: 97 (1963).

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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: V.D. Zotov [*dup. no. 62345*], Jan 1848, New Zealand: Mount Denny, Tararua Range, Wellington (CHR; IT: US-2010262).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000); (as subsp. *brevis*), R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

Derivation (Clifford & Bostock 2007): *L. flavescens*, become yellow. Foliage yellowish.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths pallid or purple, persistent and investing base of culm, with dead sheaths fracturing into segments. Basal innovations intravaginal. Culms erect, robust, 50–150 cm long, 4–10 mm diam. Culm-internodes distally glabrous or pilose. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–20 cm long, keeled, glabrous on surface or pilose, outer margin hairy, inner surface glabrous. Leaf-sheath oral hairs pubescent, 1 mm long. Ligule a fringe of hairs, 1 mm long. Leaf-blades drooping, deciduous with part of sheath attached, flat, 40–130 cm long, 5–10 mm wide, coriaceous, stiff, glaucous. Leaf-blade surface scaberulous or papillose, rough adaxially, glabrous or pilose, sparsely hairy, hairy abaxially. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 15–30 cm long. 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 oblong, laterally compressed, 15–20 mm long, breaking up at maturity, disarticulating below each

fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 1 mm long, bearded, disarticulating obliquely. Floret callus hairs 4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 12–14 mm long, 0.75 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute or setaceously acuminate. Upper glume lanceolate, 14–18 mm long, 2 length of adjacent fertile lemma, membranous, without keels, 3–7 -veined. Upper glume apex acute or setaceously acuminate.

Florets. Fertile lemma elliptic, 8–9 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface pilose, hairy between veins. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 3 mm long, incised 0.33 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 14–16 mm long overall, with twisted column. Column of lemma awn 4 mm long. Lateral lemma awns present, arising on apex of lobes, 3 mm long, shorter than principal. Palea 10 mm long. Palea keels ciliate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1.5 mm long, membranous, veined, ciliate. Caryopsis with adherent pericarp, 3.5 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand North I, New Zealand South I.

Chionochloa flavicans Zotov. *N. Zeal. Journ. Bot.* 1: 91 (1963).

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: East Cape, 22 Feb 1940, V.D. Zotov s.n. (HT: CHR-21901).

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): L. flaveo, be yellow; -icans, becoming. Plant greenish-yellow to yellow throughout.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Cataphylls evident. Butt sheaths papery, purple, persistent and investing base of culm, with fibrous dead sheaths. Basal innovations extravaginal, flabellate. Culms erect, 100–150 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 7–15 cm long, keeled, glabrous on surface, inner surface glabrous. Leaf-sheath oral hairs pubescent, 1 mm long. Ligule a fringe of hairs, 0.7 mm long. Leaf-blades persistent, 30–75 cm long, 4–8 mm wide, coriaceous, stiff. Leaf-blade surface smooth, glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, dense, 15–30 cm long. Panicle axis smooth. Panicle branches scabrous, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

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, 9–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2.5 mm long. Floret callus elongated, 1.5 mm long, bearded, disarticulating obliquely. Floret callus hairs 4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 5–7 mm long, 1 length of upper glume, membranous, mid-green or purple, without keels, 3 -veined. Lower glume margins ciliate. Lower glume apex emarginate. Upper glume lanceolate, 5–7 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, mid-green or purple, without keels, 5 -veined. Upper glume margins ciliate. Upper glume apex emarginate.

Florets. Fertile lemma elliptic, 5–8 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate or ciliate. Lemma surface scabrous, rough above or on veins. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 0.2–2.5 mm long, incised 0.1–0.3 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, curved, reflexed, flat below, 6–16 mm long overall, without a column. Lateral lemma awns present, arising on apex of lobes, shorter than principal. Palea 4.5–6 mm long. Palea keels ciliate. Palea surface scabrous (on back above), pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 4 mm long. Caryopsis with adherent pericarp, 3 mm long. Hilum linear.

2n = 42 (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand North I.

Chionochloa frigida (Vickery) Conert. *Senckenberg. Biol.*, 56 (1–3): 154 (1975).

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 frigida* Vickery, *Contr. New South Wales Natl. Herb.* 1(5): 298 (1950). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia, *Vickery s.n.* (HT: NSW-1097).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (182), 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);, K.O.Mallett (ed.), *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*.,

Derivation (Clifford & Bostock 2007): L. cold. Growing at high altitudes.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths papery, distinctly ribbed, persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 60–100 cm long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths loose, inner surface glabrous. Ligule a fringe of hairs, 0.5–1.5 mm long. Leaf-blades persistent, involute, 30–60 cm long, 4–6 mm wide, coriaceous, stiff. Leaf-blade surface ribbed, glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate, hardened.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 8–12 cm long. Panicle branches pilose, glabrous in axils or bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 9–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1–2 mm long. Floret callus elongated, 1 mm long, pilose, disarticulating obliquely.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 8–13 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex truncate or acute. Upper glume lanceolate, 8–15 mm long, 1.25 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume apex obtuse or acute.

Florets. Fertile lemma elliptic, 6–12 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface pilose, hairy between veins. Lemma margins ciliate. Lemma hairs 0.75–1.5 mm long. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 8–15 mm long overall, with a straight or slightly twisted column. Lateral lemma awns present, arising on apex of lobes, 1–3 mm long, shorter than principal. Palea 8 mm long. Palea keels ciliate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous, veined, ciliate. Anthers 4 mm long, yellow or orange. Caryopsis with adherent pericarp. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. New South Wales.

TDWG4. Tablelands.

Chionochloa howensis S.W.L. Jacobs. *Telopea*, 3(2): 281 (1988).

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: IT: *J. Pickard 2634*, 21 Nov 1975, Australia: New South Wales: Lord Howe I. (US-3063850).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Lord Howe Island.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm. Culms erect, 50–100 cm long, 4–5 -noded. Culm-internodes ridged, distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades deciduous at the ligule, involute, 30–60 cm long,

6–12 mm wide, indurate, stiff. Leaf-blade surface ribbed, grooved adaxially, scabrous, rough adaxially, glabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, dense, 15–25 cm long, 6–8 cm wide. Primary panicle branches 2–5 -nate, 5–10 cm long. Panicle axis terete or angular, pubescent. Panicle branches angular, pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 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, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus brief, 0.25 mm long, pilose, obtuse. Floret callus hairs 0.5–1 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 4–5.5 mm long, 0.9 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5–6 mm long, 1.1 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma elliptic, 4.5–5.5 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma surface glabrous. Lemma margins ciliate, hairy below. Lemma apex entire or dentate, 2 -fid, with lobes 0.5–2.5 mm long, awned, 1 -awned or 3 -awned. Principal lemma awn apical or from a sinus, curved, 5–10 mm long overall, without a column. Lateral lemma awns absent or present, arising on apex of lobes, shorter than principal. Palea 1 length of lemma. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.25 mm long, glabrous. Anthers 2. Caryopsis with adherent pericarp. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Lord Howe-Norfolk Is.

Chionochloa juncea Zotov. *N. Zeal. Journ. Bot.* 1: 101 (1963).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from New Zealand. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: Zotov *s.n.*, 20 Jan 1936, New Zealand: Denniston (CHR-9667).

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

Derivation (Clifford & Bostock 2007): *L. juncea*, rush-like. Leaf-blades convolute resembling those of certain *Juncus* species.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rootstock evident. Butt sheaths dark brown, persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 40–90 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–15 cm long, pilose, outer margin hairy, inner surface glabrous. Leaf-sheath oral hairs bearded, 4 mm long. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades persistent, aciculate, terete, 30–70 cm long, 1 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins ciliate. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 10–20 cm long. Panicle axis pubescent. Panicle branches flexuous, pubescent, bearded in axils, 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 oblong, laterally compressed, 10–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.8 mm long. Floret callus elongated, 1 mm long, bearded, disarticulating obliquely. Floret callus hairs 3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 9–11 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 9–12 mm long, 1.7 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 6–7 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliolate. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 1.5 mm long, incised 0.25 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, curved, reflexed, flat below, 8–10 mm long overall, with a straight or slightly twisted column. Column of lemma awn 1 mm long. Lateral lemma awns present, arising on apex of lobes, 2.5 mm long, shorter than principal. Palea 6 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.5 mm long, membranous, veined, ciliate. Anthers 3.5 mm long. Caryopsis with adherent pericarp, 2 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

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

Chionochloa lanea H.E. Connor. *New Zealand J. Bot.*, 25(1): 165 (1987).

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: HT: Wardle *s.n.*, 30 Mar 1966, New Zealand: Trig D, Tin Range, Stewart Island, 1600 ft, grassland (CHR-166731).

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

Derivation (Clifford & Bostock 2007): *L. lana*, wool; *-ea*, resembling. The sheath-hairs are fleece-like.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths villous, persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 30–60 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–15 cm long, hirsute, inner surface glabrous. Leaf-sheath oral hairs bearded, 4 mm long. Ligule a fringe of hairs, 1 mm long. Leaf-blades deciduous at the ligule, conduplicate or convolute, 20–45 cm long, 1–2 mm wide, coriaceous, stiff. Leaf-blade surface scaberulous, rough adaxially, glabrous, hairless except near base. Leaf-blade margins smooth. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 5–10 cm long, bearing few spikelets. Panicle branches pilose, 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 oblong, laterally compressed, 14–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 0.8 mm long, bearded, disarticulating obliquely. Floret callus hairs 3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 8–10 mm long, 0.75 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 12–14 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 9–11 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with linear lobes or triangular lobes, with lobes 5–6 mm long, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, flat below, 10–15 mm long overall, with twisted column. Column of lemma awn 2 mm long. Lateral lemma awns absent. Palea 6 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 3.5 mm long. Caryopsis with adherent pericarp, 1.5 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. Stewart Is.

Chionochloa macra Zotov. *N. Zeal. Journ. Bot.* 8: 91 (1970).

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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.E. Connor s.n.*, 8 Jan 1954, New Zealand: Starvation Gully, Porters Pass, 2900 ft (CHR-950215b).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand 5, Gramineae* (2000);.

Derivation (Clifford & Bostock 2007): *L. thin*. Leaf-blades narrow.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths dark brown, persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 30–60 cm long. Culm-internodes distally glabrous or pilose. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–15 cm long, without keel, puberulous, inner surface glabrous. Leaf-sheath oral hairs ciliate, 2 mm long. Ligule a fringe of hairs, 0.6 mm long. Leaf-blades persistent, 30–60 cm long, 3–5 mm wide, herbaceous, firm. Leaf-blade midrib evident. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base. Leaf-blade margins scabrous, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, 12–25 cm long. Panicle branches bearded in axils, with prominent pulvini. 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 oblong, laterally compressed, 14–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 1 mm long, bearded, disarticulating obliquely. Floret callus hairs 3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 11–13 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 11–13 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 9–10 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface glabrous or pubescent. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 4–4.5 mm long, incised 0.5 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 10–12 mm long overall, with twisted column. Column of lemma awn 3.5 mm long. Lateral lemma awns present, arising on apex of lobes, 3 mm long, shorter than principal. Palea 7.5 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 4 mm long. Caryopsis with adherent pericarp, 3.25 mm long. Hilum linear.

$2n = 42$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

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

Chionochloa nivifera Connor & K.M.Lloyd. *New Zealand J. Bot.* 42(4): 531 (-536; fig.) (2004).

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, Fiordland, Grebe valley: Lloyd OTA58024 (OTA holo).

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

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm. Basal innovations intravaginal. Culms erect or geniculately ascending, 15–35 cm long. Culm-internodes elliptical in section, distally glabrous. Leaves mostly basal. Leaf-sheaths 6–10 cm long, keeled, outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate, 0.5–1 mm long. Ligule a fringe of hairs, 0.25 mm long. Leaf-blades persistent, conduplicate, 15–30 cm long, 3–5 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous, glabrous or ciliate, hairy at base. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle, comprising 11–20 fertile spikelets. Panicle open, loose, 6–10 cm long. Primary panicle branches drooping. 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, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5–0.75 mm long, glabrous. Floret callus evident, 0.6–1 mm long, bearded. Floret callus hairs 2–3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 2–5 mm long, 0.4–0.75 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acute. Upper glume lanceolate, 5–7 mm long, 1.1 length of adjacent fertile lemma, membranous, without keels, 7 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, (3–)4–6 mm long, membranous, without keel, more than 3-veined. Lemma midvein ciliate. Lemma surface pilose. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 2–3.5 mm long, incised 0.5 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus, geniculate, reflexed (inward), 4 mm long overall, with a straight or slightly twisted column. Lateral lemma awns absent or present, arising on apex of lobes, 0.5–1.5 mm long, shorter than principal. Palea 3.5–5.5 mm long. Palea keels ciliolate, adorned above. Palea surface pilose, hairy on flanks, hairy below. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, ciliate. Anthers 3, 2–5 mm long, purple. Caryopsis with adherent pericarp, 2–2.5 mm long. Embryo 0.33 length of caryopsis. Hilum linear, 0.5 length of caryopsis.

Distribution (TDWG). Continent. Australasia.

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

Chionochloa oreophila (Petrie) Zotov. *N. Zeal. Journ. Bot.* 1: 104 (1963).

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:** *Danthonia oreophila* Petrie, *Trans. N. Z. Inst.* 27: 406 (1895). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *D. Petrie s.n.*, Jan 1893, New Zealand: Kelly's Hill, c. 400 ft, Otira River, Westland (WELT-36441).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);

Derivation (Clifford & Bostock 2007): Gk. oros, mountain; phileo, love. Mountain species.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, mat forming. Butt sheaths papery, glossy, glabrous, persistent and investing base of culm. Basal innovations intravaginal. Culms erect, 15–30 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 3–5 cm long, wider than blade at the collar, inner surface glabrous. Leaf-sheath oral hairs bearded, 3 mm long. Ligule a fringe of hairs, 0.5(–1) mm long. Leaf-blades persistent, 5–15 cm long, 1–2 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough on both sides, pilose, sparsely hairy, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, comprising 6–8 fertile spikelets. Panicle open, ovate, 3–6 cm long, bearing few spikelets. Panicle branches flexuous, with scattered hairs, hairy at tip, bearded in axils, 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, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.75 mm long, pilose, disarticulating obliquely.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 5.5–7 mm long, 0.9 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume apex acute. Upper glume lanceolate, 6–7.5 mm long, 1–1.2 length of adjacent fertile lemma, membranous, without keels, 5–7 -veined. Upper glume margins eciliate or ciliate. Upper glume apex acute to setaceously acuminate.

Florets. Fertile lemma elliptic, 5–6.5 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliolate. Lemma surface glabrous or pubescent. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 2 mm long, incised 0.33 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus, curved, reflexed, flat below, 4–5.5 mm long overall, with a straight or slightly twisted column. Column of lemma awn 1.5 mm long. Lateral lemma awns absent or present, arising on apex of lobes, 0–2.5 mm long, shorter than principal. Palea 5.5 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.6 mm long, membranous, veined, ciliate. Anthers 2.5 mm long. Caryopsis with adherent pericarp, 2 mm long. Hilum linear.

$2n = 42$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

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

Chionochloa ovata (J. Buch.) Zotov. *N. Zeal. Journ. Bot.* 1 :104 (1963).

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:** *Danthonia ovata* Buchanan, *Indig. Grass. N. Zeal. t.* 29. (1880). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Morton s.n.*, New Zealand: South Island: Mt. Eglinton (WELT-59578).

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 Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms erect, 20–45 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 5–10 cm long, pubescent, inner surface glabrous. Leaf-sheath oral hairs ciliate, 2 mm long. Ligule a fringe of hairs, 3.5 mm

long. Leaf-blades tortuous, deciduous at the ligule, 10–25 cm long, 3–5 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins smooth to scabrous. Leaf-blade apex attenuate, pungent.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle open or contracted, ovate, 5–10 cm long. Panicle axis pilose. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, ciliate.

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, 11–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.75 mm long. Floret callus elongated, 1 mm long, bearded, disarticulating obliquely. Floret callus hairs 3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 9–11 mm long, 0.6–0.7 length of upper glume, membranous, without keels, 1–5 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 14–16 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 3–7 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 12–14 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 6–7 mm long, incised 0.5 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus, curved, reflexed, flat below, 15–20 mm long overall, with a straight or slightly twisted column. Column of lemma awn 1.5 mm long. Lateral lemma awns absent or present, arising on apex of lobes, 0–5 mm long, shorter than principal. Palea 9 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 3 mm long. Caryopsis with adherent pericarp, 3.25 mm long. Hilum linear.

$2n = 42$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

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

Chionochloa pallens Zotov. *N. Zeal. Journ. Bot.* 1: 99 (1963).

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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Zotov s.n.*, 22 Jan 1933, New Zealand: Pukematawai, Tararu Mountains (CHR-7317).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000); (as subsp. *cadens*).

Derivation (Clifford & Bostock 2007): L. pale. Inflorescences pale.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Basal innovations intravaginal. Culms erect, 50–100 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–20 cm long, keeled, glabrous on surface to pilose, outer margin glabrous or hairy, inner surface glabrous. Leaf-sheath oral hairs lacking or pubescent, 0–2 mm long. Ligule a fringe of hairs, 1 mm long. Leaf-blades persistent or deciduous at the ligule, flat or involute, 30–100 cm long, 3–10 mm wide, coriaceous, stiff. Leaf-blade midrib keeled beneath. Leaf-blade surface scabrous or papillose, rough adaxially. Leaf-blade margins scabrous, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 10–20 cm long. Panicle axis glabrous or hispidulous. Panicle branches glabrous or hispidulous, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 oblong, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 1.5 mm long, bearded, disarticulating obliquely. Floret callus hairs 3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 9–11 mm long, 0.75 length of upper glume, chartaceous, without keels, 1–5 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 12–14 mm long, 1.5 length of adjacent fertile lemma, chartaceous, without keels, 5–9 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 8–9 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 3 mm long, incised 0.33 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus,

geniculate, flat below, 12–16 mm long overall, with a straight or slightly twisted column. Column of lemma awn 2 mm long. Lateral lemma awns absent or present, arising on apex of lobes, 0–3 mm long, shorter than principal. Palea 8 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 5 mm long. Caryopsis with adherent pericarp, 3.5 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.

Chionochloa rigida (Raoul) Zotov. *N. Zeal. Journ. Bot.* 1: 96 (1963).

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).

Basionym or Replaced Name: *Danthonia rigida* Raoul, *Choix Pl. Nouv. Zel.* 12 (1844). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.F.L. Raoul s.n.*, 1843, New Zealand: Prom. de Banks (P).

Illustrations (Books): E.Edgar. & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000) (428, Fig. 16), T.R.Soderstrom, K.W.Hilu, C.S.Campbell & M.E.Barkworth (246, Fig. 22.4).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (97: 337, Fig.7 (2010)).

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);

Derivation (Clifford & Bostock 2007): L. stiff. Culms, spikelets or inflorescence branches held stiffly erect.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths dark brown, persistent and investing base of culm, with dead sheaths fracturing into segments. Basal innovations intravaginal, flabellate. Culms erect, 100–150 cm long. Culm-internodes distally glabrous or hirsute. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–30 cm long, keeled, pubescent or pilose, inner surface glabrous. Leaf-sheath oral hairs pubescent, 2 mm long. Ligule a fringe of hairs, 2 mm long. Leaf-blades deciduous with part of sheath attached, 40–80 cm long, 4–7 mm wide, coriaceous, stiff, glaucous. Leaf-blade surface scabrous, rough abaxially, glabrous, hairless except near base. Leaf-blade margins cartilaginous, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 10–30 cm long. Panicle branches scaberulous, glabrous or pilose, bearded in axils, with prominent pulvini. 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 oblong, laterally compressed, 15–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5 mm long. Floret callus elongated, 1.5 mm long, bearded, disarticulating obliquely. Floret callus hairs 3.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 12–14 mm long, 0.9 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute or setaceously acuminate. Upper glume lanceolate, 14–16 mm long, 1.6 length of adjacent fertile lemma, membranous, without keels, 5–7 -veined. Upper glume apex acute or setaceously acuminate.

Florets. Fertile lemma elliptic, 9–10 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface pilose. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with simple equal lobes or with lateral lobes bidentate, with triangular lobes, with lobes 3 mm long, incised 0.33 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 10–16 mm long overall, with twisted column. Column of lemma awn 2–4 mm long. Lateral lemma awns absent or present, arising on apex of lobes or between lobes (when bidentate), 0–3.5 mm long, shorter than principal. Palea 8.5 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.75 mm long, membranous, veined, ciliate. Anthers 4.5–5 mm long. Caryopsis with adherent pericarp, 3.5 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand South I, Stewart Is.

Chionochloa rubra Zotov. *N. Zeal. Journ. Bot.* 1: 96 (1963).

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: Tongariro National Park, 8 Jan 1944, V.D. Zotov *s.n.* (HT: CHR-41591).

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

Images: E. Edgar & H.E. Connor, *Flora of New Zealand 5, Gramineae* (2000); (as subsp. *cuprea*), R. Darke, *Ornamental Grasses* (2004);, R. Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

Derivation (Clifford & Bostock 2007): L. red. Foliage red.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths dark brown, glabrous or pilose, persistent and investing base of culm, with compacted dead sheaths or dead sheaths fracturing into segments. Basal innovations intravaginal. Culms erect, 100–150 cm long. Culm-internodes distally glabrous or hirsute. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 15–30 cm long, keeled, glabrous on surface, inner surface glabrous. Leaf-sheath oral hairs bearded, 3 mm long. Ligule a fringe of hairs, 1 mm long. Leaf-blades persistent or deciduous with part of sheath attached, filiform, terete, 50–100 cm long, 1.2 mm wide, coriaceous, stiff. Leaf-blade surface scabrous or papillose, rough adaxially, glabrous, hairless except near base. Leaf-blade margins smooth to scabrous, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 20–45 cm long. Panicle branches pubescent, hairy at tip, bearded in axils, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 oblong, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.75 mm long. Floret callus elongated, 1.5 mm long, bearded, disarticulating obliquely. Floret callus hairs 4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 10–12 mm long, 0.9 length of upper glume, membranous, without keels, 1–5 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 12–14 mm long, 1.5 length of adjacent fertile lemma, membranous, without keels, 3–7 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 8–9 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface glabrous or pilose. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 3 mm long, incised 0.33 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 10–13 mm long overall, with twisted column. Column of lemma awn 3 mm long. Lateral lemma awns absent or present, arising on apex of lobes, 0–3.5 mm long, shorter than principal. Palea 8 mm long. Palea keels ciliate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 5 mm long. Caryopsis with adherent pericarp, 3.5 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand North I, New Zealand South I, Stewart Is.

Chionochloa spiralis Zotov. *N. Zeal. Journ. Bot.* 1: 100 (1963).

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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M.J.A. Simpson 1915*, 19 Jan 1960, New Zealand: Head of Lake Monk Valley, 3200 ft, Fiordland (CHR-110792).

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

Derivation (Clifford & Bostock 2007): L. spira, anything coiled; -alis, pertaining to. Leaf-blades spirally coiled.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths papery, pallid, persistent and investing base of culm, with curly dead sheaths or dead sheaths fracturing into segments. Basal innovations intravaginal. Culms erect, 30–65 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–20 cm long, glabrous on surface, outer margin hairy, inner surface glabrous. Leaf-sheath oral hairs bearded, 3 mm long. Ligule a fringe of hairs, 1 mm long. Leaf-blades deciduous with part of sheath attached, filiform, terete, 25–50 cm long, 1 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough adaxially, glabrous, hairless except near base. Leaf-blade margins smooth. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 6–12 cm long. Panicle axis glabrous. Panicle branches glabrous, glabrous in axils or bearded in axils. 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 oblong, laterally compressed, 14–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.8 mm long. Floret callus elongated, 0.5 mm long, bearded, disarticulating obliquely. Floret callus hairs 3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 10–12 mm long, 0.9 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 11–13 mm long, 1.5 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume apex acute to setaceously acuminate.

Florets. Fertile lemma elliptic, 8–9 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma surface glabrous or pilose. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with triangular lobes, with lobes 4.5 mm long, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, flat below, 10–13 mm long overall, with a straight or slightly twisted column. Column of lemma awn 2.5 mm long. Lateral lemma awns absent. Palea 6 mm long. Palea keels ciliate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 0.75 mm long, membranous, veined, ciliate. Anthers 4 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 42$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

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

Chionochloa teretifolia (Petrie) Zotov. *N. Zeal. Journ. Bot.* 1: 100 (1963).

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:** *Danthonia teretifolia* Petrie, *Trans. N. Z. Inst.* 46: 36 (1914). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *D. Petrie s.n.*, 1 Jan 1913, New Zealand: Longwood Range, 2200 ft, Southland (WELT-40323). LT designated by Zotov, *New Zealand J. Bot.* 1: 100 (1963).

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

Images: E.Edgar & H.E.Connor, *Flora of New Zealand* 5, *Gramineae* (2000);

Derivation (Clifford & Bostock 2007): L. *teres*, narrow; folium, leaf. Leaf-blades narrow and generally rigid.

Classification. Subfamily Danthonioidae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths dark brown, persistent and investing base of culm, with compacted dead sheaths. Basal innovations intravaginal. Culms erect, 25–50 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 10–15 cm long, pilose, inner surface glabrous. Leaf-sheath oral hairs ciliate, 2.5 mm long. Ligule a fringe of hairs, 1 mm long. Leaf-blades deciduous at the ligule, filiform, terete, 20–40 cm long, 1 mm wide, coriaceous, stiff. Leaf-blade surface pubescent (beneath) or pilose (above), hairy on both sides. Leaf-blade margins smooth, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 10–15 cm long, bearing few spikelets. Panicle branches flexuous, villous, 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, 15–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 1 mm long, pilose, disarticulating obliquely. Floret callus hairs 2.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 12–14 mm long, 0.9 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 14–16 mm long, 1.8 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 8–9 mm long, membranous, purple, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 3 mm long, incised 0.33 of lemma length, acute or setaceously acuminate, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 9–11 mm long overall, with twisted column. Column of lemma awn 4 mm long. Lateral lemma awns present, arising on apex of lobes, 3 mm long, shorter than principal. Palea 7–8 mm long.

Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 2 mm long, membranous, veined, ciliate. Anthers 4.5 mm long. Caryopsis with adherent pericarp, 2.5 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

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

Chionochloa vireta H.E. Connor. *New Zealand J. Bot.*, 29(3): 261 (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: Landsborough up valley from Spencer Glacier, Sth Westland 4100 ft. on sunny moraine terrace, with *C. oerophila*, 14 Mar 1971, *P. Wardle s.n.* (CHR-218503).

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

Derivation (Clifford & Bostock 2007): *L. vireo*, become green; *-eta*, place of growth. Growing in grasslands.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths yellow, persistent and investing base of culm, with compacted dead sheaths. Basal innovations intravaginal. Culms erect, slender, 30–60 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths 5–10 cm long, pilose, inner surface glabrous. Leaf-sheath oral hairs bearded, 3.5 mm long. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades tortuous, deciduous at the ligule, 15–30 cm long, 1–2.5 mm wide, coriaceous, stiff. Leaf-blade midrib keeled beneath. Leaf-blade surface scabrous, rough on both sides, glabrous. Leaf-blade margins scabrous, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 7–13 cm long. Panicle branches glabrous, bearded in axils. 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 oblong, laterally compressed, 15–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus elongated, 1 mm long, pilose, disarticulating obliquely. Floret callus hairs 2.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 9–10 mm long, 0.9 length of upper glume, membranous, without keels, 1–5 -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 10–11 mm long, 1.1 length of adjacent fertile lemma, membranous, without keels, 3–7 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 9–10 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex lobed, 2 -fid, with lobes 4 mm long, incised 0.4 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, flat below, 5–7 mm long overall, with a straight or slightly twisted column. Column of lemma awn 2 mm long. Lateral lemma awns absent. Palea 6–7 mm long. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, 1 mm long, membranous, veined, ciliate. Anthers 3.5 mm long. Caryopsis with adherent pericarp, 2 mm long. Hilum linear.

Distribution (TDWG). Continent. Australasia.

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

Chloris affinis Caro & E. Sanchez. *Kurtziana*. 6: 224 (1971).

Accepted by: 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: *R. Schreiter* 8367, 20 Jan 1924, Argentina: Tucuman: Dpto. Famailla: Bella Vista, Lagunas de San Ramsn (LIL).

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

Derivation (Clifford & Bostock 2007): *L. affinis* to. Closely allied to another species.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms prostrate, 6–10 cm long, rooting from lower nodes. Leaf-sheaths longer than adjacent culm internode, glabrous on surface, outer margin hairy. Ligule a ciliate membrane, 0.3 mm long. Collar glabrous. Leaf-blades conduplicate, 0.8–3.5 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough adaxially, pilose. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence composed of racemes. Racemes 5, digitate, unilateral, 3 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis. 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, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–2 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. Upper glume lanceolate, 2–2.5 mm long, 0.75 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, laterally compressed, 2.5–3 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 2.5–3 mm long overall. Palea 1 length of lemma. Palea keels ciliolate. Rhachilla extension 1.5 mm long. Apical sterile florets 1 in number, barren, lanceolate, 0.5–0.8 mm long. Apical sterile lemmas dentate, 2 -fid, mucicous or awned, 1 -awned. Apical sterile lemma awns 0.3–0.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northwest.

TDWG4. Tucuman.

Chloris amethystea Hochst. *Flora*, 8 : 205 (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: IT: *G.H.W. Schimper 1267*, 1853, Ethiopia (G, US-80846 (fragm.)).

Illustrations (Books): R.M.Phill, F.T.E.A., *Gramineae* (2(1974):338, Fig.96), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (170, Fig 70).

Derivation (Clifford & Bostock 2007): *L. amethysteus*, violet. Spikelets violet.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Stolons absent or present. Basal innovations subterete or flabellate. Culms erect or geniculately ascending, (20–)50–100 cm long. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 5–20 cm long, 1.5–3.5 mm wide. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence composed of racemes. Racemes 4–8(–10), digitate, spreading or ascending, unilateral, 4–9 cm long. Spikelet packing broadside to rhachis. 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, laterally compressed, 3–4 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, gaping. Lower glume lanceolate, 1–2.2 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 lanceolate, 2.6–3.6 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma elliptic, laterally compressed, oblong in profile, 3–4 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliolate. Lemma lateral veins close to margins. Lemma margins ciliolate, hairy above. Lemma apex obtuse, mucronate or awned, 1 -awned. Principal lemma awn subapical, 0.5–2 mm long overall. Apical sterile florets 1 in number, barren, separate, cuneate, 1.5–2.5 mm long. Apical sterile lemmas glabrous (scaberulous), mucicous or mucronate. Apical sterile lemma awns 0 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea). Kenya.

Chloris andropogonoides Fourn. *Mex. Pl. Enum. Gram.* 143 (1886).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Virlet 1462*, 1851, Mexico: San Luis Potosi (P; IT: US-80845 (fragm.)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (217), F.W.Gould, *The Grasses of Texas* (1975) (325, Fig. 171).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling species of *Andropogon*.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons absent or present. Basal innovations flabellate. Culms 10–40 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 5–15 cm long, 1 mm wide. Leaf-blade surface smooth or scabrous, glabrous, hairless except near base.

Inflorescence. Inflorescence composed of racemes, deciduous as a whole. Peduncle disarticulating, disarticulating above uppermost sheath. Racemes 6–13, digitate, radiating, unilateral, 4–15 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, lax, regular. 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, 3–3.3 mm long, falling entire, deciduous with accessory branch structures. Floret callus bearded, obtuse.

Glumes. Glumes similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2–2.3 mm long, 0.6–0.7 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, 3–3.3 mm long, 1.5–1.9 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 lanceolate or elliptic, laterally compressed, 1.9–2.7 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 1.9–5.2 mm long overall. Apical sterile florets 1 in number, barren, oblong, 0.9–1.7 mm long. Apical sterile lemmas obtuse, awned, 1 -awned. Apical sterile lemma awns 2.5–3.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.3–1.4 mm long.

Distribution (TDWG). Continent. North America.

Country /Province /State. South-central USA, Mexico. Texas. Northeast Mexico. Coahuila, Neuvo Leon, Tamaulipas.

Chloris anomala B.S. Sun & Z.H. Hu. *Acta Phytotax. Sin.*, 20(2): 219 (1982).

Not on *GrassBase*.

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Yunnan: Ximeng, 1100 m, 25 Oct. 1979, *Yunnan Univ. Exped. 790727* (HT: Herb. Univ. Yunnan.).

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 Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms erect or geniculately ascending, 35–60 cm long, 2–3 mm diam., 2–4 -noded. Culm-internodes smooth, distally glabrous. Culm-nodes brown, glabrous. Leaf-sheaths keeled, glabrous on surface. Ligule a ciliolate membrane, 3–4 mm long. Leaf-blades 3–16 cm long, 3–5 mm wide. Leaf-blade surface glabrous. Leaf-blade apex obtuse, simple or apiculate.

Inflorescence. Inflorescence composed of racemes. Racemes 7–11, digitate, spreading, unilateral, 5–9 cm long. Rhachis 3–4 mm wide, pubescent on margins. Spikelet packing broadside to rhachis. 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 lanceolate, laterally compressed, 2.4–3.2 mm long, 1 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse. Floret callus hairs 0.3–0.8 mm long.

Glumes. Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1–1.6 mm long, 0.5 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, 2.4–3.2 mm long, 1–1.1 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 ovate, laterally compressed, elliptic in profile (narrowly), 2.4–3.2 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins obscure or distinct, close to margins. Lemma surface asperulous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 9–24 mm long overall. Palea 1 length of lemma. Apical sterile florets 1 in number, barren, separate, lanceolate, 0.3–0.8 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns subapical, 3–7 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.5 mm long, purple. Stigmas 2. Caryopsis with adherent pericarp, lanceolate, 1 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Chloris arenaria Hitchcock & Ekman. *U. S. Dept. Agric., Misc. Publ. No. 243* : 131 (1936).

Accepted by: 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: *E.L. Ekman 11253*, 14 Jun 1920, Cuba: Pinar del Rmo: La Grifa (US-1387449; IT: F, K, NY-70982).

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

Derivation (Clifford & Bostock 2007): *L. arena*, sandy place; -aria, pertaining to. Of sandy habitats.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms erect or geniculately ascending, robust, 60–70 cm long. Leaf-sheaths keeled, puberulous. Ligule a fringe of hairs. Leaf-blades 5–10 cm long, 1.5–3 mm wide. Leaf-blade surface scabrous, pilose, hairy adaxially or on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes 5–6, digitate, spreading or deflexed, unilateral, 4–6 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, crowded, regular. 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, 3.5–3.7 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, gaping. Lower glume lanceolate, 2.2–2.5 mm long, 0.6–0.7 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, 3.3–3.5 mm long, 0.9 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 lanceolate or elliptic, laterally compressed, 3.5–3.7 mm long, 0.5 mm wide, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy all along. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 20–24 mm long overall. Apical sterile florets 1 in number, barren, lanceolate, 1.6–1.9 mm long. Apical sterile lemmas acute, awned, 1 -awned. Apical sterile lemma awns 15–20 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, dorsally compressed, trigonous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba.

Chloris barbata (inflata) Sw. *Fl. Ind. Occ.* 1: 200 (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, 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 India. **Basionym or Replaced Name:** *Chloris inflata* Link, *Enum. Hort. Berol.* 1: 105. (1821). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Myanmar: Rangoon, July 1904, *G. Forrest 346* (E).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (81, Fig. 20), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (366), C-C Hsu, *Taiwan Grasses* (1975) (463, Pl. 1396), K.M.Matthew, Further Illustrations on the *Flora of Tamilnadu Carnatic* (1988) (Pl.732), H.B.Gilliland, *Grasses of Malaya* (1971) (Pl. 3), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (39, Fig. 28), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (344, Fig. 276 as *C. inflata*), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (as *C. inflata*), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (272, Fig. 41 & 277, Fig. 43), D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002) (as *C. inflata*), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (211), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (135, Fig. 83 as *C. inflata*), S.A.Renvoize, *The Grasses of Bahia*, 1984 (86, Fig. 31), J.A.Steyermark et al, *Flora of the Venezuelan Guayana Vol. 8* (2004) (72, Fig. 46), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (421, Fig. 96), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (410, Fig. 106 as *C. inflata*), G.Harling & C.Persson, *Flora of Ecuador* (2006) (68: 95, Fig. 14 (2001)), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 693), E.Hafliger & E.Schultz, *Grass Weeds, CIBA-GEIGY* (2:47(1980)).

Illustrations (Journals): *Austr. J. Bot. (Suppl. 5: 12, Fig.4;14, Fig.5 (1972))*, *Ruizia* (13:280, Fig 33f-g (1993)).

Images: D.Sharp & B.K.Simon, *AusGrass. Grasses of Australia. CD-Rom Version 1.0.* (2002); (as *C. inflata*), K.O.Mallett (ed.). *Flora of Australia*, Vol 44 A (2002) & Vol 44B (2004). *Poaceae*; 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. bearded, barbed. With hairs on the callus, glumes or lemma.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual or perennial, caespitose. Basal innovations intravaginal, flabellate. Culms geniculately ascending or decumbent, 20–100 cm long. Culm-internodes elliptical in section. Lateral branches lacking or sparse. Leaves mostly basal. Leaf-sheaths keeled. Ligule a ciliolate membrane, 0.25 mm long, truncate. Leaf-blades 4–40 cm long, 2–3 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence composed of racemes. Racemes 5–20, digitate, unilateral, 4–8 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular. Spikelets solitary. Fertile spikelets sessile. Pedicels absent.

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, 2–2.5 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, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.2–1.5 mm long, 0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.7–2.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, mucronate.

Florets. Fertile lemma elliptic to oblong, laterally compressed, elliptic in profile (narrowly), 2–2.5 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy above. Lemma lateral veins close to margins. Lemma margins ciliolate, hairy all along. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 4.5–7 mm long overall, limb scaberulous. Palea elliptic, 1 length of lemma, 2 -veined. Palea apex obtuse. Apical sterile florets 2 in number, barren, separate, cuneate. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 2.5–7 mm long, 2 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.6–0.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, fusiform, dorsally compressed, trigonous, estipitate, without sulcus, 1.2 mm long, smooth, apex unappendaged. Embryo 0.75 length of caryopsis. Hilum punctiform. Endosperm farinose.

$N = 20$ (2 refs TROPICOS). $2n = 40$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

Country /Province /State. Northern Africa, Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Middle Atlantic ocean, Western Indian ocean. Algeria, Morocco. Cape Verde. Ghana, Ivory Coast, Nigeria. Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania. Ascension. Mauritius (*), Madagascar (*), Rodrigues (*), Seychelles (*). Western Asia, Arabian Peninsula, China, Eastern Asia. Iran. Gulf States, Kuwait, Oman. China Southeast. Kazan-retto, Nansei-Shoto, Ogosawara-shoto, Taiwan. Indian Subcontinent, Indo-China, Malesia, Papuaia. Assam, Bangladesh, Pakistan, Sri Lanka. Andaman Is, Cambodia, Myanmar, Thailand, Vietnam. Cocos

(Keeling) Is, Java, Malaya, Singapore, Philippines, Christmas I. New Guinea West Papua (Irian Jaya). New Guinea (*), Solomon Is (*). **Australia.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*). **Southwestern Pacific, South-central Pacific, Northwestern Pacific, North-central Pacific.** Fiji (*), Gilbert Is (*), Nauru (*), Niue (*), New Caledonia (*), Phoenix Archipelago (*), Samoa (*), Tonga (*), Vanuatu (*), Wallis-Futuna Is (*). Cook Is (*), Marquesas (*), Society Is (*), Tuamotu Is (*). Caroline Is (*), Marianas (*), Marshall Is (*), Wake Is (*). Hawaii (*). **South-central USA, Southeastern USA, Mexico.** Texas. Florida. 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, Honduras, 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, Guyana, Surinam, Venezuela. Colombia, Ecuador, Peru. Brazil Northeast. Argentina Northeast, Paraguay.

TDWG4. Guangdong. Kimberley. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. North, Central, South East, Inland. Buenos Aires, Formosa. San Luis Potosi, Tamaulipas. Veracruz. Baja California, Baja California Sur, Sinaloa, Sonora. Colima, Guerrero, Jalisco. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

Chloris berazainiae L. Catus Guerra. *Acta Bot. Cubana*, 25: 5 (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 Cuba. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Cuba: Provincia de Santiago de Cuba: Alcarraza, Sierra Maestra, 22 Jul 1974, L. Catus 553 (HT: HAC).

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

Derivation (Clifford & Bostock 2007): in honor of Rosalina Berazain Iturralde, Cuban botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, slender, 10–30 cm long. Leaf-sheaths keeled, puberulous. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane. Leaf-blades flat or involute, 2–5 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins ciliate.

Inflorescence. Inflorescence composed of racemes. Racemes 4–6, digitate, erect or ascending, unilateral, 2–3 cm long. Spikelet packing broadside to rachis, regular. 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, laterally compressed, 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 lanceolate, 1–1.5 mm long, 0.4–0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–2.8 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma elliptic, laterally compressed, 3 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 12–20 mm long overall. Palea 1 length of lemma. Apical sterile florets 1 in number, barren, oblong, 1 mm long. Apical sterile lemmas acute, awned, 1 -awned. Apical sterile lemma awns 6–15 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba.

Chloris berroi Arech. *An. Mus. Montevideo*, 1: 388 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *M.B. Berro* 6385, 5 Jan 1895, Uruguay: Soriano: Estancia Vera (BAA-655, CORD-879335).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (209), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (257, Fig. 98), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (410, Fig. 106), B.Rosengurt, *Gramineas Uruguayas I* (1970) (228, Fig. 91).

Derivation (Clifford & Bostock 2007): in honor of Mariano B. Berro (1905–1922) Uruguayan botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 15–80 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 3–15 cm long, 1.5–2 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 2–4, digitate, appressed back to back, erect, unilateral, 3–12 cm long. Rhachis pilose on surface. Spikelet packing broadside to rhachis, crowded. Spikelets ascending, 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, 2.7–3.5 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, gaping. Lower glume lanceolate, 1.5–1.6 mm long, 0.6–0.7 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, 2.1–2.6 mm long, 0.7–0.8 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 ovate, laterally compressed, ovate in profile, 2.7–3.5 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma hairs 2 mm long. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 2.7–3.4 mm long overall. Apical sterile florets 3 in number, barren, in a clump, cuneate, 0.5–1.9 mm long. Apical sterile lemmas awned (one of them), 1 -awned. Apical sterile lemma awns subapical, 1 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, obovoid, trigonous, 1.2–1.8 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northeast.

TDWG4. Buenos Aires, Cordoba, Distrito Federal, Entre Rios.

Chloris boliviensis Renvoize. *Gram. Boliv.* :347 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *S. Renvoize 4704*, 7 Mar 1987, Bolivia: Beni: Ballivian, Espmritu, 1 km east of estancia (LPB; IT: K, MO-5612994).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (349, Fig. 74).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Bolivia.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms 18–40 cm long. Ligule a ciliolate membrane. Leaf-blades flat or involute, 5–14 cm long, 1–2 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes, embraced at base by subtending leaf. Racemes 1, single, arcuate, unilateral, 2–5 cm long. Rhachis angular. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile or pedicelled. Pedicels present, reduced to a stump.

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, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2–3.5 mm long, 0.75–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 2–3.5 mm long, 0.66–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma elliptic, laterally compressed, 3–3.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 3.5 mm long overall. Apical sterile florets 2 in number, barren, in a clump, oblong, 2 mm long. Apical sterile lemmas truncate, lower awned, 1 -awned. Apical sterile lemma awns 2–3 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid or obovoid, dorsally compressed, trigonous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Chloris bournei Rangachari & Tadul. *Journ. Ind. Bot.* 2: 189 (1921).

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: T: (MH).

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

Derivation (Clifford & Bostock 2007): in honor of Albert Gibbs Bourne (1859–1940) and his wife, collectors in India, Thailand and Myanmar.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms geniculately ascending, 50–100 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 5–10 cm long, 2–5 mm wide. Leaf-blade surface glabrous or pubescent, hairy abaxially or on both sides.

Inflorescence. Inflorescence composed of racemes. Peduncle glabrous. Racemes 3–9, digitate, unilateral, 6–9 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, regular. 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, laterally compressed, 3–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate or ovate, 1.5–2.5 mm long, 0.6–0.7 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 or ovate, 3.2–3.7 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 or obovate, laterally compressed, 3–3.7 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma margins pubescent. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 3.5–7 mm long overall. Apical sterile florets 2–3 in number, barren, in a clump, cuneate, 1.5–2.8 mm long. Apical sterile lemmas glabrous or pubescent, adorned on keel, truncate, awned, 1 -awned. Apical sterile lemma awns 3–4 mm long, 2–3 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid or ovoid, dorsally compressed, trigonous, 1.7 mm long.

$2n = 60$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Tamilnadu.

Chloris burmensis D.E. Anderson. *Brigham Young Univ. Sci. Bull., Biol.*, 19(2): 125 (1974).

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

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Burma: roadside between Meiktila and Pyawbye, on calcareous stiff clay, 23 Oct 1947, *Thein Lwin 311* (HT: K).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Burma, now Myanmar.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 10–18 cm long, 5–16 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Peduncle glabrous. Racemes 7–9, digitate, ascending, unilateral, 6–18 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, regular. 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, 2.5–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate or ovate, 1.7–2.2 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 lanceolate or ovate, 2.5–3.2 mm long, 1–1.1 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 elliptic, laterally compressed, 2.5–2.8 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 1–2 mm long overall. Apical sterile florets 2 in number, barren, in a clump, cuneate, 1.5–1.7 mm long. Apical sterile lemmas pilose, adorned on keel, obtuse or acute, awned, 1 -awned. Apical sterile lemma awns 0.7–1.6 mm long, 2 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.4 mm long. Stigmas 2. Caryopsis with adherent pericarp, dorsally compressed, trigonous.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Myanmar.

Chloris canterae Arech. *An. Mus. Montevideo*, 1: 385 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *J. Arechavaleta s.n.*, Mar-Apr, Uruguay: Paysandz (MVM; ILT: BAA (fragm. ex MVM), USS-879336). LT designated by Rosengurt & Izaguirre, *Bol. Soc. Arg. Bot.* 12: 124 (1968).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (209 as var. *canterae* & *grandiflora*), F.W.Gould, *The Grasses of Texas* (1975) (329, Fig. 174), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (421, Fig. 96), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (257, Fig. 98), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970), B.Rosengurt, *Gramineas Uruguayas I* (1970) (228, Fig. 91).

Derivation (Clifford & Bostock 2007): in honor of Cornelio B. Cantera (1855-), Uruguayan horticulturalist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 5–100 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane, 7 mm long. Leaf-blades flat or involute, 5–25 cm long, 1–5 mm wide. Leaf-blade surface smooth or scabrous, glabrous or pilose.

Inflorescence. Inflorescence composed of racemes. Racemes 2–9, digitate, straight or arcuate, unilateral, 4–14 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, crowded, regular. 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, 2.7–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, asymmetrical, 1.6–2.4 mm long, 0.6–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, symmetrical or asymmetrical, 2.3–3.8 mm long, 0.8–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 2.7–3.7 mm long, cartilaginous, light brown, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy all along. Lemma margins ciliate, hairy all along. Lemma hairs 1.5–3 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 2.4–5.5 mm long overall. Apical sterile florets 2(–3) in number, barren, in a clump, cuneate, 1.1–1.8 mm long. Apical sterile lemmas obtuse, lower awned, 1 -awned. Apical sterile lemma awns 1.5–3.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid or ovoid, dorsally compressed, trigonous, 1.3–2 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Argentina Northeast, Paraguay, Uruguay.

TDWG4. Catarina, Rio Grande do Sul. Jujuy, Mendoza, Salta, Santiago del Estero, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, Formosa, La Pampa, Misiones, Santa Fe.

Chloris castilloniana Parodi. *Physis*, 4: 176 (1918).

Accepted by: R.J.Soreng et al., *Catalogue of 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>: *vide* TROPICOS and Kew Synonymy Database: IT: *L. Castillon 3450*, Feb 1914, Argentina: Tucuman: Valles Calchaquies, camino de Amaicha a Fuerte Quemado, 1800 m (BAA; IT: BA-39452, BAB (fragm.), LIL, SI (fragm.)S-1256553).

Illustrations (Books): S.A.Rennoize, *Gramineas de Bolivia* (1998) (351, Fig 75), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (250, Fig. 95).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Castillon who collected in Argentina.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 50–100 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 10–20 cm long, 4–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 8–15, digitate, erect or ascending, unilateral, 9–11 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular. 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, 3.5–4.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, acute.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.6–2 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. Upper glume lanceolate, 2.9–3.9 mm long, 0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute, mucicous or mucronate.

Florets. Fertile lemma lanceolate or elliptic, laterally compressed, gibbous, 3.5–4.7 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate. Lemma surface glabrous or pilose, hairy between veins (in hollow). Lemma margins ciliate, hairy all along. Lemma hairs 1–2 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 2.2–2.5 mm long overall. Apical sterile florets 1 in number, barren, oblong, 1.5–2 mm long. Apical sterile lemmas glabrous, truncate, awned, 1 -awned. Apical sterile lemma awns 1–2 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 2 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northeast, Argentina Northwest.

TDWG4. Catamarca, Jujuy, La Rioja, Mendoza, Salta, Santiago del Estero, San Juan, San Luis, Tucuman. Chaco, Entre Rios, Formosa.

Chloris ciliata Sw. *Prod. Veg. Ind. Occ.* 25. (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *O.P. Swartz s.n.*, Jamaica (S; IT: BAA-661 (fragm.), US-80821 (fragm. ex S)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (209), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (156(2)), F.W.Gould, *The Grasses of Texas* (1975) (328, Fig. 173), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (133, Fig. 82), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (257, Fig. 98 & as var. *brachyathera*).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. cilium, eyelid; -ata, possessing. Plant hairy overall or in part.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms erect, 25–60 cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs or absent. Leaf-blades 10–20 cm long, 3–5 mm wide. Leaf-blade surface smooth or scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 3–5(–7), digitate, unilateral, 3.5–6(–8) cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular. 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, laterally compressed, 1.8–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.3–1.7 mm long, 0.7 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, 2–2.5 mm long, 0.9–1.1 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, laterally compressed, 1.8–2.8 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy all along. Lemma margins ciliate, hairy all along. Lemma hairs 0.5–1.5 mm long. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 0.9–2.7 mm long overall. Apical sterile florets 2 in number, barren, in a clump, cuneate, 1.3–1.8 mm long. Apical sterile lemmas truncate, lower awned, 1 -awned. Apical sterile lemma awns 0.9–1.4 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid or obovoid, dorsally compressed, trigonous, 1.4 mm long.

Distribution (TDWG). Continent. Australasia (*), North America, South America.

Country /Province /State. Australia. Queensland (*). **South-central USA, Mexico.** Texas. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Nicaragua. Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico. Venezuela. Bolivia, Colombia. Brazil West Central, Brazil Northeast, Brazil South. Argentina Northeast, Argentina Northwest, Paraguay, Uruguay.

TDWG4. Central. Catamarca, Jujuy, La Rioja, Mendoza, Salta, Santiago del Estero, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, Formosa, La Pampa, Misiones, Santa Fe. Coahuila, Hidalgo, Neuvo Leon, Queretaro, San Luis Potosi, Tamaulipas. Veracruz. Guerrero, Oaxaca. Campeche, Chiapas, Tabasco, Yucatan.

Chloris clementis Merrill. *Philipp. Journ. Sc.* 40: 181 (1929).

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: ST: *M.S. Clemens 17267*, 30 Nov 1926, Philippines: Luzon I., Pangasinan Prov. (L, US-1298696). OS.

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 Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms erect, 20–30 cm long. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane. Leaf-blades 1–2.5 cm long, 2–4 mm wide. Leaf-blade surface glabrous. Leaf-blade apex obtuse, apiculate.

Inflorescence. Inflorescence composed of racemes. Racemes 2–5, digitate, radiating, unilateral, 2–3 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, regular. 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, 1.5–1.8 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, gaping. Lower glume lanceolate or ovate, 0.5–0.6 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 apex acute. Upper glume lanceolate or ovate, 0.7–0.8 mm long, 0.5 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 lanceolate or elliptic, laterally compressed, 1.5–1.8 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma margins ciliate, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 5.5–6.5 mm long overall. Apical sterile florets 1 in number, barren, elliptic, 0.3 mm long. Apical sterile lemmas obtuse, awned, 1 -awned. Apical sterile lemma awns 1 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.2 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Chloris cruciata (L.) Sw. *Prod. Veg. Ind. Occ.* 25. (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).

Basionym or Replaced Name: *Agrostis cruciata* L., *Syst. ed.* 10: 873 (1759). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Swartz hb.*, no date, Jamaica (US-80823 (fragm. ex hb. Swartz)). Basis of *Chloris cruciata*.

LT: *P. Browne s.n.*, Jamaica (LINN). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 120 (1908).

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

Derivation (Clifford & Bostock 2007): L. *crux*, cross; -ata, possessing; Inflorescence of sub-alternate racemes appearing cross-like as viewed from above.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 15–35 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades involute, 2–6 cm long, 0.3–0.5 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 2–3, paired or digitate, spreading, unilateral, 1–2.5 cm long. Spikelet packing broadside to rachis, lax. Spikelets pendulous, 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, 2.2–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 0.7–1.3 mm long, 0.4–0.5 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, 1.6–2.2 mm long, 0.7–0.8 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 acute.

Florets. Fertile lemma elliptic, laterally compressed, lanceolate in profile, 2.2–2.8 mm long, cartilaginous, much thinner on margins, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness or scaberulous, eciliate. Lemma lateral veins close to margins. Lemma margins involute, eciliate or ciliolate. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 7.5–17 mm long overall. Apical sterile florets 1 in number, barren, cuneate, 0.5–1.4 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns subapical, 3.7–7 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, fusiform, 1.4–1.5 mm long. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba, Dominican Republic, Haiti, Jamaica.

Chloris cubensis Hitchcock & Ekman. *U. S. Dept. Agric., Misc. Publ. No.* 243 :131 (1936).

Accepted by: 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: *E.L. Ekman 14960*, 26 Aug 1922, Cuba: Oriente: Gamboa (US-1387446; IT: HAC). CS.

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

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Cuba.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons absent or present. Culms 50–60 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane or a ciliolate membrane, 0.2–0.5 mm long. Leaf-blades conduplicate, 10–15 cm long, 1.5 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, hairy adaxially.

Inflorescence. Inflorescence composed of racemes. Racemes 3–7, digitate, ascending, unilateral, 5.5–8.5 cm long. Rachis subterete, scabrous on surface. Spikelet packing broadside to rachis, regular. 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, 3.1–3.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.7–2.4 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 lanceolate, 2.9–3.9 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 elliptic, laterally compressed, 3.1–3.6 mm long, 0.6–0.7 mm wide, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma surface pilose. Lemma margins ciliate, hairy above. Lemma hairs 0.6–1 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 9–12 mm long overall. Apical sterile florets 1 in number, barren, oblong, 1.4–1.9 mm long. Apical sterile lemmas obtuse, awned, 1 -awned. Apical sterile lemma awns 6–9 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.3 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba, Haiti, Jamaica, Leeward Is.

Chloris cucullata Bisch. *Ann. Sc. Nat. Ser. 3*, 19 : 357 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Anon.*, 1849, Cultivated in Horto Botanico Heidelbergensis from seed collected near Matamoros, Tamaulipas, Mexico, and sent by Englemann in 1849.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (217), F.W.Gould, *The Grasses of Texas* (1975) (326, Fig. 172).

Derivation (Clifford & Bostock 2007): *L. cucullus*, hood; -ata, possessing. Sterile lemmas hood-like.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms erect, 15–60 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 3–20 cm long, 2–4 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence composed of racemes. Racemes 10–20, digitate, in several whorls, arcuate or flexuous, unilateral, 2–5 cm long. Central inflorescence axis 0.2–0.5 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, crowded, regular. Spikelets spreading, 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, 1.5–2 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, gaping. Lower glume lanceolate or ovate, 0.5–0.7 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 apex acute. Upper glume obovate, 0.5–0.7 mm long, 0.66–0.75 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, laterally compressed, 1.5–2 mm long, cartilaginous, yellow or light brown, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex obtuse, mucronate or awned, 1 -awned. Principal lemma awn subapical, 0.3–1.5 mm long overall. Apical sterile florets 1 in number, barren, orbicular, 1–1.5 mm long. Apical sterile lemmas truncate, muticous or awned, 1 -awned. Apical sterile lemma awns 0–1.5 mm long, 0–1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, obovoid, dorsally compressed, trigonous, 0.9–1.2 mm long.

Distribution (TDWG). Continent. North America.

Country /Province /State. North-central USA, South-central USA, Southeastern USA, Mexico. Kansas. New Mexico, Texas. South Carolina. Northeast Mexico, Southeast Mexico. Coahuila, Neuvo Leon, Tamaulipas. Yucatan.

Chloris diluta S.A. Renvoize. *Kew Bull.*, 31(4): 844 (1977).

Accepted by: 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: Rhodesia: Wedza, 40 mi [64 km] S of Marandellas, kloof forest, 22 May 1968, *Simon, Rushworth & Mavi 1830* (HT: K; IT: SRGH).

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

Derivation (Clifford & Bostock 2007): *L. diluo*, dissolve. The reality of the species confirmed by further collecting.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Stolons absent or present. Culms erect or geniculately ascending, 40–85 cm long, wiry, 4–8 -noded. Lateral branches lacking or sparse. Ligule a ciliolate membrane. Leaf-blades 10–30 cm long, 4–7 mm wide. Leaf-blade surface scabrous, pilose, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 4–6, digitate, spreading, unilateral, 5–8 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2–2.5 mm long, 0.6–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.5 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, laterally compressed, 3.5 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma surface pubescent, hairy above. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 8–12 mm long overall. Apical sterile florets 1 in number, barren, separate, elliptic, 1 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns subapical, 2–8 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. South tropical Africa, Southern Africa. Zimbabwe, Limpopo, Mpumalanga.

Chloris divaricata R. Br. *Prod.* 1: 186 (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Brown 6244*, Sep 1802, Australia: Queensland: Port Curtis Dist: Broad Sound (BM; IST: E, K, MEL).

LT: *R. Brown*, Australia: "Port I., Keppel Bay, Whorlwater Bay" (BM). LT designated by Anderson, Brigham Young Univ. Sci. Bull., Biol. Ser., 19(2): 85 (1974).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (183), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (156(3)), 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) (272, Fig. 41 & 277, Fig. 43), 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) (215).

Illustrations (Journals): *Austr. J. Bot. (Suppl. 5: 12, Fig.4; 14, Fig.5 (1972)).*

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Derivation (Clifford & Bostock 2007): *L. divarico*, spread out. Inflorescence branches or culms regularly dividing into equal branches.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons absent or present. Basal innovations flabellate. Culms 30–50 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 3–15 cm long, 1–1.5 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence composed of racemes. Racemes 3–9, digitate, spreading, unilateral, 4–17 cm long. Rachis subterete, scabrous on surface. Spikelet packing broadside to rachis, lax, regular. 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, 2.9–4 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, gaping. Lower glume lanceolate, 0.9–1.8 mm long, 0.5–0.6 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 lanceolate, 2–2.9 mm long, 0.7 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 linear or lanceolate, laterally compressed, 2.9–4 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid, incised 0.1 of lemma length, acute, awned, 1 -awned. Principal lemma awn from a sinus, 7.5–17 mm long overall. Apical sterile florets 1 in number, barren, elliptic, 1.2–1.9 mm long. Apical sterile lemmas lobed, 2 -fid, acute, awned, 1 -awned. Apical sterile lemma awns 4.5–9.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 2.2 mm long.

Distribution (TDWG). Continent. Europe (*), Australasia, Pacific, North America.

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Australia.** Northern Territory, Queensland, New South Wales. **Southwestern Pacific, North-central Pacific.** Fiji (*), New Caledonia (*), Tonga (*). Cook Is (*), Marquesas (*). Hawaii (*). **South-central USA, Southeastern USA.** New Mexico, Texas. South Carolina.

TDWG4. Darwin & Gulf. North, Central, South East, Inland. Coast, Western Slopes, Western Plains.

Chloris ekmanii Hitchcock. *U. S. Dept. Agric., Misc. Publ. No. 243* :129 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.L. Ekman 16954*, 2 Aug 1923, Cuba: Matanzas (US-1387451).

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

Derivation (Clifford & Bostock 2007): in honor of Erik Leonard Eckman (1888–1931) Swedish botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons absent or present. Basal innovations flabellate. Culms geniculately ascending, slender, 30–45 cm long, wiry. Leaf-sheaths keeled, glabrous on surface. Ligule a ciliate membrane. Leaf-blades filiform, 5–10 cm long, 0.5–1 mm wide. Leaf-blade surface pilose, hairy on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes 3–6, digitate, spreading or deflexed, flexuous, unilateral, 1.5–5 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, regular. 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, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.1–2 mm long, 0.5–0.6 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 lanceolate, 2.3–3.6 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate or elliptic, laterally compressed, 2–3 mm long, 0.4–0.5 mm wide, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 5.5–10 mm long overall. Apical sterile florets 1 in number, barren, linear, 0.4–1.1 mm long. Apical sterile lemmas acute, awned, 1 -awned. Apical sterile lemma awns 3.3–6 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.4 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba, Dominican Republic, Haiti, Jamaica.

Chloris elata Desv. *Opusc.* 73. (1831).

Accepted by: R.J.Soreng et al., *Catalogue of 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 *C. polydactyla*).

Basionym or Replaced Name: *Chloris polydactyla* (L.) Sw., nom superfl, *Prod. Veg. Ind. Occ.* 26. (1788). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Anonymous*, Brazil (P).

Recent Synonyms: *Chloris dandyana* C.D. Adams, nom nov., *Phytologia*, 21 (6): 408 (1971).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (211), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (132, Fig. 81 as *C. polydactyla*), B.Rosengurt, *Gramineas Uruguayas I* (1970) (232, Fig. 93 as *C. polydactyla*), A.Burkat, *Flora*

Ilustrada de Entre Rios (Argentina), Pt II, Gramineas (1969) (as *C. polydactyla*), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (408, Fig. 105 as *C. polydactyla*), E.Hafliger & E.Schultz, *Grass Weeds, CIBA-GEIGY* (2:50(1980) as *C. polydactyla*).

Derivation (Clifford & Bostock 2007): L. tall. Culms taller than those of most species of the genus.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons absent or present. Culms erect, 70–135 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 20–45 cm long, 7–15 mm wide. Leaf-blade surface smooth or scabrous, rough on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 4–28, digitate, spreading or drooping, unilateral, (5–)10–20 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, crowded, regular. 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, laterally compressed, 1.6–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1–2.5 mm long, 0.5–0.7 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, 1.9–3.5 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 acute.

Florets. Fertile lemma elliptic, laterally compressed, 1.6–2.8 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma margins ciliate, hairy all along. Lemma hairs 1–3 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 1.4–4.8 mm long overall. Apical sterile florets 2 in number, barren, in a clump, oblong or cuneate, 1–1.6 mm long. Apical sterile lemmas obtuse, lower awned, 1 -awned. Apical sterile lemma awns 1.7–4 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1 mm long.

Distribution (TDWG), Continent. North America and South America.

Country /Province /State. South-central USA, Southeastern USA. Texas. Florida. Caribbean, Northern South America, Western South America, Brazil, and Southern South America. Bahamas, Haiti, Jamaica, Leeward Is. Colombia. Brazil Southeast. Argentina Northeast.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, Santiago del Estero, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, Formosa, Misiones, Santa Fe.

Chloris exilis S.A. Renvoize. *Kew Bull.*, 37(2): 323 (1982).

Accepted by: 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: *Harley et al. 16363*, 26 Feb 1974, Brazil: Bahia: 49 km N of Senhor do Bonfim on BA 130 hwy to Juazeiro. Dry hillsides with metamorphic rocks, grazed caatinga and dry sandy river bed, 500 m, 40:13'W, 10: 05'S (CEPEC (photo, BAB); IT: K, US-2955111).

Illustrations (Books): S.A.Renvoize, *The Grasses of Bahia*, 1984 (86, Fig. 31).

Derivation (Clifford & Bostock 2007): L. slender. Culms slender.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, (10–)30–70 cm long. Ligule a ciliolate membrane. Leaf-blades 3.5–14 cm long, 3–5 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 4–10, digitate, unilateral, (1.5–)5–7 cm long. Rhachis subterete. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile. Pedicels absent.

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 oblong, laterally compressed, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume ovate, 2.5 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–4 mm long, 1–1.3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma oblong or ovate, laterally compressed, 3–4 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins close to margins. Lemma margins ciliolate, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn 4–7 mm long overall. Palea 1 length of lemma, 2 -veined. Apical sterile florets 3–4 in number, barren, separate, lanceolate. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 1.5–4 mm long, 3(–4) per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, dorsally compressed, trigonous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast.

TDWG4. Bahia.

Chloris filiformis (Vahl.) Poir. *Encycl. Suppl.* 2 : 238 (1811).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Cynosurus filiformis* Vahl, *Symbolae Bot.* 2: 20 (1790). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: (L).

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

Derivation (Clifford & Bostock 2007): L. filum, thread; forma, shape. Leaf-blades narrow.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons absent or present. Basal innovations flabellate. Culms 10–30 cm long. Leaf-sheaths keeled, glabrous on surface or pilose. Ligule a ciliate membrane. Leaf-blades conduplicate, 1–6 cm long, 1 mm wide. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Racemes 1–2, single or paired, erect, unilateral, 1–3 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular. 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, 2.6–2.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.7–2 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, 2.5–2.8 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, laterally compressed, 2.6–2.8 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma surface pubescent. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 1–1.2 mm long overall. Apical sterile florets 1 in number, barren, lanceolate, 1.3–2 mm long. Apical sterile lemmas pubescent, acute, awned, 1 -awned. Apical sterile lemma awns 0.5–1.1 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, dorsally compressed, trigonous.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Mauritius, Madagascar.

Chloris flabellata (Hackel) Launert. *Mitt. Bot. Staatssamml. Munchen*, 8: 147 (1970).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Tetrapogon flabellatus* Hack., *Bull. Herb. Boiss.* 4: 810. (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Hopfner* 78, 20 Apr 1882, Angola: Mossamedes in maritimis inter Mossamedes et Rio Bero (W).

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

Derivation (Clifford & Bostock 2007): L. flabella, fan; -ata, possessing. Spikelets or inflorescences fan-shaped.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Stolons present. Culms decumbent, 20–45 cm long. Ligule a ciliolate membrane. Leaf-blades 5–8 cm long, 3–5 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 5–7, digitate, erect or ascending, incurved, unilateral, 1–3 cm long. Spikelet packing broadside to rhachis. 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, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume ovate, 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 ovate, 2 mm long, 0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 2.5 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma lateral veins close to margins. Lemma margins pubescent. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 0.5 mm long overall. Apical sterile florets 3 in number, barren, oblong. Apical sterile lemmas mucicous.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. South tropical Africa, Southern Africa. Angola. Namibia.

Chloris formosana (Honda) Keng. *Claves Gen. & Spec. Gramin. Sinic.* 197 (1957).

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: *Chloris barbata* var. *formosana* Honda, *Bot. Mag. Tokyo* 40:437 (1926). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Taiwan: Takao, 1905, G. Nakahara 635 (HT: ?; ST ?).

Illustrations (Books): C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (368), C-C Hsu, *Taiwan Grasses* (1975), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 693).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. For Formosa, now Taiwan.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons absent or present. Basal innovations flabellate. Culms erect or geniculately ascending, 30–75 cm long. Leaf-sheaths glabrous on surface or pilose. Ligule a ciliate membrane. Leaf-blades conduplicate, 10–20 cm long, 1.5–3 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Peduncle glabrous. Racemes 5–9, digitate, erect or ascending, unilateral, 4–8 cm long. Rhachis subterete, pilose on surface. Spikelet packing broadside to rhachis, regular. 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, laterally compressed, 2.3–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1–1.5 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. Upper glume lanceolate, 2.2–2.5 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 obtuse, mucronate.

Florets. Fertile lemma elliptic, laterally compressed, gibbous, 2.3–3 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate. Lemma surface glabrous to pubescent. Lemma margins ciliate, hairy above. Lemma hairs 1 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 2–5.7 mm long overall. Apical sterile florets 2 in number, barren, in a clump, cuneate, 1.6–1.9 mm long. Apical sterile lemmas truncate, awned, 1 -awned. Apical sterile lemma awns 2.3–5 mm long, 2 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.2–1.6 mm long.

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

Country /Province /State. China, Eastern Asia. Hainan, China Southeast. Taiwan. Indo-China. Vietnam. TDWG4. Fujian, Guangdong.

Chloris gayana Kunth. *Rev. Gram.* 1: 89, 293. t. 58. (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, 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), N.Tsvelev, *Grasses of the Soviet Union* (1983), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

TYPE from Senegal. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *Herb. Gay* 40, 4 Feb 1823, Senegal (K, P).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962), F.N.Hepper, *F.W.T.A.* 3(2) (1972) (401, Fig.433), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (Pl. 7), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Supp. 5: 8, Fig.2 (972)), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (170, Fig. 70), L.Boulos, *Flora of Egypt* 4 (2005) (278, Pl. 82), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (453, Pl. 173), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (370), C-C Hsu, *Taiwan Grasses* (1975), N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (467, Fig. 51), H.J.Noltie, *The Grasses of Bhutan* (2000) (677, Fig. 36), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (344, Fig. 275), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (577, Fig. 116), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (183), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (154 & 156(14)), 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) (280, Fig. 44 & 285, Fig. 46), 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) (213), F.W.Gould, *The Grasses of Texas* (1975) (320, Fig. 168), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (127, Fig. 79), S.A.Renouze, *Gramineas de Bolivia* (1998) (351, Fig. 75), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (421, Fig. 96 & 423, Fig. 97), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (252, Fig. 96), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (408, Fig. 105), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (232, Fig. 93), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (139, Fig. 20), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 691), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:48(1980)).

Illustrations (Journals): *Austr. J. Bot.* (Supp. 5: 10, Fig.3 (972)).

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 Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms erect or geniculately ascending, 50–220 cm long, without nodal roots or rooting from lower nodes. Ligule a ciliate membrane. Leaf-blades (15–)25–50 cm long, (1.5–)3–9 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes (5–)7–20, digitate, spreading or ascending, unilateral, 4–15 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 2.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–2.5 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–4 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceous acuminate.

Florets. Fertile lemma ovate, laterally compressed, lanceolate in profile, 2.5–3.5 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 2–10 mm long overall. Apical sterile florets 2–3 in number, male or barren, in a clump, lanceolate, 1.5–3 mm long. Apical sterile lemmas pilose, adorned on margins, awned, 1 -awned. Apical sterile lemma awns subapical, 1.5–5.5 mm long, 2 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

$N = 10$ (4 refs TROPICOS), or 20 (2 refs TROPICOS). $2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). **Continent.** Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South 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, Middle

Atlantic ocean, Western Indian ocean. Algeria, Egypt, Morocco. Canary Is, Cape Verde, Madeira. Mali, Nigeria, Senegal, Niger. Rwanda. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Botswana, Limpopo, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Western Cape, Eastern Cape. Madagascar (*), Rodrigues (*). **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China (+), Eastern Asia.** Iraq. Gulf States, Oman. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, Eastern Himalaya, Pakistan, Sri Lanka. Andaman Is. Java, Malaya, Philippines. New Guinea PNG. New Guinea. **Australia, New Zealand.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*), New South Wales (*), Victoria (*), Lord Howe-Norfolk Is (*). Kermadec Is, New Zealand North I. **Southwestern Pacific, South-central Pacific, North-central Pacific.** Fiji (*), Niue (*), New Caledonia (*), Samoa (*), Tokelau-Manihiki (*), Tonga (*). Easter Is (*), Marquesas (*). Marianas (*), Marshall Is (*). Hawaii (*). **Southwestern USA, South-central USA, Southeastern USA, Mexico.** Arizona, California. Texas. Florida, Louisiana, Mississippi. Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Costa Rica, El Salvador, Guatemala. Cuba, Haiti, Jamaica. Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Southeast. Argentina Northeast, Chile North, Uruguay.

TDWG4. Bhutan, Sikkim. Kimberley, South-West. Darwin & Gulf, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains. Catamarca, Jujuy, La Rioja, Mendoza, Salta, Santiago del Estero, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, Formosa, La Pampa, Misiones, Santa Fe. Valparaiso. Distrito Federal, Morelos. Aguascalientes, Coahuila, Chihuahua, Durango, Neuvo Leon, Queretaro, San Luis Potosi, Tamaulipas, Zacatecas. Veracruz. Baja California, Sonora. Jalisco, Michoacan, Nayarit, Oaxaca. Chiapas, Tabasco, Yucatan.

Chloris grandiflora Roseng. & Izag. de Artucio. *Bol. Soc. Argent. Bot.* 12 :124 (1968).

Regarded by K as a synonym (*C. canterae*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Uruguay: Florida: Estancia Rincsn de Santa Elena, Picada de Castro, Arroyo Mansavillagra, Nov 1946, *Gallinal & Rosengurt PE-5790* (HT: MVFA).

Illustrations (Books): A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (408, Fig. 105), B.Rosengurt, *Gramineas Uruguayas I* (1970) (230, Fig. 92).

Derivation (Clifford & Bostock 2007): *L. grandis*, large; flos, flower. Spikelets with more florets than those of related species.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations intravaginal. Culms 15–40 cm long, 2–3 -noded. Culm-internodes terete, solid, smooth. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, keeled, glabrous on surface or pilose. Ligule a ciliolate membrane, 0.4–0.5 mm long. Leaf-blades 1–12 cm long, 1–3.5 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy adaxially. Leaf-blade margins ciliate, hairy at base.

Inflorescence. Inflorescence composed of racemes. Racemes 3–5, digitate, straight or arcuate, unilateral, 3.5–6(–8) cm long. Rhachis angular, 0.2–0.3 mm wide, scabrous on surface. Spikelet packing broadside to rhachis. Spikelets solitary. Fertile spikelets sessile or pedicelled. Pedicels present, reduced to a stump, 0.5 mm long, scabrous.

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, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse. Floret callus hairs 0.8–1 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, asymmetrical, 1.2–1.5 mm long, 0.5–0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute, mucronate. Upper glume lanceolate, asymmetrical, 2–3.5 mm long, 0.66 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 ovate, laterally compressed, 3–3.5 mm long, cartilaginous, dark brown, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma hairs 1.5–2 mm long. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 2.5–3.5 mm long overall. Palea 1 length of lemma. Palea keels ciliolate. Palea surface pubescent, hairy on back. Palea apex dentate, 2 -fid. Rhachilla extension 0.7 mm long. Apical sterile florets 3–4 in number, barren, in a clump, oblong, 1.5–2 mm long. Apical sterile lemmas truncate, lower awned, 1 -awned. Apical sterile lemma awns 1.6 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.3–0.6 mm long, retained within floret. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid or obovoid, dorsally compressed, trigonous, 1.1–1.5 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northeast.

TDWG4. San Luis, Buenos Aires, Cordoba, Corrientes, Entre Rios, Formosa, Santa Fe.

Chloris halophila L. Parodi. *Rev. Argent. Agron.* 12: 45 (1945).

Accepted by: 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: LT: *L.R. Parodi* 2769, 20 Feb 1920, Argentina: Buenos Aires: Pergamino (BAA; ILT: LP, US-1256554). LT designated (as holotypus) by Molina & Rzgolo de Agrasar, *Candollea* 59: 382 (2004).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (Fig. 74), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (414, Fig. 147), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (250, Fig. 95), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (408, Fig. 105), G.Harling & C.Persson, *Flora of Ecuador* (2006) (68: 95, Fig. 14 (2001) as var. *humilis*).

Illustrations (Journals): *Ruizia* (13:280, Fig 33c-d (1993)).

Derivation (Clifford & Bostock 2007): Gk. halos, salt; phileo, love. Growing on saline soils.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms 15–50 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 5–10 cm long, 2–3 mm wide. Leaf-blade surface smooth or scabrous, glabrous, hairless except near base. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes 4–13, digitate, in several whorls, unilateral, 3.5–12 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, lax, regular. 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, 3.8–5.5 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, gaping. Lower glume lanceolate, 1.5–3 mm long, 0.4–0.6 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 lanceolate, 3.7–5.3 mm long, 0.9 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 lanceolate or elliptic, laterally compressed, 3.8–5.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate. Lemma apex acute or acuminate, awned, 1 -awned. Principal lemma awn subapical, 9–26 mm long overall. Apical sterile florets 1 in number, barren, linear or lanceolate, 1.5–2.5 mm long. Apical sterile lemmas acute or acuminate, awned, 1 -awned. Apical sterile lemma awns 7–13 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.9–2.4 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Ecuador, Peru, Argentina Northeast, Argentina Northwest, Paraguay.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, Santiago del Estero, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, Santa Fe.

Chloris humbertiana A. Camus. *Bull. Soc. Bot. France*, 91: 63 (1944).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madagascar: Mananara, pentes orientales du Vohipaly, *Humbert* 14150 (HT: P; IT: K).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (85, Fig. 22).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Jean Henri Humbert (1887–1967) French botanist who collected in Madagascar.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present, with alternating elongated and bunched internodes. Basal innovations flabellate. Culms erect, 20–30 cm long. Ligule a ciliolate membrane. Leaf-blades conduplicate, 1.5–2 cm long, 3–5 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes, embraced at base by subtending leaf. Racemes 2–3, paired or digitate, unilateral, 3–4 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 2.3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 1–1.5 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, 1.5 mm long, 0.6 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 ovate, laterally compressed, elliptic in profile, 2.3–3.5 mm long, cartilaginous, pallid, keeled, winged on margins (above), 3 -veined, 0–3 -veined. Lemma midvein eciliate. Lemma lateral veins close to margins. Lemma surface pubescent, with clavate hairs. Lemma margins eciliate. Lemma apex truncate, awned, 1 -awned. Principal lemma awn subapical, 2.4–3.5 mm long overall. Apical sterile florets 1 in number, barren, elliptic, 1 mm long. Apical sterile lemmas acute, awned, 1 -awned. Apical sterile lemma awns subapical, 3–3.8 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Chloris jubaensis T.A. Cope. *Kew Bull.*, 50(1): 113 (1995).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Somalia: Jubbada Hoose, 11 km N of Jana Cabdalle village on the Kismayu-Afmada road, 25 Oct 1982, *Rose Innes* 793 (HT: K).

Illustrations (Books): T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (205, Fig. 112).

Illustrations (Journals): *Kew Bulletin* (50: 112, Fig.2 (1995)).

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Jubbada Hoose, Somalia.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 50–95 cm long. Ligule a ciliolate membrane. Leaf-blades 3–6 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 5–6, digitate, unilateral, 7–8 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2.5 mm long, 0.6–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4–4.5 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 obovate, laterally compressed, 3.8 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 4–6 mm long overall. Apical sterile florets 1–2 in number, barren, cuneate, 3–6 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns subapical, 4.5–6 mm long, 1–2 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Somalia.

Chloris lamproparia Stapf. *Bull. Soc. Bot. France* 58 Mem. 8 :220 (1912).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Chad. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chad: Baguirmi, emplacement de la ville de Massenia, 25–31 Aug. 1903, *Chevalier 9633 bis* (HT: P; IT: K).

Illustrations (Books): R.M.Pohill, F.T.E.A., *Gramineae* (2(1974):338, Fig. 96).

Derivation (Clifford & Bostock 2007): Gk. lampros, splendid; L. -aria, pertaining to. The spikelets are attractive with white glumes and brown lemmas.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Culms geniculately ascending or decumbent, (10–)30–55 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades 4–16(–20) cm long, 3–5 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Racemes 2–4, paired or digitate, erect, unilateral, 4–11 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 3–4.5 mm long, 0.5 length of upper glume, chartaceous, dark brown, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 5.5–8 mm long, 1.8–2 length of adjacent fertile lemma, membranous, dark brown, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma ovate, laterally compressed, ovate in profile, 3–4 mm long, coriaceous, dark brown, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma hairs white, 1.5–4 mm long. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 4–6 mm long overall. Apical sterile florets 3 in number, barren, in a clump, cuneate. Apical sterile lemmas awned (one of them), 1 -awned. Apical sterile lemma awns subapical, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa. Burkina, Mali, Nigeria. Chad, Ethiopia (inc. Eritrea), Sudan. Tanzania, Uganda.

Chloris lobata Lazarides. *Austral. J. Bot., Suppl.* 5. 20 (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Burke Dist: 4 mi E of Normanton, 6 Mar 1954, *Lazarides 4289* (HT: CANB; IT: BRI, NT, NSW, MEL, AD, PERTH, K, US).

Illustrations (Books): K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (275, Fig. 42 & 280, Fig. 44), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Austr. J. Bot. (Suppl.* 5: 10, Fig.3;16, Fig.6 (972)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending or decumbent, 15–45 cm long. Ligule a ciliolate membrane. Leaf-blades 8–15 cm long, 0.2–0.6 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 3–9, digitate, unilateral, 2.5–6 cm long. Spikelet packing broadside to rachis. 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, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.6–2.5 mm long, 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. Upper glume

lanceolate, 2.6–3.9 mm long, 0.6–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, laterally compressed, elliptic in profile, 4–5 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate. Lemma lateral veins close to margins. Lemma surface scabrous. Lemma margins ciliate, hairy above. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, 3–10.5 mm long overall. Lateral lemma awns present, arising on apex of lobes, 2–6 mm long, shorter than principal. Apical sterile florets 1 in number, barren, lanceolate, 1–2 mm long. Apical sterile lemmas lobed, 2 -fid (to base), awned, 3 -awned. Apical sterile lemma awns 3–8 mm long, 3 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, trigonous, 1.7–2.4 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley. Darwin & Gulf, Victoria R & Barkly Tableland. North, Central.

Chloris mearnsii Merrill. *Philipp. Journ. Sci.* 3: 220 (1908).

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

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

Derivation (Clifford & Bostock 2007): In honor of Edward Alexander Mearns (1856–1916) United States botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending, slender, 20–40 cm long. Culm-internodes distally glabrous. Leaf-sheaths longer than adjacent culm internode. Ligule a ciliolate membrane. Leaf-blades 5–8 cm long, 2–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 3, digitate, unilateral, 5–7 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular. 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, 1.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.2 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 apex acuminate, mucronate. Upper glume lanceolate, 3 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, mucronate.

Florets. Fertile lemma lanceolate, laterally compressed, 1.5 mm long, cartilaginous, purple, keeled, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 10 mm long overall. Palea 1 length of lemma. Palea keels scabrous. Rhachilla extension 1–1.3 mm long. Apical sterile florets 1 in number, barren, elliptic, 0.5 mm long. Apical sterile lemmas lobed, 2 -fid, acute, awned, 1 -awned. Apical sterile lemma awns 3–4 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, oblong, 2.5 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Chloris mensensis (Schweinf.) Cufod. *Bull. Jard. Bot. Nat. Belg.* 8: Suppl. 1290 (1968).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Eritrea. **Basionym or Replaced Name:** *Gymnopogon mensense* Schweinf., *Bull. Herb. Boiss.* 2 App. 2 :32. (1894).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From the Mensa region of Eritraea.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms erect, 30–70 cm long. Ligule a ciliolate membrane. Leaf-blades 15–30 cm long, 3–7 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes digitate or borne along a central axis, spreading or ascending, unilateral, 8–9 cm long. Spikelet packing broadside to rhachis. 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, laterally compressed, 3.5–5.2 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, gaping. Lower glume lanceolate, 1.4–3 mm long, 0.4–0.6 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 lanceolate, 3.2–5 mm long, 0.9 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, laterally compressed, lanceolate in profile, 3.5–5.2 mm long, cartilaginous, dark green, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate. Lemma lateral veins close to margins. Lemma margins ciliate, hairy above. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 7–12 mm long overall. Apical sterile florets 1 in number, male, elliptic, 0.5–2 mm long. Apical sterile lemmas glabrous (scabrous), awned, 1 -awned. Apical sterile lemma awns subapical, 1.5–3.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 1–1.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, trigonous, 2–2.2 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Eritrea, Ethiopia (inc. Eritrea), Somalia.

Chloris montana Roxb. *Fl. Ind., ed. Carey & Wall.*, 1: 331 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: A native of mountainous tracts only,.,.

Illustrations (Books): K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (Pl.733).

Derivation (Clifford & Bostock 2007): L. mons, mountain; -ana, indicating location. Growing on mountains.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms 20–50 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 6–12 cm long, 2–4 mm wide. Leaf-blade surface smooth or scabrous, rough adaxially.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 2–5, digitate, erect, unilateral, 1.5–6.5 cm long. Rhachis subterete, scabrous on surface, glabrous on surface or pilose on surface. Spikelet packing broadside to rhachis, regular. 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, laterally compressed, 2.1–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–1.7 mm long, 0.6–0.75 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, 2.2–2.7 mm long, 0.75–1 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 elliptic, laterally compressed, 2.1–3.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma surface glabrous to pubescent. Lemma margins ciliate, hairy above. Lemma hairs 1 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 4.2–9.5 mm long overall. Apical sterile florets 3 in number, barren, in a clump, cuneate, 0.9–1.7 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 3.9–9.5 mm long, 3 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.7–2 mm long.

$N = 20$ (1 ref TROPICOS). $2n = 40$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Bangladesh, India, Sri Lanka.

Chloris mossambicensis K. Schum. *Notizbl. Bot. Gart. Berlin*, 1: 104 (1895).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Mozambique: Cabareino Grande, *Prelado 88* (IT: BM).

Illustrations (Books): R.M.Phill, F.T.E.A., *Gramineae* (2(1974):338, Fig. 96), G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999):211 t. 61), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (199, Fig. 174 as *Tetrapogon*).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Stolons absent or present. Butt sheaths papery. Basal innovations flabellate. Culms erect or geniculately ascending, (20–)40–85 cm long. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, (6–)10–35 cm long, 3–6 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes (2–)4–5(–7), digitate, spreading or ascending, unilateral, 3–8 cm long. Spikelet packing broadside to rhachis. 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, laterally compressed, 2.75–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent, pungent.

Glumes. Glumes persistent, similar, exceeding apex of florets or reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.75–2 mm long, 0.5–0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.75–3.5(–4) mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma obovate, laterally compressed, oblong in profile, 2–3(–4) mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate, hairy above. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, (4–)7–11 mm long overall. Apical sterile florets 1 in number, barren, separate, cuneate, 1.5 mm long. Apical sterile lemmas glabrous, awned, 1 -awned. Apical sterile lemma awns subapical, 2.5–7.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Somalia. Kenya, Tanzania. Mozambique, Zimbabwe. Limpopo, Mpumalanga, Swaziland, Kwazulu-Natal.

Chloris orthonoton Doell. *Mart. Fl. Bras.* 2, 3: 64 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *A.F.M. Glaziou 3610*, 21 Apr 1869, Brazil: Rio de Janeiro: Quinta de Sco Christorco (BAA-695 (fragm.), BR, K, US-290153).

Illustrations (Books): S.A.Renouze, *The Grasses of Bahia*, 1984 (86, Fig. 31).

Derivation (Clifford & Bostock 2007): *Gk. orthos*, straight; *noton*, back. Lemma keel not curved.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms erect, 35–70 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane, 2 mm long. Leaf-blades 10–25 cm long, 0.5–0.7 mm wide. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Inflorescence composed of racemes. Racemes 4–11, digitate, in several whorls, unilateral, 4–10 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, crowded, regular. 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, 3–4.5 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, gaping. Lower glume lanceolate, 1.6–2.4 mm long, 0.6–0.7 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, 2.3–3.6 mm long, 0.8 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 lanceolate or elliptic, laterally compressed, 3–4.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate or pubescent. Lemma surface pilose, hairy between veins (in hollow), with tubercle-based hairs. Lemma margins ciliate, hairy above. Lemma hairs 1.5–2 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 7.5–20 mm long overall. Apical sterile florets 1 in number, barren, cuneate, 1.5–2.2 mm long. Apical sterile lemmas glabrous, truncate, awned, 1 -awned. Apical sterile lemma awns 3.5–9 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.4 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.7 mm long.

Distribution (TDWG). Continent. Africa, South America.

Country /Province /State. Middle Atlantic ocean. Ascension. **Brazil, Southern South America.** Brazil West Central, Brazil Northeast, Brazil Southeast.

TDWG4. Goiás, Bahia, Ceara, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Minas Gerais, Rio de Janeiro, Espírito Santo, Sao Paulo Parana. Corrientes.

Chloris paniculata Scribn. *Proc. Amer. Acad. Arts Sci.* 38:262 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *R.E. Snodgrass & E.G. Heller* 968, Jul 1889, Galapagos Islands (US-80858). Endemic to Cocos Isl., not found on Galapagos, mislabeled collection?.

HT: *R.E. Snodgrass & E.G. Heller* 968, Costa Rica: Isla del Coco (GH).

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

Derivation (Clifford & Bostock 2007): *L. panus*, thread; -ula, diminutive; -ata, possessing. Inflorescence open with thread-like pedicels.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 40–70 cm long. Leaf-sheaths glabrous on surface. Ligule absent. Leaf-blades 25–50 cm long, 2.5–5 mm wide. Leaf-blade surface smooth. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes numerous, 50–60, borne along a central axis, closely spaced, in a multilateral false spike, unilateral, 2–5 cm long. Central inflorescence axis 10–12 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular. 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, laterally compressed, 2.6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.2 mm long, 0.4 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, 1.2 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, laterally compressed, 2.6 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 2.5–2.8 mm long overall. Apical sterile florets 1 in number, barren, oblong, 1.5 mm long. Apical sterile lemmas truncate, awned, 1 -awned. Apical sterile lemma awns 1.5–1.8 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, dorsally compressed, trigonous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Chloris parvispicula Caro & E. Sanchez. *Kurtziana*, 6: 227 (1971).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Castellanos* 1940, 15 Feb 1940, Argentina: La Rioja: Los Llanos, Los Cerillos (BAA-33416; IT: LIL-42941).

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

Derivation (Clifford & Bostock 2007): *L. parvus*, small; spica, thorn; -ulum, diminutive. Spikelets small.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–60 cm long. Culm-internodes terete, distally glabrous. Leaf-sheaths mostly shorter than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs ciliate, 3–4 mm long. Ligule a ciliate membrane, 0.5 mm long. Collar glabrous. Leaf-blades flat or convolute, 2–15 cm long, 2–5 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous, hairless except near base. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence composed of racemes. Racemes 6–8, digitate, unilateral, 6–9 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis. 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, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5 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, mucronate. Upper glume lanceolate, 2–2.5 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, mucronate.

Florets. Fertile lemma ovate, laterally compressed, 1.3–1.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 2.5–3 mm long overall. Palea keels ciliolate. Apical sterile florets 2 in number, barren, in a clump, oblong, 2 mm long. Apical sterile lemmas lower awned, 1 -awned. Apical sterile lemma awns 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, oblong, trigonous, dark brown, truncate. Embryo 0.66 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northwest.

TDWG4. Catamarca, Jujuy, La Rioja, Salta, Santiago del Estero, San Juan, Tucuman. Chaco, Cordoba, Formosa.

Chloris pectinata Benth. *Fl. Austral.* 7: 612 (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Giles s.n.*, Australia: Northern Territory: Charlotte Waters (K; ILT: MEL). LT designated by ?.

ST: *Armit 188*, 20 Mar 1875, Australia: Queensland: Cook Distr: Cashmere (MEL).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (345, Fig. 277), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (221, Pl. 65), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (184), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (156(5)), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (272, Fig. 41 & 277, Fig. 43), 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) (215).

Illustrations (Journals): *Austr. J. Bot.* (Suppl. 5: 12, Fig.4; 14, Fig.5 (972)).

Images: K.Domin, *Bibliotheca Botanica* 85 (1915) (367, Fig.82).

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. Annual. Basal innovations flabellate. Culms erect, 20–75 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 5–15 cm long, 2–5 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence composed of racemes. Racemes 4–13, digitate, ascending or spreading, unilateral, 5–11 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, regular. Spikelets pectinate, 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, 3–6.2 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, gaping. Lower glume lanceolate, 1.4–2.5 mm long, 0.5–0.6 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 lanceolate, 2.9–4.3 mm long, 0.7–0.9 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 linear or lanceolate, laterally compressed, 3–6.2 mm long, cartilaginous, grey or black, keeled, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma margins eciliate or pubescent. Lemma apex dentate, 2 -fid, with lobes 0.5–1 mm long, incised 0.15–0.2 of lemma length, acuminate, awned, 1 -awned. Principal lemma awn from a sinus, 6–37 mm long overall. Apical sterile florets 1 in number, barren, elliptic, 1.7–2.9 mm long. Apical sterile lemmas lobed, 2 -fid, acute, awned, 1 -awned. Apical sterile lemma awns 4–10 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.6 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 2.3 mm long.

Distribution (TDWG). Continent. Europe (*), Australasia, North America.

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Australia.** Western Australia, Northern Territory, South Australia, Queensland, New South Wales. **Southeastern USA.** South Carolina.

TDWG4. Kimberley, Ereman. Victoria R & Barkly Tableland, Central Australia. North, Central, Inland.

Chloris pilosa Schum. & Thonn. *Beskr. Guin. Pl.* 55. (1827).

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 Ghana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Thonning 371*, Africa: Guinea (C (photo, K, US)).

Illustrations (Books): K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (280, Fig. 44 & 285, Fig. 46), 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) (211), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:49(1980)).

Illustrations (Journals): *Austr. J. Bot.* (Supp. 5: 8, Fig.2; 10, Fig.3 (972)).

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. Annual. Culms geniculately ascending or decumbent, 50–100 cm long, without nodal roots or rooting from lower nodes. Ligule a ciliate membrane. Leaf-blades flat or conduplicate, 20–35 cm long, 3–5 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 3–12, digitate, unilateral, 2–10 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–2 mm long, 0.6–0.7 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–3 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

Florets. Fertile lemma ovate, laterally compressed, ovate in profile, 2.5–3 mm long, cartilaginous, pallid or black, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma apex muticous or awned, 1 -awned. Principal lemma awn subapical, 2.5–5 mm long overall. Apical sterile florets 2 in number, barren, in a clump, cuneate, 1.5–2 mm long. Apical sterile lemmas glabrous, muticous or awned (one of them), 1 -awned. Apical sterile lemma awns subapical, 2–3 mm long, 0–1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

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

Country /Province /State. **Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa.** Cape Verde. Benin, Burkina, Gambia, Ghana, Guinea, Ivory Coast, Liberia, Mali, Mauritania, Nigeria, Senegal, Sierre Leone, Togo. Annobon, Principe & Sao

Tome, DRC. Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Angola, Malawi. **Australia.** Northern Territory (*).

TDWG4. Darwin & Gulf.

Chloris pumilio R. Br. *Prod.* 186. (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), J.F.Veldkamp, *Poaceae* ms (*Flora Malesiana*).

TYPE from Australia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Brown 6245*, Australia: Northern Territory: North Coast (BM; IT: E, K). LT designated by Anderson, Brigham Young Univ. Sci. Bull., Biol. Ser. 19(2): 82 (1974)..

Illustrations (Books): C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (221, Pl. 65 as *C. ruderalis*), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (275, Fig. 42 & 280, Fig 44), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Austr. J. Bot. (Suppl. 5: 10, Fig.3;16, Fig.6 (972))*.

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. a dwarf. Plants small compared with those of related species.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Culms 60–90 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 7–12 cm long, 3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence composed of racemes. Racemes 4–12, digitate, erect or ascending, unilateral, 4–8 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular. 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, laterally compressed, 3.7–6 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, gaping. Lower glume lanceolate, 1.5–2.5 mm long, 0.5–0.6 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 lanceolate, 2.5–5 mm long, 0.66–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute, mucronate.

Florets. Fertile lemma lanceolate or elliptic, laterally compressed, 3.7–6 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma surface scabrous. Lemma margins ciliate, hairy all along. Lemma apex lobed, 2 -fid, incised 0.33 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, 7–16 mm long overall. Lateral lemma awns present, arising on apex of lobes, 3–7 mm long, shorter than principal. Apical sterile florets 1 in number, barren, oblong, 1.3–4 mm long. Apical sterile lemmas lobed, 2 -fid, awned, 3 -awned. Apical sterile lemma awns 1–15 mm long, 3 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.2–3.3 mm long.

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Malesia.** Lesser Sunda Is. **Australia.** Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley, Eremean. Darwin & Gulf. North, Central, Inland.

Chloris pycnothrix Trin. *Gram. Unifl.* 234 (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), S-L Chen et al, *Flora of China* 22 (*Poaceae*) (2006), J.F.Veldkamp, *Poaceae* ms (*Flora Malesiana*).

TYPE from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Brazil: Santa Catarina Island, *Chamisso s.n.* (HT: LE).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (Plt. 5 & 198, Fig. 173), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (83, Fig 42), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (83, Fig. 21), S.Phillips, *Poaceae* (*Gramineae*) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (170, Fig. 70), K.M.Matthew, Illustrations on the *Flora of Tamilnadu Carnatic* (1982) (Pl. 827 & 828), S.A.Renvoize, *The Grasses of Bahia*, 1984 (86, Fig. 31), L.B.

Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (395, Fig. 90), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 692), E.Hafliger & E.Schultz, Grass Weeds, CIBA-GEIGY (2:51(1980)).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): Gk. pyknos, thick; thrix, hair. Glumes with short thick hairs on their keels.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Basal innovations flabellate. Culms geniculately ascending or decumbent, 20–50 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades 2–10 cm long, 3–5 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes 2–7(–13), digitate, spreading or ascending, unilateral, 4–10 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–3 mm long, 0.6–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.3–2.5 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, laterally compressed, elliptic in profile (narrowly), 2.5–3.2 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma lateral veins close to margins. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 11–27 mm long overall. Apical sterile florets 1 in number, barren, separate, elliptic, 0.1–1 mm long. Apical sterile lemmas mucicous or awned, 1 -awned. Apical sterile lemma awns subapical, 0–8 mm long, 0–1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

$N = 20$ (1 ref TROPICOS). $2n = 30$ (1 ref TROPICOS).

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Northern Africa, Macaronesia, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean.** Egypt. Cape Verde. Ghana, Guinea, Ivory Coast, Nigeria, Sierra Leone. Cameroon, Gabon, 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, Western Cape, Eastern Cape. Mauritius (*), Madagascar (*), Reunion, Rodrigues (*), Seychelles (*). **Western Asia, Arabian Peninsula, China.** Saudi Arabia. China South Central. **Indian Subcontinent, Indo-China, Malesia.** India, Sri Lanka. Myanmar. Malaya, Sumatra. **Mexico.** Central Mexico, Northeast Mexico, Southwest Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Colombia, Ecuador, Galapagos. Brazil Northeast, Brazil Southeast.

TDWG4. Yunnan. Salta, Tucuman. Chaco, Cordoba, Corrientes, Formosa, Misiones, Santa Fe. Morelos. Guanajuato. Guerrero, Michoacan.

Chloris quinquesetica Bhide. *Journ. & Proc. As. Soc. Beng.* n. s. 8: 311 (1912).

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>: *vide* TROPICOS and Kew Synonymy Database: India: Papadi Bassein, growing on the bounds of rice fields in semisalt lands, 30 Aug 1911, *Bhide s.n.* (HT: K).

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

Derivation (Clifford & Bostock 2007): L. quinque, five; seta, bristle; -ica, belonging to. Spikelets with four sterile and one fertile lemma, all awned.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms geniculately ascending or decumbent, 25–50 cm long, rooting from lower nodes. Ligule a ciliolate membrane. Leaf-blades 7–15 cm long, 2–4 mm wide. Leaf-blade surface smooth or scaberulous, rough adaxially, glabrous or pilose, hairy abaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Peduncle hirsute above. Racemes 3–8, digitate, ascending, unilateral, 1.5–5 cm long. Rhachis villous on surface. Spikelet packing broadside to rhachis. 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, laterally compressed, 2–3.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets or shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–1.8 mm long, 0.6–0.7 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, 0.8–1 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 ovate, laterally compressed, elliptic in profile, 2–3.1 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate or ciliolate. Lemma lateral veins close to margins. Lemma surface glabrous or pubescent. Lemma margins ciliate. Lemma hairs 1 mm long. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 4–8 mm long overall. Apical sterile florets 3–4 in number, barren, in a clump, cuneate, 1.3–1.6 mm long. Apical sterile lemmas pilose, adorned on margins (above), awned, 1 -awned. Apical sterile lemma awns subapical, 3.5–6 mm long, 3–4 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, trigonous, 1.4–1.6 mm long. Hilum punctiform.

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

Country /Province /State. Arabian Peninsula. Oman. Indian Subcontinent. India, Pakistan. Maharashtra.

Chloris radiata (L.) Sw. *Prod. Veg. Ind. Occ.* 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), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

Basionym or Replaced Name: *Agrostis radiata* L., *Syst. Nat. (ed. 10)* 873 (1759). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: ST: *Anonymous s.n.*, no date, Jamaica (US-79824 (fragm. ex LINN)).

LT: *Anon.*, Jamaica (LINN-84.38). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 120 (1908).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (219), F.W.Gould, *The Grasses of Texas* (1975) (332, Fig. 176 as *C. crinita*), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (128, Fig. 80), S.A.Renvoize, *Gramineas de Bolivia* (1998) (351, Fig 75), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (126, Fig. 39), G.Harling & C.Persson, *Flora of Ecuador* (2006) (68: 95, Fig. 14 (2001)), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (139, Fig 20).

Illustrations (Journals): *Ruizia* (13:280, Fig 33e (1993)).

Derivation (Clifford & Bostock 2007): L. radius, spoke of a wheel; -ata, possessing. With racemes arranged in fascicles along a central axis.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual. Culms 30–60 cm long, without nodal roots or rooting from lower nodes. Ligule a ciliolate membrane. Leaf-blades 10–30 cm long, 5–10 mm wide. Leaf-blade surface pilose. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Racemes 5–15, digitate, simply spaced or in several whorls, unilateral, 5–8 cm long. Spikelet packing broadside to rhachis. 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, laterally compressed, 2.8–3.3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 0.7–1.6 mm long, 0.4–0.6 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 lanceolate, 2–2.7 mm long, 0.7–0.8 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 elliptic, laterally compressed, lanceolate in profile, 2.8–3.3 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate. Lemma lateral veins close to margins. Lemma

margins ciliolate, hairy above. Lemma apex acute, awned, 1-awned. Principal lemma awn subapical, 6–13 mm long overall. Apical sterile florets 1 in number, barren, lanceolate, 0.4–0.7 mm long. Apical sterile lemmas acute, awned, 1-awned. Apical sterile lemma awns subapical, 3–5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, trigonous, 1.4–1.5 mm long. Hilum punctiform.

$2n = 40$ (1 ref TROPICOS).

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Eastern Asia.** Kazan-retto, Nansei-Shoto, Ogosawara-shoto. **Southwestern Pacific, Northwestern Pacific, North-central Pacific.** Tonga (*). Marquesas. Caroline Is, Marianas, Marshall Is. Hawaii (*). **Southeastern USA, Mexico.** Florida. Northeast Mexico, Gulf (Mexico), Southwest 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, Venezuelan and Netherlands Antilles. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Galapagos, Peru. Brazil South. Chile North, Paraguay.

TDWG4. Sao Paulo Parana. Tarapaca, Antofagasta, Atacama, Coquimbo. Tarapaca. Puebla. Guanajuato. Veracruz. Guerrero, Jalisco, Michoacan, Oaxaca.

Chloris robusta Stapf. *Bull. Soc. Bot. France* 58 Mem. 8: 221 (1912).

Accepted by: 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: ST: *Chevalier 6991*, 20–25 Dec 1902, Haut-Chari, Ndelle (K).

ST: *Barter 878*, Nigeria du Nord, Borgu (K).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (210, Fig. 134), R.M.Pollhill, F.T.E.A., *Gramineae* (2(1974):338, Fig. 96).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending or decumbent, 100–300 cm long, woody, without nodal roots or rooting from lower nodes. Lateral branches ample. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate or involute, 15–40 cm long, 3–8 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 10–28, digitate, spreading or ascending, unilateral, (8–)10–15(–20) cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 4–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2–3 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4–5.5 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.

Florets. Fertile lemma elliptic, laterally compressed, lanceolate in profile, 3–4 mm long, cartilaginous, pallid, keeled, 3-veined, 0–3-veined. Lemma midvein scaberulous. Lemma lateral veins close to margins. Lemma margins ciliate, hairy in the middle. Lemma hairs 4 mm long. Lemma apex acute, awned, 1-awned. Principal lemma awn subapical, 1–3.5 mm long overall. Apical sterile florets 2 in number, dissimilar. First apical floret male (rarely bisexual), lanceolate, 2.5–4 mm long, pilose (on margins), awned (0.5–1.5 mm long). Apical sterile florets barren, separate, lanceolate, 1–2 mm long. Apical sterile lemmas glabrous or pilose, adorned on margins, mucicous or mucronate. Apical sterile lemma awns 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. **West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa.** Benin, Ivory Coast, Nigeria, Sierre Leone. DRC. Sudan. Uganda.

Chloris roxburghiana Schult. *Mant.* 2: 239 (1824).

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.

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (196 Fig. 171 as *C. myriostachya*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (170, Fig. 70), K.M.Matthew, *Flora Palni Hills* (1996) (796, Pl 796).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of John Roxburgh (fl. 1770's-1820's) sometime Overseer, Botanic Garden, Calcutta.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms geniculately ascending or decumbent, 100–150 cm long. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 10–40 cm long, 2–10 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes numerous, borne along a central axis, closely spaced, in a multilateral false spike, appressed, unilateral, 3–8 cm long. Central inflorescence axis 6–18 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 1.5–2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1–1.5 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2–2.8 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, laterally compressed, elliptic in profile (narrowly), 1.5–2 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 8–17 mm long overall. Apical sterile florets 2–3 in number, barren, separate, elliptic. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns subapical, 2–3 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

N = 10 (1 ref TROPICOS).

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

Country /Province /State. West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean. DRC. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Mozambique, Zimbabwe. Botswana, Limpopo, Mpumalanga, Kwazulu-Natal. Madagascar. **Arabian Peninsula.** Yemen. **Indian Subcontinent.** India.

Kerala. Tamilnadu.

Chloris ruahensis Renvoize. *Kew Bull.*, 28(2): 195 (1973).

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

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Tanzania: Ruaha National Park, 1.5 km SW of Msembe at track to Ibuguziwa, low Sporobolus iocladius grassland with Dactyloctenium giganteum, Brachiaria pubifolia and scattered Acacia kirkii, at 810 m, 30 Jan 1972, *Bjonstad 1310* (HT: K).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Ruaha National Park, Tanzania.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual. Culms erect, 20–40 cm long. Ligule a ciliolate membrane. Leaf-blades 4–9 cm long, 2–2.5 mm wide. Leaf-blade surface pilose. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 4–5, digitate, unilateral, 4–5 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 3 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded, acute.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2.5–3 mm long, 0.7–1 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 length of adjacent fertile lemma, membranous, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, ovate in profile, 2.5 mm long, cartilaginous, pallid, keeled, 3-veined, 0–3-veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma apex awned, 1-awned. Principal lemma awn subapical, 9.5–10 mm long overall. Apical sterile florets 2 in number, barren, in a clump, cuneate. Apical sterile lemmas glabrous, awned, 1-awned. Apical sterile lemma awns subapical, 10 mm long, 2 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa. Tanzania.

Chloris rufescens Steud., non Lag.(1805). *Syn. Pl. Gram.* 206. (1854).

Accepted by: 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: Ins. Maurit., *Urville s.n.*.

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (126, Fig. 39 as *C. aristata*).

Derivation (Clifford & Bostock 2007): *L. refresco*, grow reddish. Spikelets or inflorescence reddish-brown.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms erect, 40–80 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane, 0.5–1 mm long. Leaf-blades 7–15 cm long, 2–5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or pilose, hairy adaxially.

Inflorescence. Inflorescence composed of racemes. Racemes 4–8, digitate, unilateral, 4–8.5 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, crowded, regular. 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, 3.4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.8–2.3 mm long, 0.5–0.6 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 lanceolate, 3–4.1 mm long, 0.9–1 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 lanceolate or elliptic, laterally compressed, 3.4–4.5 mm long, cartilaginous, keeled, 3-veined, 0–3-veined. Lemma surface glabrous or pubescent, with simple hairs. Lemma margins ciliate, hairy above. Lemma hairs 0.5–1 mm long. Lemma apex acute, awned, 1-awned. Principal lemma awn subapical, 6–12 mm long overall. Apical sterile florets 1 in number, barren, cuneate, 1.2–2.4 mm long. Apical sterile lemmas truncate, awned, 1-awned. Apical sterile lemma awns 5–7 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.5–1.9 mm long.

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, Honduras.

TDWG4. Distrito Federal, Mexico State, Morelos, Puebla. Aguascalientes, Guanajuato, Hidalgo, Neuvo Leon, Queretaro, San Luis Potosi, Zacatecas. Veracruz. Colima, Guerrero, Jalisco, Michoacan, Oaxaca. Chiapas.

Chloris sagraeana A. Rich. *Fl. Cub. Fanerog.* 2: 315 (1850).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *R. de la Sagra A. RICHARD* 2, no date, Cuba: La Habana (P (fragm., US-80837)).

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

Derivation (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of Ramsn de la Sagra (1798–1871) Spanish naturalist, sometime resident of Cuba.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, robust, 15–80 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 7–15 cm long, 1.3–3 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 3–6, digitate, spreading or deflexed, unilateral, 3.5–15 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, regular. 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, laterally compressed, 2.6–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.6–2.2 mm long, 0.6–0.7 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, 2.4–3.5 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 elliptic, laterally compressed, 2.6–3.5 mm long, 0.5–0.7 mm wide, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy all along. Lemma hairs 0.2–0.5 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 7–13 mm long overall. Apical sterile florets 1 in number, barren, oblong, 0.7–1.6 mm long. Apical sterile lemmas acute, awned, 1 -awned. Apical sterile lemma awns 3.3–9 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 1.6–1.7 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands.

Chloris sesquiflora Burkart. *Bol. Soc. Argent. Bot.* 12: 287 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A.E. Burkart et al. 25676, 19 Apr 1965, Argentina: Entre Rmos: Dept. Concepcin del Uruguay: bajos cerca del rmo Gualeguaychz, vendedades del Parque Unzui (SI; IT: HSC, US-2959126).

Illustrations (Books): A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (257, Fig. 98 & 254, Fig. 97).

Derivation (Clifford & Bostock 2007): L. sesqui, one and a half; flos, flower. Spikelets with one fertile floret and a second sterile or male floret.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms geniculately ascending, 30–45 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 10–20 cm long, 4–5 mm wide. Leaf-blade surface smooth to scabrous, rough on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes 4–5, digitate, arcuate, unilateral, 6–6.5 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, 11 spikelets per cm. 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 ovate, laterally compressed, 2.1–2.9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2.1–2.2 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. Upper glume lanceolate, 2.7–2.9 mm long, 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 acute or acuminate.

Florets. Fertile lemma elliptic or ovate, laterally compressed, 2.1–2.9 mm long, 0.9–1.1 mm wide, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate or pubescent. Lemma margins ciliate or pubescent. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 0.7–1 mm long overall. Apical sterile florets 1 in number, barren, elliptic, 1 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 0.3–0.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, trigonous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northeast.

TDWG4. Corrientes, Entre Rios.

Chloris submutica H. B. & K. *Nov. Gen. et Sp.* 1, 167. t. 50. (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F.W.H.A. von Humboldt & A.J.A. Bonpland 4182*, Feb, Mexico: Tezcucensi (P (photo, BAB); IT: US-283903 (fragm.)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (219), R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983).

Derivation (Clifford & Bostock 2007): L. sub, almost; mutica, blunt. Apices of glumes or lemmas rounded.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons absent or present. Culms erect, 30–75 cm long. Ligule a ciliolate membrane. Leaf-blades 10–20 cm long, 4–5 mm wide. Leaf-blade surface scabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 5–17, digitate, unilateral, 3–7 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 2.8–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–3.2 mm long, 0.6–0.9 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, 2.5–3.4 mm long, 0.9 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, laterally compressed, elliptic in profile, 2.8–3.7 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate. Lemma lateral veins close to margins. Lemma margins ciliolate. Lemma apex obtuse, muticous or mucronate. Apical sterile florets 1 in number, barren, cuneate, 1.4–2.2 mm long. Apical sterile lemmas truncate, muticous. Apical sterile lemma awns 0 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.5–0.9 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, trigonous, 1.7–2.3 mm long. Hilum punctiform.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. South-central USA, Mexico. New Mexico, Texas. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico. **Mesoamerica, Northern South America, Western South America.** El Salvador, Guatemala. Venezuela. Colombia.

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

Chloris suringarii Hitchcock. *Urb. Symb. Antill.* 7: 167 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *W.F.R. Suringar s.n.*, 14 Jan 1885, Netherlands Antilles (Krug and Urban Herb.; IT: L, US-690358 (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 Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons present. Basal innovations flabellate. Culms 5–15 cm long. Leaf-sheaths 0.5–1 cm long, striately veined, pilose. Ligule a ciliate membrane. Leaf-blades 1–2 cm long, 0.2–0.5 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade apex obtuse to acute.

Inflorescence. Inflorescence composed of racemes. Racemes 1, paired, unilateral, 1–2.5 cm long. Rachis subterete. Spikelet packing broadside to rachis, regular. 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, 1.7–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1–1.5 mm long, 0.4–0.5 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined. 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, with hyaline margins, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, laterally compressed, 1.7–2.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliolate. Lemma margins ciliate. Lemma hairs 0.7 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, straight or curved, 2–3 mm long overall. Apical sterile florets 3 in number, barren, in a clump, lanceolate, 1 mm long. Apical sterile lemmas acute, awned, 1 -awned. Apical sterile lemma awns dorsal, 1.5–2 mm long, 3 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ovoid, dorsally compressed, trigonous, 1.2 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Venezuelan and Netherlands Antilles.

Chloris texensis Nash. *Bull. Torr. Bot. Club*, 1896, 151. (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *G.C. Nealley s.n.*, 188-, USA: Texas (US-80852).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (219).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms 30–45 cm long. Leaf-sheaths glabrous on surface or pilose. Ligule an eciliate membrane. Leaf-blades 5–15 cm long, 4 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence composed of racemes, deciduous as a whole. Peduncle disarticulating, disarticulating above uppermost sheath. Racemes 8–10, digitate, radiating, unilateral, 10–20 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, lax, regular. Raceme-bases filiform, 20–50 mm long. 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, laterally compressed, 3.7–4.3 mm long, falling entire, deciduous with accessory branch structures. Floret callus bearded, obtuse.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume lanceolate, 2.7–3 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 lanceolate, 3.5–3.8 mm long, 0.8–0.9 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 lanceolate or ovate, laterally compressed, 3.7–4.3 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 7–11 mm long overall. Apical sterile florets 1 in number, barren, elliptic, 2–2.5 mm long. Apical sterile lemmas acute, awned, 1 -awned. Apical sterile lemma awns 4.5–6.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, trigonous, 2.3 mm long.

Distribution (TDWG). Continent. North America.

Country /Province /State. South-central USA. Texas.

Chloris truncata R. Br. *Prod.* 186. (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), 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*), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6243*, Australia: New South Wales: Port Jackson (BM; IT: E, K).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (346, Fig. 278 & Pl. 13), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (221, Pl. 65), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (577, Fig. 116), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (184), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (156(7)), 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) (275, Fig. 42), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (215).

Illustrations (Journals): *Austr. J. Bot. (Suppl.5: 14, Fig.5; 16, Fig.6 (1972))*.

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Derivation (Clifford & Bostock 2007): *L. truncus*, shorten by cutting off. Truncate with respect to apices of lemmas or glumes.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms 30–50 cm long. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades 9–17 cm long, 2–3 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence composed of racemes. Racemes 5–13, digitate, radiating, unilateral, 5–23 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, regular. 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, 1.8–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.4–2.3 mm long, 0.5–0.6 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.8–4.2 mm long, 1–1.5 length of adjacent fertile lemma, hyaline, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma elliptic, laterally compressed, 1.8–4.5 mm long, 0.2–0.7 mm wide, cartilaginous, dark brown or black, keeled, 3 -veined, 0–3 -veined. Lemma margins pubescent. Lemma apex truncate, awned, 1 -awned. Principal lemma awn subapical, 3–16 mm long overall. Apical sterile florets 1 in number, barren, oblong or cuneate, 1.3–3.5 mm long. Apical sterile lemmas truncate, awned, 1 -awned. Apical sterile lemma awns 3.1–12.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.6 mm long. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid or obovoid, dorsally compressed, trigonous, 1.7–2.2 mm long.

Distribution (TDWG). Continent. Europe (*), Africa, Tropical Asia, Australasia, Pacific, North America.

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Macaronesia, Southern Africa** (*). Canary Is. Northern Cape, Western Cape. **Malesia.** Lesser Sunda Is. **Australia, New Zealand.** Western Australia, Northern Territory, South Australia, Queensland, New South Wales, A.C.T., Victoria, Lord Howe-Norfolk Is. New Zealand North I, New Zealand South I. **Southwestern Pacific, North-central Pacific.** Fiji (*), Niue (*), Tonga (*). Hawaii (*). **Southwestern USA, Southeastern USA, Mexico.** California. South Carolina. Northwest Mexico.

TDWG4. Kimberley, Ereman. Central Australia. NW & Lake Eyre, Southern. Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains. Santa Fe. Sonora.

Chloris ventricosa R. Br. *Prod.* 186. (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from Australia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Brown 6242*, Australia: New South Wales: Richmond (BM; IT: K, E).

Illustrations (Books): N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (577, Fig. 116), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (184), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (156(8)), 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) (272, Fig. 41 & 275, Fig 42), 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) (213).

Illustrations (Journals): *Austr. J. Bot. (Suppl.5: 14, Fig.5; 16, Fig.6 (1972))*.

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. venter, belly; -osa, abundance. Spikelets inflated.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms erect, 50–100 cm long. Leaf-sheaths smooth or scaberulous, glabrous on surface or pilose. Ligule a ciliate membrane. Leaf-blades 5–20 cm long, 2–3 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or pilose.

Inflorescence. Inflorescence composed of racemes. Racemes 2–9, digitate, unilateral, 5–11 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, regular. 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, laterally compressed, 2–5.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet or reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate or ovate, 1.2–2.3 mm long, 0.5–0.6 length of upper glume, scarious, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute or acuminate. Upper glume lanceolate or ovate, 2.5–4.1 mm long, 0.75–1.2 length of adjacent fertile lemma, scarious, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute or acuminate.

Florets. Fertile lemma elliptic or obovate, laterally compressed, 2–5.4 mm long, 0.6–1.2 mm wide, cartilaginous, light brown, keeled, 3 -veined, 0–3 -veined. Lemma midvein scabrous. Lemma surface smooth or scabrous. Lemma margins eciliate. Lemma apex obtuse or acute, awned, 1 -awned. Principal lemma awn subapical, 1–11 mm long overall. Apical sterile florets 1 in number, barren, oblong or cuneate, 1–2.6 mm long. Apical sterile lemmas truncate or obtuse, awned, 1 -awned. Apical sterile lemma awns 0.5–7.5 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 0.7–1.4 mm long. Stigmas 2. Caryopsis with adherent pericarp, obovoid, dorsally compressed, trigonous, 1.5–2.1 mm long.

Distribution (TDWG). Continent. Europe (*), Australasia, North America.

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Australia.** South Australia, Queensland, New South Wales, Victoria. **Southeastern USA.** South Carolina.

TDWG4. NW & Lake Eyre, Southern. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

Chloris verticillata T. Nuttall. *Trans. Amer. Philos. Soc.*, n.s., 5: 150 (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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Nuttall s.n.*, no date, USA: Arkansas: near Fort Smith (PH(fragm., US-2830886); IT: K).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (217), F.W.Gould, *The Grasses of Texas* (1975) (323, Fig. 170).

Derivation (Clifford & Bostock 2007): L. whorl; -ata, possessing. Primary inflorescence branches whorled.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms erect or geniculately ascending, 14–40 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane, 2 mm long. Leaf-blades 7–15 cm long, 2–3 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence composed of racemes, deciduous as a whole. Peduncle disarticulating, disarticulating above uppermost sheath. Racemes 10–16, digitate, in several whorls, unilateral, 5–15 cm long. Central inflorescence axis 1–4 cm long. Rhachis subterete, scabrous on surface. Spikelet packing broadside to rhachis, lax, regular. Raceme-bases filiform, 10–20 mm long. 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, 2–3.5 mm long, falling entire, deciduous with accessory branch structures. Floret callus bearded, obtuse.

Glumes. Glumes similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2–3 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 lanceolate, 2.8–3.5 mm long, 1–1.4 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 lanceolate or elliptic, laterally compressed, 2–3.5 mm long, cartilaginous, keeled, 3-veined, 0–3-veined. Lemma midvein eciliate or ciliate. Lemma margins pubescent. Lemma apex obtuse or acute, awned, 1-awned. Principal lemma awn subapical, 4.8–9 mm long overall. Apical sterile florets 1 in number, barren, oblong, 1.1–2.3 mm long. Apical sterile lemmas truncate, awned, 1-awned. Apical sterile lemma awns 3.2–7 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, dorsally compressed, trigonous, 1.1–2.3 mm long.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico. Illinois, Kansas, Missouri, Nebraska, Oklahoma. Michigan, Ohio. Arizona, California, Nevada, Utah. New Mexico, Texas. Arkansas, Kentucky, South Carolina, Tennessee, Virginia. Northeast Mexico.

Coahuila, Neuvo Leon.

Chloris virgata Sw. *Fl. Ind. Occ.* 1: 203 (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, 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 Antigua. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Antigua:, Swartz *s.n.* (HT: S; IT: BM).

Illustrations (Books): N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (969 (641), Pl.14), R.M.Pohill, F.T.E.A., *Gramineae* (2(1974):344, Fig.97), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (197, Fig. 172), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (83, Fig. 21), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 388), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (170, Fig. 70), L.Boulos, *Flora of Egypt* 4 (2005) (278, Pl. 82), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (204, Fig 111), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (451, Pl. 172), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (372), C-C Hsu, *Taiwan Grasses* (1975), T.A.Cope, *Flora of Pakistan* 143: *Poaceae* (1982) (122, Fig. 14), H.J.Noltie, *The Grasses of Bhutan* (2000) (677, Fig. 36), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (347, Fig. 279), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (577, Fig. 116), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (184), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (156(9)), 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) (272, Fig. 41 & 277, Fig. 43), 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) (1510, Pl. 222), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (213), F.W.Gould, *The Grasses of Texas* (1975) (322, Fig. 169), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (136, Fig. 84), S.A.Renvoize, *Gramineas de Bolivia* (1998) (349, Fig. 74), S.A.Renvoize, *The Grasses of Bahia*, 1984 (86, Fig. 31), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, *Gramineas* (1969) (250, Fig. 95), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (408, Fig. 105), G.Harling & C.Persson, *Flora of Ecuador* (2006) (68: 95, Fig. 14 (2001)), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14d (1956) (109, Fig. 29a as *Amphipogon caricinus*), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 692), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:52(1980)).

Illustrations (Journals): *Austr. J. Bot.* (Suppl. 5: 12, Fig.4; 14, Fig.5 (1972)), *Ruizia* (13:280, Fig 33h-i (1993)).

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), K.Domin, *Bibliotheca Botanica* 85 (1915) (369, Fig.83 as *C. gabriellae*).

Derivation (Clifford & Bostock 2007): *L. virga*, broom; -ata, possessing. Inflorescence arms or culms held erect.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Basal innovations subterete or flabellate. Culms geniculately ascending or decumbent, 50–100 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades 10–30 cm long, 2–6 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 4–12, digitate, spreading, unilateral, 2–10 cm long. Spikelet packing broadside to rachis. 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, laterally compressed, 2.5–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–2.5 mm long, 0.5–0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–4.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

Florets. Fertile lemma obovate, laterally compressed, elliptic in profile, 2.5–4 mm long, cartilaginous, pallid or dark brown, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma lateral veins close to margins. Lemma surface with conspicuous apical hairs. Lemma margins pubescent. Lemma hairs 1.5–4 mm long. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 5–15 mm long overall. Apical sterile florets 2 in number, barren, in a clump, oblong, 2–2.5 mm long. Apical sterile lemmas glabrous, awned (one of them), 1 -awned. Apical sterile lemma awns subapical, 5–12 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

$N = 10$ (4 refs TROPICOS). $2n = 20$ (2 refs TROPICOS), or 36 (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

Region. Northern Europe (*).

Country /Province /State. : Great Britain (*). **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.** Egypt, Libya. Cape Verde, Madeira. Mali, Nigeria, Niger. Rwanda. 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, St Helena. Madagascar, Seychelles. Russian far east, **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia.** Kazakhstan, Tadjikistan, Uzbekistan. Afghanistan, Iraq. Gulf States, Oman. China South Central, Inner Mongolia, Manchuria, China North-Central, Qinghai, China Southeast, Tibet, Xinjiang. Nansei-Shoto, Taiwan. Japan Kyushu. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Assam, Bangladesh, Eastern Himalaya, Nepal, Pakistan. Myanmar, Vietnam. Java. New Guinea PNG. New Guinea. **Australia.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*), New South Wales (*), Victoria (*). **Northwestern Pacific, North-central Pacific.** Gilbert Is (*), Nauru (*), New Caledonia (*). Marquesas (*), Society Is (*). Marianas. Hawaii (*). **North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Kansas, Missouri, North Dakota, Nebraska, Oklahoma. Maine, New Hampshire. Arizona, California, Nevada, Utah. New Mexico, Texas. Arkansas, Delaware, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, District of Columbia. Central Mexico, Northeast Mexico, Gulf (Mexico), Pacific Is (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico, Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** El Salvador, Guatemala, Honduras, Nicaragua, Panama. Cuba, Dominican Republic, Haiti, Leeward Is, Windward Islands. Venezuela. Bolivia, Colombia, Ecuador, Galapagos. Brazil Northeast. Argentina Northwest, Argentina Northeast, Argentina South, Chile North, Chile Central.

TDWG4. Gansu, Hebei, Shaanxi, Shandong, Shanxi. Henan, Jiangsu. Sichuan, Yunnan. Bhutan. Kimberley, Ereman, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains. Catamarca, Jujuy, La Rioja, Mendoza, Salta, Santiago del Estero, San Juan, San Luis, Tucuman. Buenos Aires,

Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, La Pampa, Santa Fe. Río Negro. Tarapaca. Distrito Federal, Morelos, Puebla. Aguascalientes, Coahuila, Chihuahua, Durango, Guanajuato, Hidalgo, Neuvo 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.

Chloris wightiana Nees ex Steud. *Syn. Pl. Gram.* 206 (1854).

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:** *Chloris incompleta* Wight ex Steud., in syn, *Syn. Pl. Gram.* :206 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Wight 1766*, Peninsula Indiae Orientalis (K (photo, CAL)). ST: *herb. Wight 1337*, India (K (photo, CAL)).

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

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 Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons absent or present. Culms 10–30 cm long. Leaf-sheaths pilose, with tubercle-based hairs. Ligule a ciliate membrane. Leaf-blades 2–4 cm long, 4–6 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs.

Inflorescence. Inflorescence composed of racemes. Peduncle glabrous. Racemes 3–4, digitate, erect, unilateral, 1–2.5 cm long. Rhachis subterete, pilose on surface (tuberculately). Spikelet packing broadside to rhachis, regular. Spikelets spreading, 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, 2.7–3.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose, obtuse.

Glumes. Glumes persistent, similar, shorter than spikelet or reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2–2.5 mm long, 0.8–1 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, 2–3 mm long, 0.75–1 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, laterally compressed, 2.7–3.1 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma surface tuberculate. Lemma margins ciliate. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn subapical, 7.5–10 mm long overall. Apical sterile florets 3–4 in number, barren, in a clump, cuneate, 1.4–1.5 mm long. Apical sterile lemmas pilose, adorned on keel (tuberculate on surface), truncate, awned, 1 -awned. Apical sterile lemma awns 6–7 mm long, 3–4 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid or ovoid, dorsally compressed, trigonous, 1–3 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Malesia. India. Java, Lesser Sunda Is, Moluccas, Philippines.
Tamilnadu.

Chloris woodii Renvoize. *Kew Bull.*, 27(2) 331 (1972).

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: 3 km E of Lali Hills, open Boscia, Commiphora, Acacia bush on basement complex sand at 300 m, 15 Nov 1967, *Wood 1363* (HT: K; IT: EAH).

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

Derivation (Clifford & Bostock 2007): in honor of David George Wood (1939-) English botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons absent or present. Basal innovations flabellate. Culms erect or geniculately ascending, 30–60 cm long. Leaf-sheaths keeled. Ligule a ciliate membrane. Leaf-blades 5–15 cm long, 2–3 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 5–7, digitate, unilateral, 9–10 cm long. Spikelet packing broadside to rhachis. 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, laterally compressed, 2.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus bearded, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 2 mm long, 0.5–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–4 mm long, 1–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex setaceously acuminate.

Florets. Fertile lemma ovate, laterally compressed, ovate in profile, 2.5 mm long, cartilaginous, pallid, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma surface pilose. Lemma margins ciliate. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 12 mm long overall. Apical sterile florets 3–5 in number, barren, in a clump, ovate, 1.75 mm long. Apical sterile lemmas pilose, adorned all over, awned, 1 -awned. Apical sterile lemma awns subapical, 8–11 mm long, 3–5 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, trigonous. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa. Kenya.

***Chloris x subdolichostachya* C. Muell. *Bot. Zeit.* 19: 341 (1861).**

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Drummond* 372, no date, USA: Texas (?; IT: US-879091 (fragm.)).

Illustrations (Books): K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (Pl. 825 & 826), H.J.Noltie, *The Grasses of Bhutan* (2000) (677, Fig. 36 as *C. dolichostachya*).

Derivation (Clifford & Bostock 2007): L. sub, approaching. Similar to *Chloris dolichostachya*.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Stolons present. Basal innovations flabellate. Culms erect or geniculately ascending, 30–70 cm long. Leaves mostly basal. Leaf-sheaths keeled, glabrous on surface. Ligule a ciliate membrane, 2 mm long. Leaf-blades 10–20 cm long, 1.5–3 mm wide.

Inflorescence. Inflorescence composed of racemes, deciduous as a whole. Peduncle disarticulating, disarticulating above uppermost sheath. Racemes 5–16, digitate, unilateral, 3–17.6 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, contiguous, regular. 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, laterally compressed, 2–3 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.5–2.5 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, 2–3 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate or elliptic, laterally compressed, 2.2–2.9 mm long, cartilaginous, light brown or black, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex obtuse or acute, awned, 1 -awned. Principal lemma awn subapical, 2–5 mm long overall. Apical sterile florets 1 in number, barren, oblong, 1.7–2.2 mm long. Apical sterile lemmas truncate or obtuse, awned, 1 -awned. Apical sterile lemma awns 1–2 mm long, 1 per spikelet in number.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, dorsally compressed, trigonous.

Distribution (TDWG). Continent. North America.

Country /Province /State. North-central USA, Southwestern USA, South-central USA. Kansas. Arizona. Texas.

***Chlorocalymma cryptacanthum* Clayton. *Kew Bull.* 24: 461 (1970).**

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

Illustrations (Books): R.M.Pollhill, F.T.E.A., *Gramineae* (3(1982):667, Fig. 153).

Derivation (Clifford & Bostock 2007): *L. kryptos*, hidden; *akanthos*, prickly plant. The spikelets are subtended by one or more bristles, the whole being enveloped in a foliaceous bract.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe ANTHEPHORINAE.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, 30–60 cm long. Ligule an eciliate membrane. Leaf-blades 4–10 cm long, 3–8 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 2–3, borne along a central axis, distant, spreading, ovate, unilateral, 1–1.5 cm long, secondarily branched, secondary branches involucre. Central inflorescence axis 1–3 cm long. Rhachis deciduous from axis, broadly winged, foliaceous, folded longitudinally to embrace spikelets, 10–20 mm wide. Spikelets subtended by an involucre. Fertile spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, 5–10 mm long. Involucral bristles deciduous with the fertile spikelets (and raceme), branched, flattened, rigid, spinose.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 5.5–7 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.3 length of spikelet, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 0.7–1.2 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of spikelet, herbaceous, 2-keeled, winged on keel (above), 7–9 -veined, acute. Fertile lemma lanceolate, 5.5–7 mm long, cartilaginous, without keel. Lemma margins flat. Lemma apex acute. Palea cartilaginous.

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa. Tanzania.

Chrysochloa hindsii C. E. Hubbard. *Kew Bull.* 1949, 349 (1949).

Accepted by: 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: *J. Hinds 5000*, 7 Oct 1947, Ghana (K; IT: US-1935638).

Illustrations (Books): G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999):239, t. 72).

Derivation (Clifford & Bostock 2007): in honor of J. Hinds (fl. 1947) who collected in Ghana.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, culms solitary or caespitose. Stolons present. Basal innovations flagellate. Culms geniculately ascending or decumbent, 10–70 cm long. Leaf-sheaths keeled. Ligule a ciliate membrane. Leaf-blades flat or conduplicate, 1–17 cm long, 2–5 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes (1–)2–4(–5), digitate, unilateral, 1–12 cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 1–2 -rowed. Spikelets ascending, 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 ovate, laterally compressed, compressed strongly, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes lower persistent, upper deciduous, similar, exceeding apex of florets or reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–4 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, mucronate or awned, 1 -awned, awn 0.5–1 mm long.

Florets. Fertile lemma ovate, laterally compressed, 2.5–4 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 1–2.5 mm long overall. Palea 2 -veined. Apical sterile florets 1 in number, barren, lanceolate, 1.5–2.5 mm long.

Flower and Fruit. Anthers 3, 0.6–1.2 mm long. Caryopsis with adherent pericarp, ellipsoid, trigonous.

$2n = 14$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, West-central tropical Africa, East tropical Africa, South tropical Africa. Ghana, Ivory Coast, Mali, Nigeria, Senegal, Togo. Tanzania. Malawi, Zambia.

Chrysochloa hubbardiana Germain & Risopoulos. *Bull. Jard. Bot. Brux.* 22: 71 (1952).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (208, Fig. 132).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Charles Edward Hubbard (1900–1980) English agrostologist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Basal innovations flabellate. Culms 40–60 cm long. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 5–16 cm long, 6–8 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes 4–6, digitate, unilateral, 4–11 cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 1–2 -rowed. Spikelets ascending, 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 ovate, laterally compressed, compressed strongly, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes lower persistent, upper deciduous, similar, exceeding apex of florets or reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–4 mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, mucronate or awned, 1 -awned, awn 0.1–0.5 mm long.

Florets. Fertile lemma ovate, laterally compressed, 2.5–3 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 1–3 mm long overall. Palea 2 -veined. Apical sterile florets 1 in number, barren, lanceolate, 2 mm long.

Flower and Fruit. Anthers 3, 1.3–1.5 mm long. Caryopsis with adherent pericarp, ellipsoid, trigonous.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa, East tropical Africa. Rwanda, DRC. Tanzania.

Chrysochloa orientalis (C.E. Hubb.) Swallen. *Proc. Biol. Soc. Wash.* 54: 44 (1941).

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

Basionym or Replaced Name: *Bracteola orientalis* C.E. Hubb., *Bull. Misc. Inform. Kew* 1934: 117 (1934). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *R.R. Staples* 407, 1932, Tanzania (US-3168563 (fragm.)).

Illustrations (Books): R.M.Polhill, F.T.E.A., *Gramineae* (2(1974):328, Fig. 92).

Derivation (Clifford & Bostock 2007): L. oriens, the east; -alis, pertaining to. From the eastern Mediterranean through to Turkey.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons present. Basal innovations flabellate. Culms geniculately ascending, 15–75 cm long. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades flat or conduplicate, 2–19 cm long, 3–5(–7) mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes 2–3, digitate, unilateral, 5–18 cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 1–2 -rowed. Spikelets ascending, 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 oblong, laterally compressed, compressed strongly, 3.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes lower persistent, upper deciduous, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 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 acute. Upper glume ovate, 3.5–4.5 mm long, 0.9–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 3.3–4 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma margins ciliate. Lemma apex acute, mucronate (subapical, up to 1 mm long). Palea 2 -veined. Apical sterile florets 1 in number, barren, lanceolate, 2.5–3 mm long.

Flower and Fruit. Anthers 3, 1.2–1.5 mm long. Caryopsis with adherent pericarp, ellipsoid, trigonous.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa, East tropical Africa. DRC. Kenya, Tanzania, Uganda.

Chrysochloa subaequigluma (Rendle) Swallen. *Proc. Biol. Soc. Wash.* 54: 44 (1941).

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. sub-*, approaching; *aequalis*, equal; *gluma*, husk. Glumes similar.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual. Stolons present. Basal innovations flabellate. Culms geniculately ascending or decumbent, slender, 20–75 cm long, wiry, 3–4 -noded, without nodal roots or rooting from lower nodes. Culm-internodes elliptical in section, distally glabrous. Lateral branches lacking or sparse. Leaf-sheaths mostly shorter than adjacent culm internode, keeled, smooth, glabrous on surface. Leaf-sheath oral hairs scanty. Ligule a ciliolate membrane, 1 mm long. Leaf-blades conduplicate, 3–11 cm long, 3–8 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade margins scaberulous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence composed of racemes. Racemes 2–4, digitate, erect or ascending, unilateral, 8 cm long. Rhachis angular, scabrous on margins, terminating in a sterile spikelet. Spikelet packing broadside to rhachis, regular, 1–2 -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 ovate, laterally compressed, compressed strongly, 4.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes lower persistent, upper deciduous, similar, reaching apex of florets, thinner than fertile lemma, shiny. Lower glume ovate, gibbous (slightly), 4.5–5 mm long, 1 length of upper glume, membranous, yellow, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 4.5–5 mm long, 1 length of adjacent fertile lemma, membranous, yellow, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex emarginate, mucronate or awned, 1 -awned, awn subapical, awn 0.5–1 mm long.

Florets. Fertile lemma ovate, laterally compressed, 4.5–5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma lateral veins close to margins. Lemma surface striate. Lemma margins ciliate. Lemma hairs 1–2 mm long. Lemma apex emarginate, awned, 1 -awned. Principal lemma awn subapical, 1.5 mm long overall. Palea 2 -veined. Palea apex acuminate. Apical sterile florets 1 in number, male or barren, lanceolate, 2 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns subapical, 0.5 mm long.

Flower and Fruit. Anthers 3, 1.6–2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. South tropical Africa. Angola.

Chrysopogon aciculatus (Retz.) Trin. *Fund. Agrost.* 188. (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), 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).

Basionym or Replaced Name: *Andropogon aciculatus* Retz., *Observationes Botanicae* 5: 22 (1789). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Koenig s.n. in herb. Retzius*, India (LD). LT designated by Veldkamp, *Austrobaileya* 5(3): 509 (1999). OM: Habitat in Indiae Orientalis sterilibus et ruderalibus.

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (291, Fig. 228), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (435, Fig 170), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (654), C-C Hsu, *Taiwan Grasses* (1975) (631, Pl. 1459), K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 829 & 830), H.J.Noltie, *The Grasses of Bhutan* (2000) (787, Fig. 55), H.B.Gilliland, *Grasses of Malaya* (1971) (235, Fig. 52), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (41, Fig. 29), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (52, Pl. 15), 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) (1510, Pl. 222), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (635), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (as

Rhaphis), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 845), E.Hafliger & E.Schultz, Grass Weeds, CIBA-GEIGY (1:34(1980)).

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. acus*, needle; -ulus, diminutive; -atus, possessing. Spikelets with a needle-like callus.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, mat forming. Stolons present. Basal innovations flabellate. Culms erect, 20–60 cm long. Ligule an eciliate membrane. Leaf-blades 1–9 cm long, 2–5 mm wide. Leaf-blade surface glabrous. Leaf-blade apex obtuse or abruptly acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 4–9 cm long. Panicle branches stiff, glabrous. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.75 length of fertile spikelet, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 4–5 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, acute or setaceous acuminate, muticous. Companion sterile spikelet lemmas 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 elliptic, laterally compressed, 6–9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 3–5 mm long, pubescent, base pungent.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 3–4 mm long, 1 length of spikelet, cartilaginous, without keels. Upper glume lanceolate, 1-keeled. Upper glume apex setaceous acuminate, muticous.

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 entire, awned, 1 -awned. Principal lemma awn apical, straight, 4–6 mm long overall. Palea absent or minute.

Distribution (TDWG). **Continent.** Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, South America.

Country /Province /State. **West tropical Africa, West-central tropical Africa, Middle Atlantic ocean, Western Indian ocean.** Burkina, Ivory Coast, Nigeria, Sierre Leone. Cameroon, Gabon. St Helena. Mauritius (*), Madagascar (*), Seychelles (*). **Western Asia, China, Eastern Asia.** Afghanistan. China South Central, Hainan, China Southeast. Nansei-Shoto, Ogosawara-shoto, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Assam, Bangladesh, Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka. Andaman Is, Cambodia, Laos, Myanmar, Thailand, Vietnam. Borneo, Java, Lesser Sunda Is, Malaya, Singapore, Moluccas, Philippines, Sulawesi, Sumatra, Christmas I. New Guinea West Papua (Irian Jaya). New Guinea. **Australia.** Northern Territory, Queensland. **Southwestern Pacific, South-central Pacific, Northwestern Pacific, North-central Pacific.** Fiji, Nauru, Niue, New Caledonia, Samoa, Tonga, Vanuatu, Wallis-Futuna Is. Cook Is, Marquesas, Society Is. Caroline Is, Marianas, Marshall Is. Hawaii. **Mesoamerica.** Panama.

TDWG4. Fujian, Guangdong, Guangxi. Guizhou, Yunnan. Darjeeling, Bhutan, Sikkim. Assam, Manipur, Meghalaya, Tripura. Bihar, Goa, Kerala, Karnataka. Madhya Pradesh, Orissa, Tamilnadu, Uttah Pradesh. Darwin & Gulf. North, Central, South East.

Chrysopogon argutus (Steud.) Trin. ex Jacks. *Ind. Kew.* 1:124,530 (1893).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Andropogon argutus* Nees ex Steud., *Syn. Pl. Glumac.* 1: 391 (1854)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Anon.*, Herb. Nees (B-W (lost)). HT lost according to Veldkamp, *Austrobaileya* 5(3): 523 (1999).

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

Derivation (Clifford & Bostock 2007): *L. bright*. Anthoecium glossy.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Basal innovations intravaginal, flabellate. Culms erect, 30–100 cm long. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 10–30 cm long, 3–10 mm wide, stiff. Leaf-blade margins scabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle contracted, oblong, 8–25 cm long. Primary panicle branches whorled at most nodes, simple. Racemes 3–8 cm long, bearing few fertile spikelets, bearing 3–6 fertile spikelets on each. Rhachis fragile at the nodes. Rhachis internodes filiform.

Rhachis internode tip oblique. Raceme-bases filiform, pubescent, hairy at tip. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 6–8 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, linear, dorsally compressed, shorter than fertile, separately deciduous. Companion sterile spikelet glumes coriaceous, 2–5 mm long, 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 lanceolate, laterally compressed, compressed slightly, 6.5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.5–2 mm long, bearded, base obtuse, attached obliquely. Spikelet callus hairs white or yellow.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels. Lower glume surface spinose, rough generally or on flanks. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume primary vein scabrous. Upper glume muticous or mucronate or awned, 2 -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, 2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, awned, 1 -awned. Principal lemma awn flexuous, 10–25 mm long overall. Palea hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Mauritius, Madagascar, Rodrigues.

Chrysopogon asper (Heyne) Heyne ex Blatter & McCann. *Sci. Monogr. Imp. Counc. Agric. Research*, No. 5 :68 (1935).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma*, Ceylon, India and Pakistan (1960).

Basionym or Replaced Name: *Andropogon asper* Heyne, *Fl. Brit. India* 7(21): 189 (1897 [1896])

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Madras, Pulicat Hill, *Heyne, Wallich Numer. Cat. n. 8784*.

Illustrations (Books): K.M.Mathew, *Flora Palni Hills* (1996) (797, Pl. 797).

Derivation (Clifford & Bostock 2007): L. rough. Plants with rough pedicels or leaf-blades.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 50–100 cm long. Culm-nodes glabrous. Leaves distichous. Leaf-sheaths keeled, glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliolate membrane. Leaf-blade base cordate or amplexicaul. Leaf-blades 10–40 cm long, 6–15 mm wide. Leaf-blade margins serrulate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 10–20 cm long. Primary panicle branches whorled at most nodes. Panicle branches capillary. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, flattened, 3–4 mm long, 0.66 length of fertile spikelet, ciliate, hairy all along but hairs longer above.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 10–12 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, pilose (on keel), awned, one glume awned, with 12–15 mm long awn. Companion sterile spikelet lemmas 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, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 2–4 mm long, bearded, base pungent. Spikelet callus hairs dark brown.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, cartilaginous, without keels, 3–5 -veined. Lower glume primary vein pectinately ciliate (at tip). Lower glume apex emarginate. Upper glume oblong, 1-keeled. Upper glume apex emarginate, awned, 1 -awned, awn 12–15 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3–5 mm long, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 3–4 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus,

geniculate, 60–75 mm long overall, with twisted column. Column of lemma awn 30–35 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Anthers 3–8 mm long.

$2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Andhra Pradesh, Kerala, Tamilnadu.

Chrysopogon aucheri (Boiss.) Stapf. *Kew Bull.* 1907, 211 (1907).

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 Iran. **Basionym or Replaced Name:** *Andropogon aucheri* Boiss., *Diagn. Pl. Orient.* 5: 77 (1844)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hab. in desertis Persiae australis, *Aucher* 5465.

Illustrations (Books): N.L.Bor, *Gramineae in Flora of Iraq* (1968) (516, Pl. 197).

Derivation (Clifford & Bostock 2007): in honor of Pierre Martin Reni Aucher-Elroy (1792–1838) French botanist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths villous. Culms erect or geniculately ascending, 30–60 cm long, wiry. Ligule a fringe of hairs. Leaf-blades 10–25 cm long, 2–4 mm wide, glaucous. Leaf-blade surface pubescent, densely hairy. Leaf-blade margins tuberculate-ciliate. Leaf-blade apex acute or acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Peduncle pubescent above. Panicle open, ovate, 5–10 cm long. Primary panicle branches whorled at most nodes, simple. Panicle branches capillary, flexuous, villous (fulvously), hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.33–0.5 length of fertile spikelet, villous, with dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, (4–)7–10 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, both glumes awned, with 4–7 mm long awn. Companion sterile spikelet lemmas enclosed by glumes, 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 elliptic or oblong, laterally compressed, 6–9.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–1.5 mm long, bearded, base acute. Spikelet callus hairs red, 1–2 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5–8 mm long, 1 length of spikelet, cartilaginous, without keels. Lower glume surface pilose, hairy at apex. Upper glume lanceolate, 1-keeled. Upper glume surface pilose, hairy at apex. Upper glume awned, 1 -awned, awn 1.5–10 mm long, awn glabrous.

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 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 pubescent. Palea absent or minute.

Flower and Fruit. $N = 10$ (2 refs TROPICOS).

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

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa, East tropical Africa. Algeria, Morocco. Niger. Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Tanzania, Uganda. **Western Asia, Arabian Peninsula.** Afghanistan, Iran, Palestine, Israel & Jordan. Oman, Saudi Arabia. **Indian Subcontinent.** Pakistan, West Himalaya.

Chrysopogon borneensis Henrard. *Blumea*, 4: 534 (1941).

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)*.

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Endert* 5271, Borneo: West-Koetai, alt. 100 m (L-940,101–29; IT: BO).

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

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms 25–50 cm long. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades conduplicate, 4–10 cm long, 1.2–3.5 mm wide. Leaf-blade margins ciliate, hairy at base.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, 3–4 cm long, 1.5 cm wide, bearing few spikelets. Primary panicle branches whorled at most nodes, simple, 3 cm long. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Raceme-bases filiform, 25 mm long. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 2.25–3.5 mm long, 0.5 length of fertile spikelet, ciliate, with 1.8–1.9 mm long hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 4.65–5.25 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, smooth, puberulous, mucronate or awned, one glume awned, with 0.4–3 mm long awn. Companion sterile spikelet lemmas 1, 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 oblong, laterally compressed, 6.35–6.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 0.9–1.35 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs yellow, 1.2–1.3 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5–8 mm long, 1 length of spikelet, cartilaginous, without keels, 5–7 -veined. Lower glume surface convex, smooth, hispidulous. Lower glume apex acute. Upper glume lanceolate, 1-keeled, 3–5 -veined. Upper glume primary vein ciliate or ciliolate. Upper glume mucronate or awned, 1 -awned, awn 1–4.5 mm long, awn glabrous.

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 dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 11–20 mm long overall, clearly exerted from spikelet, with twisted column. Column of lemma awn puberulous, with 0.1 mm long hairs.

Flower and Fruit. Lodicules 2, glabrous. Anthers 3, 2–2.2 mm long (sessile) or 1.8–2 mm long (pedicelled).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malaysia. Borneo.

Chrysopogon castaneus J.F. Veldkamp & C.B. Salunkhe. *Rheedea*, 10(1): 59 (2000).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: Maharashtra: Sindhurg Dt., Amboli-Chouk, 725 m, 18 Sep 1993, S.R. Yadav 8678 (HT: L; IT: herb. Shivaji Univ.).

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 40–100 cm long. Ligule a ciliate membrane, 0.5 mm long. Leaf-blades 8–25 cm long, 3–8 mm wide. Leaf-blade surface glabrous. Leaf-blade margins tuberculate-ciliate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 8–25 cm long, 3–8 cm wide, bearing few spikelets. Primary panicle branches 2 -nate, 2–5 cm long. Panicle branches capillary. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 5–6 mm long, 0.5 length of fertile spikelet.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 10.5–12 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous. Companion sterile spikelet lemmas 1, 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, 8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 2 mm long, bearded, base pungent. Spikelet callus hairs red, 2–3 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 8 mm long, 1 length of spikelet, cartilaginous, without keels. Lower glume surface tuberculate, rough above. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, 1-keeled. Upper glume primary vein tuberculate (minutely). Upper glume awned, 1 -awned, awn 1.5–4 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline. Fertile lemma oblong, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 60–70 mm long overall, with twisted column. Column of lemma awn puberulous, with 0.3 mm long hairs. Palea absent or minute.

Flower and Fruit. Anthers 3, 2.2–3.5 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Chrysopogon celebicus Veldkamp. *Austrobaleya* 5:511 (1999).

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)*.

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Celebes, *Meijer 9189* (HT: L; IT: A, BO, KY, MO, US).

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

Derivation (Clifford & Bostock 2007): *L. -ica*, belonging to. From Celebes, now Suluwasi, Indonesia.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms 60–100 cm long. Ligule a fringe of hairs, 0.15–0.5 mm long. Leaf-blades conduplicate, 16.5–85 cm long, 4–12 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme, terminal and axillary. Panicle open, lanceolate, 7–12 cm long, 0.6–2 cm wide. Primary panicle branches not whorled or whorled at lower nodes, simple or sparsely divided, 3–5.7 cm long. Racemes bearing 4–7 fertile spikelets on each. Rhachis fragile at the nodes, glabrous on margins or ciliate on margins. Rhachis internodes filiform, 2.7–7.5 mm long. Rhachis internode tip transverse or oblique, cupuliform. Raceme-bases filiform, 15–20 mm long, glabrous. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 2.4–4.1 mm long, 0.5–0.6 length of fertile spikelet, smooth, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, male, linear, dorsally compressed, 1.95–4.5 mm long, shorter than fertile or as long as fertile, separately deciduous. Companion sterile spikelet glumes coriaceous, scaberulous, mucous. Companion sterile spikelet lemmas 1, 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, compressed slightly, 4–4.85 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 0.6–0.75 mm long, bearded, base obtuse, inserted. Spikelet callus hairs white, 1.5–3.5 mm long.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 5–7 -veined. Lower glume surface convex, spinose, rough generally, hispidulous or pubescent. Lower glume apex entire or dentate, 2 -fid, acute, mucronate. Upper glume lanceolate, chartaceous, 1-keeled, 3–5 -veined. Upper glume primary vein ciliolate. Upper glume mucronate or awned, 1 -awned, awn 0.45–1.85 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma oblong, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 3.75–9 mm long overall, clearly exerted from spikelet, with a straight or slightly twisted column. Column of lemma awn glabrous or puberulous, with 0–0.05 mm long hairs.

Flower and Fruit. Lodicules 2, glabrous. Anthers 3, 1.35–2.15 mm long (sessile) or 3.15–3.75 mm long (pedicelled). Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sulawesi.

Chrysopogon copei N.Mohanan & Ravi. *Rheedea* 11(2): 87 (2001).

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tamil Nadu, Shengelteri: *Mohanan 45125* (K iso).

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

Derivation (Clifford & Bostock 2007): in honor of Arthur Francis George Kerr, (1877–1942), Irish-born medical officer and government botanist, Thailand.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms 110 cm long. Ligule a fringe of hairs, 0.25–0.75 mm long. Leaf-blades conduplicate, 8–33 cm long, 4–6 mm wide. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade margins ciliate, hairy at base.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, 17–20 cm long, 1.5–2 cm wide, bearing many spikelets. Primary panicle branches whorled at most nodes, simple, 4–4.5 cm long. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Raceme-bases filiform, 30–35 mm long, pubescent. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 3.4–3.75 mm long, 0.5 length of fertile spikelet, ciliate, with 2.4–3.2 mm long hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 7.5–8.5 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, smooth, puberulous, awned, one glume awned, with 8.25–14 mm long awn. Companion sterile spikelet lemmas 1, 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, 9–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 3–4.3 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs yellow, 1.8–2 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5–8 mm long, 1 length of spikelet, cartilaginous, without keels, 5–7 -veined. Lower glume surface convex, smooth, hispidulous, hairy above. Lower glume apex dentate, 2 -fid, awned, 1 -awned, awn 3–9 mm long. Upper glume lanceolate, 1-keeled, 3–5 -veined. Upper glume primary vein ciliolate. Upper glume awned, 1 -awned, awn 9.75–17 mm long, awn glabrous.

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 dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 50–60 mm long overall, clearly exerted from spikelet, with twisted column. Column of lemma awn puberulous, with 0.2–0.35 mm long hairs.

Flower and Fruit. Lodicules 2, glabrous. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.
Tamilnadu.

Chrysopogon crevostii A. Camus. *Bull. Mus. Hist. Nat. Paris*, 1: 206 (1925).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cochinchine: Phuoc-ly, *Crevost s.n.* (HT: P).

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

Derivation (Clifford & Bostock 2007): in honor of Crevost who collected in Cochinchina, now part of Vietnam.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 90–120 cm long. Culm-internodes distally glabrous. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane, truncate. Leaf-blades 20–25 cm long, 1.5–2 mm wide. Leaf-blade venation indistinct. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 9–10 cm long. Primary panicle branches 3 cm long. Panicle branches capillary. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.2 length of fertile spikelet, ciliate, with red hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 7–9 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, ciliate on margins, awned, one glume awned, with 7–10 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes, 4–6 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 oblong, laterally compressed, 7–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 0.8–1 mm long, pilose, base acute, attached obliquely. Spikelet callus hairs red.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, without keels. Upper glume lanceolate, coriaceous, with hyaline margins, 1-keeled. Upper glume surface glabrous or pilose. Upper glume awned, 1 -awned, awn 15–16 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline, ciliolate on margins. Fertile lemma oblong, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 50 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

Flower and Fruit. Anthers 3, 3.5 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Cambodia.

Chrysopogon elongatus (R.Br.) Benth. *Fl. Austral.* 7: 588 (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:** *Holcus elongatus* R. Br., *Prodromus Florae Novae Hollandiae* 1: 200 (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6193*, Australia (BM (photo, BRI, K); IT: K (photo, BRI), MEL (photo, BRI)).

Illustrations (Books): 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. elongated. Inflorescence elongated.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Basal innovations intravaginal, flabellate. Culms erect, 150–250 cm long, 7 -noded. Ligule a fringe of hairs. Leaf-blades conduplicate, 25–50 cm long, 4–8 mm wide, stiff. Leaf-blade surface pilose, sparsely hairy, hairy adaxially, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Peduncle smooth. Panicle contracted, lanceolate, 15–30 cm long, 2–3 cm wide. Primary panicle branches whorled at most nodes, simple. Panicle branches straight. Racemes 1.5–2.5 cm long, bearing few fertile spikelets, bearing 3–6 fertile spikelets on each. Rhachis fragile at the nodes. Rhachis internodes filiform, 3–4 mm long. Rhachis internode tip oblique. Raceme-bases filiform, pubescent, hairy at tip. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 2–3 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, linear, dorsally compressed, 5.5–6.5 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 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, laterally compressed, compressed slightly, 5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.6–2.2 mm long, bearded, base obtuse, attached obliquely. Spikelet callus hairs white, 0.5 length of spikelet (2–3mm).

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 5–8 -veined. Lower glume surface spinose, rough on flanks. Upper glume lanceolate, coriaceous, 1-keeled. Upper glume primary vein spinulose. Upper glume muticous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 4–6 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 4–7 mm long overall, with a straight or slightly twisted column. Palea 0.3–0.5 length of lemma, hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3, 1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia, Australasia.

Country /Province /State. Papuaasia. New Guinea. Australia. Northern Territory, Queensland.

TDWG4. Darwin & Gulf. North.

Chrysopogon fallax S. T. Blake. *Univ. Queensl. Papers, Dept. Biol.*, 2, No. 3, (1944).

Accepted by: 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: HT: *S.T. Blake 8108*, 18 Mar 1935, Australia: Queensland: Leichhardt Dist. (BRI-8033; IT: K, NSW, US-1865513).

Recent Synonyms: *Chrysopogon benthamianus* Henrard, *Blumea* 4(3): 532 (1941).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (512, Fig. 439), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (321, Pl. 94), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1137, Fig. 328), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (160), 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. deceptive. Closely resembling another species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous or villous, persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 30–120 cm long, 3–5-noded. Culm-internodes distally glabrous or pubescent. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths without keel, glabrous on surface or pilose, with tubercle-based hairs. Ligule a ciliolate membrane. Leaf-blades 5–45 cm long, 2–4 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or pilose, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 7–21 cm long. Primary panicle branches whorled at most nodes, 3–6 cm long. Panicle axis glabrous or pubescent. Panicle branches capillary, flexuous, scaberulous, villous, hairy at tip, pubescent in axils. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, flattened, 3.5–7 mm long, 0.33–0.5 length of fertile spikelet, glabrous or pubescent, hairy at tip.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 9–14 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, muticous or awned, one glume awned. Companion sterile spikelet lemmas 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, 9–14 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.7–3 mm long, bearded, base acute. 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, cartilaginous, without keels, 5–7 -veined. Lower glume surface scabrous, rough above. Lower glume apex truncate. Upper glume oblong, 1-keeled, 3–5 -veined. Upper glume primary vein pectinately ciliate. Upper glume surface scabrous, rough generally or above. Upper glume apex obtuse, awned, 1 -awned, awn 5–10 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 5–7.5 mm long, hyaline, 2–3 -veined, ciliolate on margins. Fertile lemma linear, 5.5–7 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma margins ciliolate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–40 mm long overall, with twisted column. Column of lemma awn scabrous. Palea 3.2–4.2 mm long, 0–2 -veined.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

TDWG4. Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre. North, Central, South East, Inland. Tablelands, Western Slopes, Western Plains.

Chrysopogon festuroides (Presl) Veldkamp. *Austrobaleya* 5:512 (1999).

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*).

Basionym or Replaced Name: *Andropogon festuroides* J. Presl, *Reliq. Haenk.* 1(4–5): 340 (1830)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Haenke s.n.*, Philippines: Luzon Island (PR; IT: W-257377, US-76466).

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

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms 150–250 cm long. Ligule a fringe of hairs, 0.45–1.3 mm long. Leaf-blades conduplicate, 17–74 cm long, 4–13 mm wide. Leaf-blade surface glabrous, hairless throughout or except near base.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 15–27 cm long, 3.5–6 cm wide. Primary panicle branches whorled at most nodes, simple, 6–9.5 cm long. Racemes bearing 8–13 fertile spikelets on each. Rhachis fragile at the nodes, glabrous on margins or ciliate on margins. Rhachis internodes filiform, 4.1–9.2 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases filiform, 6–35 mm long, glabrous. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 2.25–3.15 mm long, 0.6 length of fertile spikelet, scaberulous, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, linear, dorsally compressed, 3.75–5.25 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes coriaceous, scaberulous, muticous. Companion sterile spikelet lemmas 1, 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, compressed slightly, 4.1–5.4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, 0.75–1.1 mm long, pilose, base obtuse, inserted. Spikelet callus hairs white or yellow, 0.4–1.5 mm long.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 5–7 -veined. Lower glume surface convex, spinose, rough generally, hispidulous. Lower glume apex acute. Upper glume lanceolate, chartaceous, 1-keeled, 3–5 -veined. Upper glume surface scabrous, puberulous, hairy above. Upper glume mucronate or awned, 1 -awned, awn 0.2–1.5 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma oblong, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 2.5–5.25 mm long overall, clearly exerted from spikelet, with a straight or slightly twisted column. Column of lemma awn glabrous.

Flower and Fruit. Lodicules 2, glabrous. Anthers 3, 1.5–2.1 mm long (sessile or pedicelled). Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China, Malesia. Assam. Cambodia, Laos, Myanmar, Thailand, Vietnam. Java, Philippines, Sumatra.

Chrysopogon filipes (Benth.) Reeder. *Journ. Arn. Arb.* 29: 360 (1948).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

TYPE from Australia. **Basionym or Replaced Name:** *Chrysopogon elongatus* var. *filipes* Benth., *Fl. Austral.* 7: 539 (1878)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Mitchell s.n.*, Australia (K (photo, BRI); ILT: MEL). LT designated by Veldkamp, *Austrobaileya* 5(3): 513 (1999).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (186), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (as *Vetiveria*), 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. filum, thread; pes, foot. Pedicels of spikelets slender.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Basal innovations intravaginal, flabellate. Culms erect, 70–100 cm long, 3–6 -noded. Ligule a fringe of hairs. Leaf-blades 15–45 cm long, 3–6 mm wide, stiff. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Peduncle antrorsely scabrous above. Panicle contracted, lanceolate, nodding, 15–30 cm long, 3–7 cm wide. Primary panicle branches whorled at most nodes, simple. Racemes 3.5–9 cm long, bearing few fertile spikelets, bearing 3–7 fertile spikelets on each. Rhachis fragile at the nodes. Rhachis internodes filiform, 7–15(–20) mm long. Rhachis internode tip oblique. Raceme-bases filiform, pubescent, hairy at tip. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3–8 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, lanceolate, dorsally compressed, 3–8.3 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, scabrous, 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, laterally compressed, compressed slightly, 8–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 2.5–3.5 mm long, bearded, base acute, attached obliquely. Spikelet callus hairs yellow, 0.4–0.5 length of spikelet (1–1.5mm).

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 5 -veined. Lower glume surface spinose, rough on flanks. Upper glume lanceolate, coriaceous, 1-keeled. Upper glume primary vein scabrous. Upper glume surface scabrous. Upper glume mucronate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 7–9 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, flexuous, 13–26 mm long overall. Palea 0.3–0.5 length of lemma, hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3, 3 mm long. Caryopsis with adherent pericarp, fusiform, 4 mm long.

Distribution (TDWG). Continent. Tropical Asia, Australasia.

Country /Province /State. **Malesia, Papuasia.** New Guinea PNG. New Guinea. **Australia.** Northern Territory, Queensland, New South Wales.

TDWG4. Darwin & Gulf. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

Chrysopogon fulvibarbis (Trin.) Veldkamp. *Austrobaleya* 5:525 (1999).

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

Basionym or Replaced Name: *Andropogon fulvibarbis* Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 2(3): 287 (1832)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sabine s.n.*, Accra 19 (LE-TRIN-0207.1).

Recent Synonyms: *Vetiveria fulvibarbis* (Trin.) Stapf, Prain, *Fl. Trop. Afr.* 9: 158 (1917).

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

Derivation (Clifford & Bostock 2007): *L. fulvus*, yellowish-brown; *barba*, beard. Callus fulvously bearded on the sides.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Basal innovations intravaginal, flabellate. Culms erect, 100–200 cm long. Ligule a fringe of hairs. Leaf-blades 30–90 cm long, 3–6 mm wide, stiff. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 10–20 cm long. Primary panicle branches whorled at most nodes, simple. Racemes 4–8 cm long. Rhachis fragile at the nodes. Rhachis internodes filiform, 6–8 mm long. Rhachis internode tip oblique. Raceme-bases filiform, pubescent, hairy at tip. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform.

Sterile Spikelets. Companion sterile spikelets well-developed, male, linear, dorsally compressed, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7–8 -veined, smooth, ciliolate on margins, 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 linear, laterally compressed, compressed slightly, 6–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 0.5–0.8 mm long, bearded, base obtuse, attached obliquely. Spikelet callus hairs yellow, 0.1–0.2 length of spikelet.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 3–5 -veined. Lower glume surface spinose, rough on flanks. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume primary vein scabrous. Upper glume awned.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 4–6 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, clearly exerted from spikelet, with a straight or slightly twisted column. Palea 0.3–0.5 length of lemma, hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3, 3.5 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. **West tropical Africa, West-central tropical Africa.** Ghana, Mali, Togo.

Chrysopogon fulvus (Spreng.) Chiov. *Fl. Somalia*, 327 (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), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

Basionym or Replaced Name: *Pollinia fulva* Spreng., *Pl. Min. Cogn. Pug.* 2: 10 (1815)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Anon.*, India: Bengal (?; IT: LE-TRIN-337.01 (left satchel)).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (469, Fig.384, as *C. montanus* var. *tremulus*), K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (pl.734, pl.735), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (635).

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);

Derivation (Clifford & Bostock 2007): *L. fulvus*, deep yellow. Usually a reference to spikelet color.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 20–50(–100) cm long. Leaves mostly basal. Ligule a ciliolate membrane. Leaf-blades 2–15 cm long, 2–3 mm wide. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 4–8 cm long. Panicle branches capillary, villous (fulvously), hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.25–0.33 length of fertile spikelet, villous, with dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 2.5–5.5(–6.5) mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, one glume awned, with 2.5–6 mm long awn. Companion sterile spikelet lemmas enclosed by glumes, 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 oblong, laterally compressed, 4–6(–8) mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, pilose, base pungent. Spikelet callus hairs red.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 3–5(–6.5) mm long, 1 length of spikelet, cartilaginous, without keels. Lower glume surface hispidulous, hairy at apex. Upper glume lanceolate, 1-keeled. Upper glume primary vein ciliate (in the middle with fulvous hairs). Upper glume awned, 1 -awned, awn 6–10 mm long, awn hispidulous.

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 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 or pubescent. Palea absent or minute.

Flower and Fruit. *N* = 10 (3 refs TROPICOS), or 20 (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia, Pacific, North America (*).

Country /Province /State. Indian Subcontinent, Indo-China. India, Sri Lanka. Laos, Myanmar, Thailand. **North-central Pacific. Southeastern USA** (*). Florida (*).

TDWG4. Andhra Pradesh, Bihar. Madhya Pradesh, Maharashtra, Rajasthan, Tamilnadu, Uttah Pradesh. Himachal Pradesh.

Chrysopogon gryllus (L.) Trin. *Fund. Agrost.* 188. (1820).

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 *C. echinulatus*), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

Basionym or Replaced Name: *Andropogon gryllus* L., *Cent. Pl. II* 2: 33 (1756)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Seguier s.n.*, (LINN-1211.2).

Recent Synonyms: *Chrysopogon echinulatus* (Nees) W. Watson, Atkinson, *Gaz. N. W. Ind.* 392 (1882).

Illustrations (Books): G.Hegi, *Flora von Mitteleuropa* 1 (1909) (as *Andropogon*), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 71), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (515, Pl. 196), H.J.Noltie, *The Grasses of Bhutan* (2000) (787, Fig. 55), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (151, Fig. 80), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 844).

Derivation (Clifford & Bostock 2007): Gk. *gryllus*, cricket. The spikelets are in clusters of three which together bear a fanciful resemblance to a cricket. Furthermore, the spikelets are shed as triads which move

erratically in response to the twisting and untwisting of the hygroscopic awn on the lemma of the sessile spikelet and so resemble jumping crickets.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms erect, 50–150 cm long. Ligule a fringe of hairs. Leaf-blades 15–35 cm long, 2.5–4.5 mm wide. Leaf-blade surface glabrous or pilose, with tubercle-based hairs. Leaf-blade apex abruptly acute or acute or acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open or contracted, ovate, 6–18 cm long. Primary panicle branches appressed or ascending, whorled at most nodes, simple. Panicle branches flexible or capillary, straight or flexuous, villous (fulvously), hairy at tip. Racemes bearing a triad of spikelets or few fertile spikelets, 1–5 fertile spikelets on each. Rhachis evident or obsolete, fragile at the nodes, flattened, ciliate on margins. Rhachis hairs red. Rhachis internodes linear. Rhachis internode tip oblique, flat. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1–2 in the cluster. Pedicels present, linear, 0.66–0.75 length of fertile spikelet, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 7–11 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, one glume awned, with 3.5–7 mm long awn. Companion sterile spikelet lemmas 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, 7–9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 2 mm long, pilose, base pungent. Spikelet callus hairs red.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5–8 mm long, 1 length of spikelet, cartilaginous, without keels. Lower glume surface spinose, rough on flanks, hispid, hairy at apex. Upper glume lanceolate, 1-keeled. Upper glume surface hispid, hairy at apex. Upper glume muticous or mucronate or awned, 1 -awned, awn 1–10 mm long, awn glabrous.

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 dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 12–20 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

Flower and Fruit. $N = 10$ (2 refs TROPICOS). $2n = 20$ (1 ref TROPICOS), or 40 (1 ref TROPICOS).

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

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

Country /Province /State. : Austria, Czechoslovakia, Hungary, Switzerland. : France. : Albania, Bulgaria, Greece, Italy, Romania, Turkey Europe, Yugoslavia. Northwest European Russia, Ukraine. **Caucasus, Western Asia, Arabian Peninsula, China.** Afghanistan, Iraq. Gulf States. China South Central, Tibet. **Indian Subcontinent.** Assam, Eastern Himalaya, India, Nepal, Pakistan, West Himalaya.

TDWG4. Yunnan. Bhutan, Sikkim. Meghalaya. Maharashtra, Uttah Pradesh, West Bengal. Himachal Pradesh, Jammu Kashmir.

Chrysopogon hackelii (Hook.f.) C. E. C. Fischer. *Gamble, Fl. Madras*, 1739 (1934).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

Basionym or Replaced Name: *Andropogon hackelii* Hook. f., *Fl. Brit. India* 7(21): 194 (1897 [1896])

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Wight Herb. n. 1030, Wall. Cat. n. 8783.*, India: Travancore, Nilghiri Hills (K).

ST: *Lawson s.n.*, India: Gondaloo Ghat, alt. 4500 ft.

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

Derivation (Clifford & Bostock 2007): in honor of Eduard Hackel (1850–1926) Bohemian-born Austrian botanist with special interest in the grasses.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 80–150 cm long. Culm-nodes glabrous or pubescent. Leaf-sheaths keeled. Ligule a fringe of hairs. Leaf-blades 16–40 cm long, 4–10 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acute or acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 5–20 cm long. Primary panicle branches whorled at most nodes. Panicle branches capillary. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, flattened, 1.5–2 mm long, 0.33 length of fertile spikelet, ciliate, hairy all along but hairs longer above, with dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 5–6 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, muticous. Companion sterile spikelet lemmas 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, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 0.5–1 mm long, bearded, base obtuse. Spikelet callus hairs dark brown.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, cartilaginous, without keels, 5–7 -veined. Upper glume oblong, 1-keeled. Upper glume apex acuminate, awned, 1 -awned, awn 3–8 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 4–5 mm long, hyaline, 3 -veined, ciliolate on margins. Fertile lemma oblong, 4–5 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–25 mm long overall, with twisted column. Column of lemma awn 10–12 mm long. Palea absent or minute.

Flower and Fruit. Anthers 2–3 mm long.

N = 10 (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Andhra Pradesh, Kerala, Karnataka, Tamilnadu, Uttah Pradesh.

Chrysopogon hamiltonii (Hook.f.) Haines. *Bot. Bihar & Orissa*, Pt. 5, 1036 (1924).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

Basionym or Replaced Name: *Andropogon hamiltonii* Hook. f., *Fl. Brit. India* 7(21): 190 (1897 [1896])

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Behar; Monghir, Hamilton, *Hamilton s.n.*.

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

Derivation (Clifford & Bostock 2007): in honor of Francis Hamilton (nie Buchanan) Scots-born Indian physician and botanist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms robust. Culm-internodes distally glabrous. Leaf-sheaths without keel. Ligule a fringe of hairs. Leaf-blades 30–45 cm long, 5–10 mm wide. Leaf-blade surface smooth or scaberulous, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Peduncle pubescent above. Panicle contracted, lanceolate, 15–25 cm long, 6–8 cm wide. Primary panicle branches appressed, 1–3 -nate, whorled at most nodes. Panicle axis smooth. Panicle branches capillary. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.5 length of fertile spikelet, villous, hairy all along but hairs longer above, with dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 10–20 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, one glume awned, with 10–12 mm long awn. Companion sterile spikelet lemmas 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, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, bearded, base pungent. Spikelet callus hairs dark brown.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, cartilaginous, without keels, 4 -veined. Lower glume surface scabrous, rough at apex. Lower glume apex mucronate. Upper glume oblong, 1-keeled, 3 -veined. Upper glume margins ciliate. Upper glume awned, 1 -awned, awn 12 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. 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, 45–60 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Bihar.

Chrysopogon humbertianus A. Camus. *Bull. Soc. Bot. France*, 98: 252 (1952).

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

TYPE from Madagascar. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Madagascar, Sainte Marie: Humbert 20329.

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Basal innovations flabellate. Culms 15–25 cm long. Lateral branches lacking. Leaf-sheaths keeled, puberulous. Ligule an eciliate membrane. Leaf-blades 3–3.5 cm long, 3 mm wide, stiff. Leaf-blade surface pilose, hairy on both sides. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Peduncle pubescent above. Panicle open, oblong, dense, 5–6 cm long. Primary panicle branches appressed, 1–1.2 cm long. Panicle branches capillary, pilose. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.5 length of fertile spikelet.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 4.5 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 3 -veined, awned, one glume awned, with 3–6 mm long awn. Companion sterile spikelet lemmas 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 or oblong, laterally compressed, 6.5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, bearded, base pungent.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate or oblong, 6.5–7 mm long, 1 length of spikelet, cartilaginous, without keels. Lower glume apex attenuate, mucronate. Upper glume oblong, 6–6.5 mm long, chartaceous, 1-keeled. Upper glume surface hispidulous. Upper glume awned, 1 -awned, awn 8 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma oblong, 3.5–4 mm long, hyaline, without keel. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn geniculate, 12–15 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. Madagascar.

Chrysopogon intercedens Veldkamp. *Austrobaleya* 5:515 (1999).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Papua New Guinea: Western Province, *Henty & Forman NGF 49350* (HT: L; IT: LAE).

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

Derivation (Clifford & Bostock 2007): L. *intercedo*, come between. Intermediate between two other species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms 180 cm long. Ligule a fringe of hairs, 0.4 mm long. Leaf-blades conduplicate, 30–60 cm long, 5–6 mm wide. Leaf-blade surface glabrous or pilose, hairy adaxially.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, 19 cm long, 2 cm wide, bearing many spikelets. Primary panicle branches whorled at most nodes, simple, 4–8 cm long. Racemes bearing few fertile spikelets, 2–3 fertile spikelets on each. Rhachis fragile at the nodes, ciliate on margins. Rhachis internodes linear, 5.6–12 mm long. Rhachis internode tip oblique. Raceme-bases filiform, 30 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, 4.1–4.5 mm long, 0.66 length of fertile spikelet, smooth or scaberulous, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, dorsally compressed, 5.4–6.4 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, smooth, puberulous, muticous. Companion sterile spikelet lemmas 1, 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, 6.6–7.1 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1.5–1.7 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs white, 1.2–1.6 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5–8 mm long, 1 length of spikelet, cartilaginous, without keels, 5–7 -veined. Lower glume surface convex, spinose, hispidulous. Lower glume apex entire or dentate, 2 -fid, acute. Upper glume lanceolate, 1-keeled, 3–5 -veined. Upper glume primary vein ciliolate. Upper glume awned, 1 -awned, awn 1.6–3 mm long, awn glabrous.

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 dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 15–16 mm long overall, clearly exerted from spikelet, with a straight or slightly twisted column. Column of lemma awn puberulous, with 0.2 mm long hairs.

Flower and Fruit. Lodicules 2, glabrous. Anthers 3, 1.3–1.6 mm long (sessile) or 2.85 mm long (pedicelled).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuasias. New Guinea PNG. New Guinea.

Chrysopogon lancearius (Hook.f.) Haines. *Bot. Bihar & Orissa*, Pt. 5, 1036 (1924).

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: *Andropogon lancearius* Hook. f., *Fl. Brit. India* 7(21): 190 (1897 [1896]). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Sikkim Himalaya; at the foot of the hills, Punkabaree, Kurz. Chota Nagpore; Ramghur, Ghat, 1750 ft., *Clarke s.n.*.

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

Derivation (Clifford & Bostock 2007): *L. lanceus*, lance; -arium, pertaining to. Leaf-blades lanceolate.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 120–180 cm long. Leaf-sheaths without keel. Ligule a fringe of hairs. Leaf-blades lanceolate, 20–50 cm long, 10–22 mm wide. Leaf-blade midrib widened. Leaf-blade surface glabrous. Leaf-blade margins spinulose. Leaf-blade apex acuminate, filiform.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Peduncle pubescent above. Panicle open, ovate, 15–30 cm long. Primary panicle branches whorled at most nodes, 5–10 cm long. Panicle branches capillary, villous (fulvously), hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, flattened, 3 mm long, 0.5 length of fertile spikelet, ciliate, hairy all along but hairs longer above, with dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 8 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, pubescent (on keel), awned, one glume awned, with 7 mm long awn. Companion sterile spikelet lemmas 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, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, bearded, base pungent. Spikelet callus hairs dark brown.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, cartilaginous, without keels. Lower glume surface scabrous, rough above. Upper glume oblong, 1-keeled, 3 -veined. Upper glume margins ciliate. Upper glume awned, 1 -awned, awn 7.5–10 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 mm long, hyaline, 2 -veined, ciliolate on margins. 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, 30–50 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

Flower and Fruit. $N = 20$ (1 ref TROPICOS). $2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Assam, Eastern Himalaya.

TDWG4. Darjeeling. Bihar. Orissa, Uttah Pradesh, West Bengal.

Chrysopogon latifolius S. T. Blake. *Univ. Queensl. Papers, Dept. Biol.*, 2, No. 3, 7 (1944).

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. without definite locality, July-August, 1911 ..., *Gilruth & Spencer s.n* (HT: MEL).

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. latus*, broad; folium, leaf. Leaf-blades broad or relatively broad with respect to related species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms robust, 100–150 cm long. Lateral branches ample, arising from upper culm. Leaf-sheaths as wide as blade at the collar, without keel, glabrous on surface or pubescent. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades 30–60 cm long, 10–20 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle contracted, linear, 20–25 cm long, 4 cm wide. Primary panicle branches appressed, 10–30 -nate, whorled at most nodes, 2–6 cm long. Panicle branches scabrous, villous, hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 4.2–5.5 mm long, scabrous, pubescent.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 7.5–9 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, acute, awned, one glume awned, with 6–13 mm long awn. Companion sterile spikelet lemmas 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, 7.7–8.3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, curved, 2–2.4 mm long, pilose, base acute. Spikelet callus hairs tawny, 2 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, cartilaginous, much thinner above, much thinner on margins, without keels, 4–5 -veined. Lower glume surface scabrous, rough above. Lower glume apex truncate. Upper glume lanceolate, 1-keeled. Upper glume primary vein scabrous. Upper glume surface scabrous, rough above. Upper glume awned, 1 -awned, awn 9–13 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret obovate, 3.8–4.7 mm long, hyaline, 2 -veined, ciliate on margins, emarginate. Fertile lemma linear, 4.5–5 mm long, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 37–42 mm long overall, with twisted column. Column of lemma awn 0.33–0.4 length of limb, pubescent. Palea lanceolate, 2.4–2.8 mm long, 0–2 -veined. Palea surface puberulous, hairy on flanks.

Flower and Fruit. Anthers 3, 2.2–3.5 mm long. Caryopsis 3–5 mm long.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory.

TDWG4. Kimberley, Darwin & Gulf, Victoria R & Barkly Tableland.

Chrysopogon lawsonii (Hook.f.) Veldkamp. (1999).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (as *Vetiveria*).

Basionym or Replaced Name: *Andropogon lawsonii* Hook. f., *Fl. Brit. India* 7(21): 187 (1897 [1896]). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Lawson* 28, India: Mysore, at Bandyopore, in moist lawn (K).

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

Derivation (Clifford & Bostock 2007): in honor of Marmaduke Alexander Lawson (1840–1896) English botanist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Basal innovations intravaginal. Culms erect, 40–170 cm long. Ligule an eciliate membrane. Leaf-blades conduplicate, 10–45 cm long, 3–4 mm wide, stiff. Leaf-blade margins scabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 18–30 cm long. Primary panicle branches whorled at most nodes, simple. Racemes 5–8 cm long, bearing few fertile spikelets, bearing 3–5 fertile spikelets on each. Rhachis fragile at the nodes. Rhachis internodes filiform, 3.5–4

mm long. Rhachis internode tip oblique. Raceme-bases filiform, pubescent, hairy at tip. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3.7–4 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, 6.8–7 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 5 -veined, smooth, ciliolate on margins, 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 lanceolate, laterally compressed, compressed slightly, 6–6.2 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 0.5–0.6 mm long, bearded, base obtuse, attached obliquely. Spikelet callus hairs yellow, 0.1–0.2 length of spikelet.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels. Lower glume surface spinose or muricate, rough on flanks. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume awned, 1 -awned, awn 9–10 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2.5–2.7 mm long, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 4–4.5 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, 25–30 mm long overall, clearly exerted from spikelet, with twisted column. Column of lemma awn hispidulous. Palea 0.3–0.5 length of lemma, hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3, 3–3.3 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India, Nepal.

Chrysopogon macleishii T.A. Cope. *Kew Bull.*, 49(3): 533 (1994).

Accepted by: 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: Oman: Dhofar, above Dhalqut, 16.43N 53.12E, 900 m, 4 Oct 1991, T.A. Cope 514 (HT: K; IT: ON).

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

Derivation (Clifford & Bostock 2007): in honor of Ian McLeish (1946-) British veterinary surgeon who collected in Oman.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely or moderately or densely. Butt sheaths pubescent. Culms erect, 100–150 cm long. Ligule a ciliolate membrane. Leaf-blades 3–6 mm wide, stiff. Leaf-blade surface scabrous, rough abaxially (on midrib), glabrous to pubescent. Leaf-blade margins scabrous, tuberculate-ciliate. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, oblong or ovate, effuse, 13–20 cm long. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.5 length of fertile spikelet.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 8–11 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, both glumes awned, with lower glume with 10–14 mm long awn, awn glabrous or pubescent. Companion sterile spikelet lemmas 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 or oblong, laterally compressed, 8–10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, pubescent, base pungent.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, cartilaginous, without keels. Upper glume lanceolate, 1-keeled. Upper glume apex obtuse, awned, 1 -awned, awn 9–12 mm long, awn plumose.

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 entire, awned, 1 -awned. Principal lemma awn apical, geniculate, 35–45 mm long overall, with twisted column. Column of lemma awn puberulous. Palea absent or minute.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Arabian Peninsula. Oman.

Chrysopogon micrantherus Veldkamp. *Austrobaleya* 5:516 (1999).

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: IT: *L.T. Brass* 8579, Dec 1936, Papua New Guinea: New Guinea I., Western Div., Tarara (US-1723546).

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

Derivation (Clifford & Bostock 2007): Gk. mikros, small; antheros, flowering. Inflorescence few-flowered.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms 165–200 cm long. Ligule a fringe of hairs, 0.2–0.45 mm long. Leaf-blades conduplicate, 50–100 cm long, 3.5–11 mm wide. Leaf-blade surface glabrous or pilose, hairy adaxially.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, 19–27 cm long, 2–4.5 cm wide, bearing many spikelets. Primary panicle branches whorled at most nodes, simple or sparsely divided, 6.5–7.5 cm long. Racemes bearing a triad of spikelets or few fertile spikelets, (1–)2–3 fertile spikelets on each. Rhachis evident or obsolete, fragile at the nodes, glabrous on margins. Rhachis internodes linear, 4.9–8 mm long. Rhachis internode tip oblique. Raceme-bases filiform, 40–45 mm long. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, linear, 2.25–2.4 mm long, 0.66 length of fertile spikelet, smooth, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, dorsally compressed, 5.3–6.3 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, smooth, puberulous, mucicous. Companion sterile spikelet lemmas 1, enclosed by glumes, mucicous.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 5.3–6.3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1.2–2.25 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs white, 1.8–3.6 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5–8 mm long, 1 length of spikelet, cartilaginous, without keels, 5–7 -veined. Lower glume surface convex, smooth or spinose, hispidulous. Lower glume apex entire or dentate, 2 -fid, mucicous or mucronate. Upper glume lanceolate, 1-keeled, 3–5 -veined. Upper glume primary vein ciliolate. Upper glume mucronate or awned, 1 -awned, awn 0.4–3.45 mm long, awn glabrous.

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 dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5.25–14 mm long overall, clearly exerted from spikelet, with twisted column. Column of lemma awn puberulous, with 0.1 mm long hairs.

Flower and Fruit. Lodicules 2, glabrous. Anthers 3, 0.6–1 mm long (sessile) or 2.8–4.05 mm long (pedicelled).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuasia. New Guinea PNG. New Guinea.

Chrysopogon nemoralis (Balansa) Holttum. *Gard. Bull. Singapore*, 11: 297 (1947).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

Basionym or Replaced Name: *Andropogon nemoralis* Balansa, *J. Bot. (Morot)* 4: 113 (1890)

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Balansa s.n.*, Vietnam: Baie de Tourane (L-908.83–373; IT: P).

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

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971); (as *Vetiveria*).

Derivation (Clifford & Bostock 2007): L. nemus, wood, -alis, pertaining to. Woodland species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Basal innovations intravaginal, flabellate. Culms erect, 40–75 cm long. Culm-internodes distally glabrous. Leaves mostly basal. Leaf-sheaths 3–4 cm long, glabrous on surface. Leaf-sheath auricles erect, 2–3 mm long. Ligule a fringe of hairs. Leaf-blades conduplicate, 15–20 cm long, 3–5 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 8–15 cm long, 6 cm wide. Primary panicle branches whorled at most nodes, 1.5 cm long. Panicle branches apically expanded, pubescent, hairy at tip. Racemes bearing a triad of spikelets or few fertile spikelets, 1–2 fertile

spikelets on each. Rhachis fragile at the nodes. Rhachis internodes filiform, 5 mm long. Rhachis internode tip oblique. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, filiform, flattened, 4.5–5 mm long, scaberulous, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, dorsally compressed, 2.5–3 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes coriaceous, 3 -veined, scaberulous, 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, compressed slightly, 5.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 2 mm long, pilose, attached obliquely. Spikelet callus hairs yellow.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5 mm long, 0.9 length of spikelet, coriaceous, without keels, 5 -veined. Lower glume surface spinose, rough on veins. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, 5.5 mm long, 1 length of spikelet, chartaceous, 1-keeled, 3 -veined. Upper glume primary vein ciliolate. Upper glume margins ciliolate. Upper glume apex acuminate, awned, 1 -awned, awn 1.5–3 mm long.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, 3.5 mm long, hyaline, 0 -veined, without midvein, without lateral veins. Palea of lower sterile floret 2.5 mm long. Fertile lemma linear, 3.2 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins extending close to apex. Lemma apex entire, awned, 1 -awned. Principal lemma awn curved, 12–17 mm long overall.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China, Malesia. Thailand, Vietnam. Malaya, Philippines.

Chrysopogon nigritanus (Benth.) Veldkamp. *Austrobaleya* 5:526 (1999).

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

Basionym or Replaced Name: *Andropogon nigritanus* Benth., *Niger Fl.* 573 (1849)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Vogel s.n.*, Nigeria (K).

Recent Synonyms: *Vetiveria nigrimana* (Benth.) Stapf, Prain, *Fl. Trop. Afr.* 9: 157 (1917).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (291, Fig. 227 as *Vetiveria*), W. Robyns (1929 and 1934). *Flora Agrostologique du Congo Belge et du Ruanda-Urundi*, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (101, Pl. 8, as *Vetiveria*), R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):740, Fig. 172 as *Vetiveria*), G.V.Pope et al., *Flora Zambesiaca* 10, L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (470, Fig. 385 as *Vetiveria*), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (352, Fig. 232 as *Vetiveria*).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From the Niger region of Upper Guinea.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Roots aromatic. Rhizomes short. Basal innovations intravaginal, flabellate. Culms erect, 150–300 cm long. Ligule a fringe of hairs. Leaf-blades 30–90 cm long, 4–7 mm wide, stiff. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 15–40 cm long. Primary panicle branches whorled at most nodes, simple. Racemes 5–15 cm long. Rhachis fragile at the nodes, flattened. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform. Raceme-bases filiform, pubescent, hairy at tip. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform.

Sterile Spikelets. Companion sterile spikelets well-developed, male, linear, dorsally compressed, as long as fertile, separately deciduous. Companion sterile spikelet glumes coriaceous, scabrous, 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, laterally compressed, compressed slightly, 4.5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, bearded, base obtuse, inserted. Spikelet callus hairs white, 0.15 length of spikelet.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 5 -veined. Lower glume surface spinose, rough generally. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume primary vein spinulose. Upper glume muticous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 2–3 mm long, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, flexuous, 2–12 mm long overall, not or scarcely exerted from spikelet. Palea 0.3–0.5 length of lemma, hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

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. Gambia, Ghana, Guinea-Bissau, Ivory Coast, Mali, Mauritania, Nigeria, Senegal, Sierra Leone, Togo, Niger. DRC. Sudan. Tanzania. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Botswana.

Chrysopogon nodulibarbis (Hochst. ex Steud.) Henrard. *Blumea*, 4: 534 (1941).

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 *C. zeylanicus*).

Basionym or Replaced Name: *Andropogon nodulibarbis* Hochst. ex Steud., *Syn. Pl. Glumac.* 1: 396 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Montes Nielgiri, *Hrbr. Hohncker. ind. or.* 934.

Recent Synonyms: *Chrysopogon zeylanicus* (Steud.) Thw., *Enum. Pl. Zeyl.* 366 (1864).

Illustrations (Books): K.M.Matthew, *Flora Palni Hills* (1996) (799, Pl. 799 as *C. zeylanicus*).

Derivation (Clifford & Bostock 2007): L. nodus, knot; -ula, diminutive; barba, beard. Culm nodes invested with a collar of short hairs.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Basal innovations flabellate. Culms erect, 50–120 cm long. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 12–30 cm long, 2–4 mm wide, stiff. Leaf-blade surface pubescent or pilose. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 8–18 cm long. Panicle branches villous (rufously), hairy at tip. Racemes bearing a triad of spikelets or few fertile spikelets, 1–3 fertile spikelets on each. Rhachis evident or obsolete, fragile at the nodes, ciliate on margins. Rhachis hairs dark brown. Rhachis internodes linear. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster or 2 in the cluster. Pedicels present, linear, 0.66–0.75 length of fertile spikelet, villous, with dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 7–15 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, acuminate, muticous. Companion sterile spikelet lemmas 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, 5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–2 mm long, pilose, base acute. Spikelet callus hairs red.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 4–6 mm long, 1 length of spikelet, cartilaginous, without keels. Upper glume lanceolate, 1-keeled. Upper glume apex emarginate, 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 entire or dentate, 2 -fid, emarginate, awned, 1 -awned. Principal lemma awn apical or from a sinus, geniculate, 15–30 mm long overall, with twisted column. Column of lemma awn puberulous. Palea absent or minute.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. India, Sri Lanka. Thailand.

TDWG4. Karaikal. Tamilnadu.

Chrysopogon oliganthus Veldkamp. *Austrobaileya* 5:526 (1999).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from Australia, Queensland. **Basionym or Replaced Name:** *Vetiveria pauciflora* S.T. Blake, *Pap. Dept. Bot. Univ. Queensland* 2(3): 20 (1944). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *S.T. Blake 8639*, 19 Apr 1935, Australia: Queensland: Burke Dist. (BRI; IT: US-1865534).

Illustrations (Books): C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (321, Pl. 94 as *Vetiveria pauciflora*), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1247, Fig. 352), 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. oligos, few; anthos, flower. Inflorescence of few spikelets.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Basal innovations intravaginal, flabellate. Culms erect, 60–120 cm long, 4–6 -noded. Ligule a fringe of hairs. Leaf-blades 25–55 cm long, 2.5–5 mm wide, stiff. Leaf-blade margins scabrous. Leaf-blade apex obtuse or abruptly acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open or contracted, lanceolate, 11–17 cm long, 1.2–5.5 cm wide. Primary panicle branches whorled at most nodes, simple. Panicle branches flexuous. Racemes 1.2–2.2 cm long, bearing few fertile spikelets, bearing 2–3 fertile spikelets on each. Rhachis fragile at the nodes. Rhachis internodes filiform, 3.5–6.5 mm long. Rhachis internode tip oblique. Raceme-bases filiform, pubescent, hairy at tip. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 1.5–3.5 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, linear, dorsally compressed, 4.5–7.5 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, scabrous, 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, laterally compressed, compressed slightly, 4.5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–2 mm long, bearded, base obtuse, attached obliquely. Spikelet callus hairs white, 0.2–0.3 length of spikelet (0.8–1.5mm).

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, without keels, 4–5 -veined. Lower glume surface spinose, rough on flanks. Upper glume lanceolate, cartilaginous, 1-keeled. Upper glume primary vein spinulose. Upper glume muticous or mucronate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 0.5–0.7 length of spikelet, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 3–4 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma margins ciliolate. Lemma apex entire, awned, 1 -awned. Principal lemma awn apical, straight, 1.5–15 mm long overall. Palea 0.3–0.5 length of lemma, hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3, 1.1–1.2 mm long. Caryopsis with adherent pericarp, oblong, 3 mm long.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley. Darwin & Gulf, Victoria R & Barkly Tableland. North, Central.

Chrysopogon orientalis (Desv.) A. Camus. *Lecomte, Fl. Gen. Indo-Chine*, 7: 332 (1922).

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 *C. distochophyllus*), T.G.Tutin et al, *Flora Europaea* 5 (1980).

Basionym or Replaced Name: *Rhaphis orientalis* Desv., *Mem. Soc. Agric. Angers* 1: 173 (1831)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India:, *Klein* 392 (HT: B-W-18636 (sheet 4)).

Illustrations (Books): K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (pl.736, pl.737), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 845).

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);.

Derivation (Clifford & Bostock 2007): L. oriens, the east; -alis, pertaining to. From the eastern Mediterranean through to Turkey.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms erect, 35–140 cm long. Ligule a ciliolate membrane. Leaf-blades 5–25 cm long, 2–8 mm wide. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, effuse, 7–20 cm long. Panicle branches villous (rufously), hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.75 length of fertile spikelet, villous, with dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 7–11 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, one glume awned, with 7–14 mm long awn. Companion sterile spikelet lemmas 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, 7.5–9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 2.5–3 mm long, pubescent, base pungent.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5–6 mm long, 1 length of spikelet, cartilaginous, without keels. Lower glume surface hispidulous, hairy at apex. Upper glume lanceolate, 1-keeled. Upper glume apex obtuse, awned, 1 -awned, awn 13–17 mm long, awn hispidulous.

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 entire, awned, 1 -awned. Principal lemma awn apical, geniculate, 40–70 mm long overall, with twisted column. Column of lemma awn pubescent, with 0.5–1 mm long hairs. Palea absent or minute.

Flower and Fruit. $2n = 20$ (1 ref TROPICOS).

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

Country /Province /State. **China.** Hainan, China Southeast. **Indian Subcontinent, Indo-China, Malesia.** Assam, India, Sri Lanka. Laos, Myanmar, Thailand, Vietnam. Malaya, Sumatra.

TDWG4. Fujian, Guangdong. Maharashtra, Tamilnadu.

Chrysopogon pallidus (R.Br.) Trin. ex Steud. *Nom. ed.* 2, 1: 360 (1840).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

Basionym or Replaced Name: *Holcus pallidus* R. Br., *Prodr.* 199 (1810).

Illustrations (Books): 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. pale-colored. Spikelets or grain pale-green.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 100–150 cm long, 3–5 -noded. Lateral branches sparse, arising from mid culm or upper culm. Leaf-sheaths wider than blade at the collar, without keel, smooth or scabrous, glabrous on surface or pubescent. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 0.5–0.7 mm long. Leaf-blades conduplicate or convolute, 20–40 cm long, 3–6 mm wide. Leaf-blade venation with 5–7 secondary veins. Leaf-blade surface papillose, glabrous or pubescent. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate or ovate, 18–30 cm long, 3–6 cm wide. Primary panicle branches 5–15 -nate, whorled at most nodes, 5–10 cm long. Panicle branches capillary, scabrous, villous, hairy at tip, bearded in axils. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, flattened, 5–7 mm long, bearing a few hairs or glabrous, hairy above.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 11–14 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, scabrous, acute, awned, one glume awned, with 5.5–12 mm long awn. Companion sterile spikelet lemmas 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, 10–13 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, curved, 4–5.5 mm long, pilose, base pungent. Spikelet callus hairs tawny, 1.2–2.5 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, cartilaginous, without keels, 5–9 -veined. Lower glume surface scabrous, rough above. Lower glume apex entire or dentate, 2 -fid, truncate, muticous or awned, 0–2 -awned, awn 0–9.5 mm long. Upper glume lanceolate, 1-keeled. Upper glume primary vein scabrous. Upper glume surface smooth or asperulous. Upper glume apex obtuse, awned, 1 -awned, awn 11–18 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret obovate, 6.5 mm long, hyaline, 2 -veined, ciliate on margins, emarginate or obtuse. Fertile lemma linear, 5.5–6.3 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 42–70 mm long overall, with twisted column. Column of lemma awn 16–21 mm long, 0.33–0.5 length of limb, hispidulous. Palea linear, 2.5–4.5 mm long. Palea surface glabrous or puberulous, hairy on flanks.

Flower and Fruit. Anthers 3, 3–8 mm long.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley, Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. North, Inland.

Chrysopogon pauciflorus (Chapm.) Benth. ex Vasey. *Gram. U. St.* 20 (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).

Basionym or Replaced Name: *Sorghum pauciflorum* Chapm., *Bot. Gaz.* 3(3): 20 (1878)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: A.W. Chapman *s.n.*, 1875, USA: Florida: Duval Co. (US-926152).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (635), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (as *Vetiveria*), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (as *Vetiveria*), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (412, Fig. 363as *Rhaphis pauciflora*).

Derivation (Clifford & Bostock 2007): spikelets few per inflorescence.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 60–120 cm long. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 10–30 cm long, 4–8 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 5–10 cm long. Primary panicle branches simple, 5–8 cm long. Panicle branches capillary, villous (with yellow hairs), hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, 1 length of fertile spikelet, glabrous.

Sterile Spikelets. Companion sterile spikelets represented by single glumes, linear, 7 mm long, shorter than fertile, persistent. Companion sterile spikelet glumes chartaceous, 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, 12–15 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, 5–6 mm long, pubescent, base pungent. Spikelet callus hairs red.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 7–8 mm long, 1 length of spikelet, coriaceous, dark brown, without keels. Upper glume lanceolate, coriaceous, 1-keeled. Upper glume apex obtuse, muticous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline, 2 -veined. Fertile lemma linear, hyaline, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn apical, geniculate, 110–150 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. Caribbean. Cuba.

Chrysopogon perlaxus Bor. *Dansk Bot. Arkiv*, 23: 157 (1965).

Accepted by: 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: *Larsen 8015*, Thailand (K; IT: C).

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

Derivation (Clifford & Bostock 2007): L. per, very; laxa, weak. Culms decumbent and creeping.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms erect, 100–150 cm long. Leaves mostly basal. Leaf-sheaths keeled. Ligule a fringe of hairs. Leaf-blades 10–25 cm long, 4–8 mm wide. Leaf-blade surface scaberulous, rough adaxially, puberulous, hairy adaxially. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 12–15 cm long. Primary panicle branches whorled at most nodes, 5–10 cm long. Panicle branches capillary, flexuous, apically expanded, scaberulous, villous (rufously), hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 1.5 mm long, 0.2 length of fertile spikelet, villous, hairy all along but hairs longer above, with red hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, elliptic or oblong, 6–7 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, one glume awned, with 7–8 mm long awn. 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, 7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, pilose, base pungent, attached obliquely. Spikelet callus hairs red.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 7 mm long, 1 length of spikelet, cartilaginous, without keels, keel-less except near apex. Upper glume lanceolate, 1-keeled. Upper glume awned, 1 -awned, awn 8–10 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 5 mm long, hyaline, 2 -veined. Fertile lemma linear, hyaline, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 33 mm long overall, with twisted column. Column of lemma awn 15 mm long, pubescent. Palea absent or minute.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Thailand.

Chrysopogon plumulosus Hochst. *Jahreshefte Wurt.* 3:62 (1847).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Saudi Arabia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Gegend von Djedda oder Mecca, W. Schimper s.n..

Illustrations (Books): R.M.Pohill, F.T.E.A., *Gramineae* (3(1982):738, Fig. 171), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (304, Fig. 121), L.Boulos, *Flora of Egypt* 4 (2005) (330, Pl. 97), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (254, Fig. 148).

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 10–90 cm long, wiry. Leaves cauline or mostly basal (rarely). Ligule a fringe of hairs. Leaf-blades 1–15 cm long, 1–3 mm wide, glaucous. Leaf-blade surface glabrous or pubescent. Leaf-blade apex abruptly acute or acute or acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 3–7 cm long. Panicle branches capillary, villous (fulvously), hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.33–0.5 length of fertile spikelet, villous (fulvously), with white hairs or dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 4–7 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, one glume awned or both glumes awned, with 5–15 mm long awn, awn plumose. Companion sterile spikelet lemmas 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, 5.5–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.5–2 mm long, bearded, base pungent. Spikelet callus hairs yellow or dark brown.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 4–6 mm long, 1 length of spikelet, cartilaginous, without keels. Lower glume surface pilose, hairy at apex. Upper glume lanceolate, 1-keeled. Upper glume primary vein eciliate or ciliate. Upper glume awned, 1 -awned, awn 7–15 mm long, awn plumose.

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 entire, emarginate, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–30 mm long overall, with twisted column. Column of lemma awn puberulous. Palea absent or minute.

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

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa, East tropical Africa. Egypt. Niger. Eritrea, Ethiopia (inc. Eritrea), Socotra, Somalia, Sudan. Kenya, Tanzania, Uganda. **Arabian Peninsula.** Gulf States, Oman, Saudi Arabia.

Chrysopogon polyphyllus (Hack.) Blatter & McCann. *Journ. Bombay Nat. Hist. Soc.* 2: 416 (1928).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

Basionym or Replaced Name: *Andropogon polyphyllus* Hack., *Fl. Brit. India* 7(21): 194 (1897 [1896])

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.C. Duthie 8491*, no date, India: Madhya Pradesh (IT: US-76604 (fragm. ex W)).

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

Derivation (Clifford & Bostock 2007): Gk. polys, several; phyllon, leaf. Culms many-leaved in comparison with related species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms 60–90 cm long. Culm-internodes distally glabrous. Lateral branches lacking or fastigiate. Leaves distichous. Ligule a ciliolate membrane. Leaf-blades 15–25 cm long, 2–4 mm wide, coriaceous, stiff, glaucous. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Peduncle glabrous. Panicle open, oblong, 10–13 cm long. Primary panicle branches whorled at most nodes, 0.6–1.2 cm long. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 1–1.5 mm long, 0.3–0.4 length of fertile spikelet, villous, hairy at tip.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 4.5 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, pilose (on midvein), 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 oblong, laterally compressed, 4 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.5 mm long, pilose, hairy below, base obtuse.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, cartilaginous, pallid or purple, without keels. Lower glume primary vein ciliate (above). Lower glume apex obtuse. Upper glume lanceolate, 1-keeled. Upper glume primary vein eciliate or ciliate.

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 dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, flexuous or geniculate, 3–8 mm long overall, with a straight or slightly twisted column. Column of lemma awn pubescent. Palea absent or minute.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Madhya Pradesh, Maharashtra, Tamilnadu.

Chrysopogon pseudozeylanicus K.G. Bhat & C.R. Nagendran. *Reinwardtia*, 10(2): 128 (1985).

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

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kotigehar: Bhat 550 (CAL holo, K).

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

Derivation (Clifford & Bostock 2007): Gk pseudos, *false*. Resembling *Chrysopogon zeylanicus*.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent. Culms erect, 90 cm long. Culm-internodes smooth. Leaves mostly basal. Leaf-sheaths keeled, glabrous on surface. Ligule a fringe of hairs. Leaf-blades 25–50 cm long, 2–5 mm wide, stiff.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Peduncle glabrous. Panicle contracted, lanceolate, 10 cm long. Primary panicle branches 2–3.5 cm long. Panicle axis 3–4 noded. Panicle branches capillary, smooth. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete.

Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 3.5–4 mm long, 0.7–0.8 length of fertile spikelet, villous.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 4–5 mm long, shorter than fertile or as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 4–5 mm long, 3–5 -veined, ciliolate on margins, acuminate, muticous. Companion sterile spikelet lemmas enclosed by glumes, 2.5–3 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 oblong, laterally compressed, 5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, pilose, base acute. Spikelet callus hairs dark brown.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5 mm long, 1 length of spikelet, coriaceous, without keels, 4 -veined. Lower glume primary vein scabrous (at apex). Lower glume lateral veins obscure. Upper glume lanceolate, 1-keeled, 3 -veined. Upper glume primary vein ciliolate. Upper glume surface puberulous. 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, 2.5–3 mm long, hyaline, 2 -veined, ciliate on margins, acute. Fertile lemma linear, 3–3.3 mm long, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–25 mm long overall, with twisted column. Column of lemma awn puberulous. Palea 1.5 mm long, hyaline.

Flower and Fruit. Lodicules 2, 0.5 mm long. Anthers 3, 2 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.
Karnataka.

Chrysopogon purushothamanii Ravi, N.Mohanan & Kiran Raj. *Rheedea* 10(2): 94 (2000).

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, Kattathipara: Ravi 44811 (TBGT holo, CAL, KFRI, MH).

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect, 100–150 cm long, 3 mm diam. Culm-internodes terete, distally glabrous. Leaves distichous, without demarcation between sheath and blade. Leaf-sheaths 4–8 cm long, striately veined, glabrous on surface. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blades 25–50 cm long, 3–6 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface pilose, sparsely hairy, hairy on both sides. Leaf-blade margins tuberculate-ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle contracted, lanceolate, 12 cm long, 5 cm wide. Primary panicle branches ascending, whorled at most nodes, 2–4 cm long. Panicle axis 3–4 noded. Panicle branches capillary, pubescent, hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 2–2.5 mm long, ciliate, hairy all along but hairs longer above, with tawny hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, elliptic, 5–6 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 9 -veined, pilose (on midvein), ciliolate on margins. Companion sterile spikelet lemmas 4.5 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 oblong, laterally compressed, 6–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–2 mm long, bearded. Spikelet callus hairs tawny.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, coriaceous, without keels, 7 -veined. Lower glume lateral veins obscure. Lower glume surface pilose, hairy above. Lower glume apex obtuse. Upper glume lanceolate, 5.5–6.5 mm long, 1-keeled. Upper glume surface asperulous. Upper glume margins ciliate. Upper glume apex emarginate, awned, 1 -awned, awn 4–8 mm long, awn hispidulous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 4.5–5 mm long, hyaline, ciliate on margins, fringed in the middle, dentate, 2 -fid. Fertile lemma oblong, 5.5–6 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal

lemma awn from a sinus, geniculate, 35 mm long overall, with twisted column. Column of lemma awn 18 mm long, scabrous. Palea absent or minute.

Flower and Fruit. Lodicules 2, 0.65 mm long. Anthers 2–3, 2–3 mm long, yellow or brown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.
Kerala.

Chrysopogon rigidus (B.K. Simon) Veldkamp. *Austrobaileya* 5:527 (1999).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from Australia, Queensland. **Basionym or Replaced Name:** *Vetiveria rigida* B.K. Simon, *Austrobaileya* 3(1): 95, f. 10 (1989). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Watson River Crossing on Merluna-Arukun road, Cape York Peninsula, 29 May 1982, J.R. Clarkson 4419 (HT: BRI; IT: CANB, K, MBA, NSW, QRS).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Derivation (Clifford & Bostock 2007): L. stiff. Culms, spikelets or inflorescence branches held stiffly erect.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 130–150 cm long, 3–4-noded. Ligule a fringe of hairs. Leaf-blades 30–50 cm long, 3–5 mm wide.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 20–27 cm long, 8–10 cm wide. Primary panicle branches 3–5-nate, whorled at most nodes, simple, 0.5–1 cm long. Racemes 3–4.5 cm long, bearing few fertile spikelets, bearing 3–4 fertile spikelets on each. Rhachis fragile at the nodes, scabrous on surface. Rhachis internodes filiform, 4–11 mm long. Rhachis internode tip oblique. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 2–5 mm long, 0.5 length of internode, scaberulous.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, linear or lanceolate, dorsally compressed, 4–5 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 3-veined, scaberulous, 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, laterally compressed, compressed slightly, acute, 6–9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus linear, bearded, base acute, attached obliquely.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, without keels, 3-veined. Lower glume surface muricate, rough on veins. Upper glume lanceolate, cartilaginous, 1-keeled, 3-veined. Upper glume primary vein scabrous. Upper glume awned, 1-awned, awn 1–2.5 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 6 mm long, hyaline, 2-veined. Fertile lemma linear, 2 mm long, hyaline, without keel. Lemma apex dentate, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, flexuous, 8–10 mm long overall. Palea lanceolate, 2.5 mm long, hyaline, 0-veined, without keels.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, 3–5 mm long.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

TDWG4. North.

Chrysopogon schmidianus A. Camus. *Not. Syst.* 14: 254 (1953).

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

TYPE from Annam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Annam: Piste de Kinda, region des Trois Frontieres, plateau basaltique, alt. 750–900 m., tache sterile en terres rouges, *Schmid* 6.

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 Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms erect, 50 cm long. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths 10–12 cm long, keeled, striately veined. Ligule a ciliolate membrane. Leaf-blades 10–15 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 9–10 cm long. Primary panicle branches appressed, whorled at lower nodes. Panicle branches scaberulous. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 1.6–1.8 mm long, ciliate, with red hairs, with 2–2.5 mm long hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 7 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, awned, one glume awned. 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 oblong, laterally compressed, 6–9 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, pilose, base acute.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, chartaceous, purple, without keels. Upper glume lanceolate, 1-keeled. Upper glume awned, 1 -awned, awn 7 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline. Fertile lemma oblong, 2.5 mm long, hyaline, without keel. 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 pubescent. Palea absent or minute.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Laos, Vietnam.

Chrysopogon serrulatus Trin. *Mem. Acad. Petersb. Ser.* 6, 2: 318 (1833).

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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Wallich 8791*, 1821, Nepal (LE; IT: K).

Illustrations (Books): G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (85, Fig. 43), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (233, Fig. 83), K.M.Matthew, *Flora Palni Hills Supplement* (1998), H.J.Noltie, *The Grasses of Bhutan* (2000) (787, Fig. 55).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): *L. serra*, saw; -ula, diminutive; -ata, possessing. Margin of leaf-blade bearing short, stiff hairs.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms erect, 40–150 cm long. Leaves cauline. Ligule a fringe of hairs. Leaf-blades 10–30 cm long, 2–10 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy. Leaf-blade apex acute or acuminate.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 3–15 cm long. Primary panicle branches whorled at most nodes. Panicle branches capillary, villous (fulvously), hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.25–0.5 length of fertile spikelet, villous, hairy all along but hairs longer above, with dark brown hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, (3–)4.5–8 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, awned, one glume awned, with (0–)3–7 mm long awn, awn glabrous or pubescent (obscurely). Companion sterile spikelet lemmas 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 oblong, laterally compressed, 5–8.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–1.5 mm long, bearded, base pungent. Spikelet callus hairs yellow or dark brown, 0.3 length of spikelet.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, cartilaginous, without keels. Lower glume surface hispidulous, hairy at apex. Upper glume

lanceolate, 1-keeled. Upper glume primary vein eciliate (or a few white hairs). Upper glume surface glabrous or pilose, hairy at apex. Upper glume awned, 1 -awned, awn 6–12 mm long, awn hispidulous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 1 length of fertile lemma, hyaline, 2 -veined. Fertile lemma oblong, 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, 20–30 mm long overall, with twisted column. Column of lemma awn glabrous or pubescent. Palea absent or minute.

Flower and Fruit. *N* = 10 (1 ref TROPICOS).

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

Country /Province /State. **Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean.** Socotra. Kenya, Tanzania, Uganda. Mozambique, Zambia, Zimbabwe. Botswana, Limpopo, North-West, Gauteng, Kwazulu-Natal, Northern Cape. Madagascar. **Western Asia, Arabian Peninsula.** Afghanistan. **Indian Subcontinent, Indo-China, Malesia.** Eastern Himalaya, India, Pakistan, Sri Lanka, West Himalaya. Myanmar, Thailand. Malaya, Sumatra.

TDWG4. Bhutan. Jammu Kashmir.

Chrysopogon setifolius Stapf. *Kew Bull.* 1917, 29 (1917).

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: North Australia: Port Darwin, *Schultz 661* (HT: K).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Derivation (Clifford & Bostock 2007): *L.* seta, bristle; folium, leaf. Leaf-blades bristle-like.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect, 40–50 cm long. Ligule a fringe of hairs. Leaf-blades filiform, involute, 8–15 cm long, 1 mm wide. Leaf-blade surface glabrous or pilose.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 7–12 cm long. Primary panicle branches simple. Panicle branches capillary. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 0.75 length of fertile spikelet, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 5–7 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, acuminate, muticous. Companion sterile spikelet lemmas 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, subterete, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, bearded, base acute. Spikelet callus hairs white, 1–1.5 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5–6 mm long, 1 length of spikelet, coriaceous, without keels. Lower glume surface spinose, rough on flanks. Upper glume lanceolate, coriaceous, with hyaline margins, 1-keeled. Upper glume apex acute, muticous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 3 mm long, hyaline, 2 -veined. Fertile lemma oblong, 5 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma margins ciliolate. Lemma apex entire, acuminate, muticous. Palea absent or minute.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. **Australia.** Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley. Darwin & Gulf. North.

Chrysopogon subtilis (Steud.) Miq. *Fl. Ind. Bat.* 3: 492 (1855).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, J.F.Veldkamp, Poaceae ms (*Flora Malesiana*).

TYPE from Indonesia. **Basionym or Replaced Name:** *Andropogon subtilis* Steud., *Syn. Pl. Glumac.* 1: 396 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Zollinger 2815*, Indonesia: Java (P; IT: US-1127067).

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

Derivation (Clifford & Bostock 2007): *L.* fine. Leaf-blades linear.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 20–30 cm long. Ligule a ciliate membrane. Leaf-blades conduplicate, 4–12 cm long, 1–3 mm wide.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 3–4 cm long. Primary panicle branches not whorled. Panicle branches capillary, apically expanded, pubescent, hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, 2 mm long, 0.5 length of fertile spikelet, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 5–6 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, acute, muticous. Companion sterile spikelet lemmas 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 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1–2 mm long, pilose, base pungent. Spikelet callus hairs tawny.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, without keels. Lower glume surface scabrous, rough at apex. Upper glume lanceolate, 1-keeled. Upper glume surface scabrous. Upper glume awned, 1 -awned, awn 10 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret obovate, hyaline, 2 -veined. Fertile lemma linear, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 25 mm long overall, with twisted column. Column of lemma awn puberulous.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Java, Lesser Sunda Is, Philippines.

Chrysopogon sylvaticus C. E. Hubbard. *Hook. Ic. Pl.* 4: 1 : 3365 (1938).

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: IT: *C.E. Hubbard 8587*, 3 Apr 1931, Australia: Queensland (L, US-2907468). CS.

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (186).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3365 (1938)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. silva, wood; -ica, belonging to. Growing in woodlands.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations flabellate. Culms erect or geniculately ascending, 30–120 cm long, 3–5 -noded. Culm-nodes glabrous. Leaf-sheaths keeled. Ligule a ciliolate membrane. Leaf-blades conduplicate, 25–50 cm long, 2.5–6 mm wide. Leaf-blade surface glabrous or pubescent, sparsely hairy, hairy adaxially. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, effuse, 8–18 cm long. Primary panicle branches spreading, whorled at most nodes, simple, 4–8 cm long. Panicle branches capillary, flexuous. Racemes bearing a triad of spikelets or few fertile spikelets, 1–3 fertile spikelets on each. Rhachis evident or obsolete, fragile at the nodes, glabrous on margins. Rhachis internodes linear, 5.5–7 mm long. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1–2 in the cluster. Pedicels present, linear, 5.5–7 mm long, 0.75 length of fertile spikelet, glabrous.

Sterile Spikelets. Companion sterile spikelets rudimentary or well-developed, comprising 2 subequal glumes without lemmas or containing empty lemmas or male, linear or lanceolate, 3–7.3 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, acute, muticous. Companion sterile spikelet lemmas 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, 7.5–9.5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1.3–2 mm long, bearded, base pungent. Spikelet callus hairs red, 2–3.5 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, cartilaginous, without keels, 7 -veined. Lower glume surface scabrous (above). Lower glume

apex truncate, mucicous or mucronate. Upper glume lanceolate, 1-keeled, 3 -veined. Upper glume primary vein ciliolate. Upper glume surface scabrous, rough above. Upper glume margins ciliolate. Upper glume apex truncate or obtuse, awned, 1 -awned, awn 3–5 mm long, awn glabrous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 5 mm long, hyaline, 2 -veined, ciliolate on margins, obtuse. Fertile lemma oblong, 5 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma margins ciliolate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 17–25 mm long overall, with twisted column. Column of lemma awn glabrous. Palea oblong, 0.5–0.8 length of lemma, 2 -veined. Palea apex truncate.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland, New South Wales.

TDWG4. North, Central, South East. Coast.

Chrysopogon tadulingamii P.V. Sreekumar, V.J. Nair & N.C. Nair. *J. Bombay Nat. Hist. Soc.*, 80(1): 198 (1983).

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, Periyar: Sreekumar 71758 (CAL holo, MH).

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

Derivation (Clifford & Bostock 2007): in honor of C. Tadulinga Mudaliar (1878-) Indian botanist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, slender, 30–100 cm long. Culm-nodes glabrous. Leaf-sheaths tight, 2–6 cm long, mostly shorter than adjacent culm internode, without keel, striately veined, glabrous on surface. Ligule a fringe of hairs. Leaf-blades aciculate or linear, convolute, 5–15 cm long, 1–2 mm wide, stiff, glaucous. Leaf-blade surface glabrous, hairless throughout or except near base.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 5–15 cm long. Primary panicle branches whorled at lower nodes, 1–4 cm long. Panicle branches capillary, glabrous, bearded in axils. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, angular, 3 mm long, pubescent.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 8–10 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, 7 -veined, awned, one glume awned, with 10–15 mm long awn. Companion sterile spikelet lemmas enclosed by glumes, 4–5 mm long, mucicous.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 3–4 mm long, bearded. Spikelet callus hairs dark brown.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, light brown, without keels. Lower glume surface hispidulous, hairy above. Upper glume oblong, 5–6 mm long, 1-keeled. Upper glume apex obtuse, awned, 1 -awned, awn 10–15 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3.5–4 mm long, hyaline, ciliate on margins, acute. Fertile lemma linear or oblong, 4–5 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 50–60 mm long overall, with twisted column. Column of lemma awn 20–30 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Lodicules 2, 0.4 mm long. Anthers 2–3, 3–4 mm long, yellow.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Kerala.

Chrysopogon tenuiculmis Henrard. *Blumea*, 4 : 532 (1941).

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: HT: *Iboet 151*, 29 Mar 1925, Indonesia: Soemba: prope Kendara (L-927,344–414; IT: BO, K, US-2079799).

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

Derivation (Clifford & Bostock 2007): *L. tenuis*, thin; culmis, stem. Culms thin.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial. Culms 30–60(–100) cm long. Ligule a fringe of hairs, 0.2–0.6 mm long. Leaf-blades conduplicate, 5–13 cm long, 2–3 mm wide. Leaf-blade surface glabrous or pilose, hairy adaxially.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, 5–8 cm long, 1–2.5 cm wide, bearing few spikelets. Primary panicle branches not whorled or whorled at lower nodes, simple, 1.4–2.5 cm long. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Raceme-bases filiform, 8–15 mm long. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 2.6–4 mm long, 0.66 length of fertile spikelet, smooth, glabrous.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, dorsally compressed, (4.5–)5.25–7(–8.25) mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, smooth or scaberulous, puberulous, muticous or mucronate or awned, one glume awned, with 0–4.5 mm long awn. Companion sterile spikelet lemmas 1, 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, (4.1–)5.25–6(–6.5) mm long, falling entire, deciduous with accessory branch structures. Spikelet callus oblong, 1.5–2 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs yellow, 1.9–2.25 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 5–8 mm long, 1 length of spikelet, cartilaginous, without keels, 5–7 -veined. Lower glume surface convex, smooth or spinose, hispidulous, hairy above, with tubercle-based hairs. Lower glume apex entire or dentate, 2 -fid, obtuse, muticous or mucronate or awned, 1 -awned, awn 0–3 mm long. Upper glume lanceolate, 1-keeled, 3–5 -veined. Upper glume primary vein ciliate. Upper glume awned, 1 -awned, awn 2.6–8.6 mm long, awn glabrous.

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 dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 14–25 mm long overall, clearly exerted from spikelet, with twisted column. Column of lemma awn puberulous, with 0.15 mm long hairs.

Flower and Fruit. Lodicules 2, glabrous. Anthers 3, 1.5–2.25 mm long (sessile) or 2.1–2.8 mm long (pedicelled).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Lesser Sunda Is.

Chrysopogon velutinus (Hook. f.) Bor. *Grasses Burma, Ceyl., Ind. & Pakist.* 119 (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).

Basionym or Replaced Name: *Andropogon velutinus* Hook. f., *Fl. Brit. India* 7(21): 194 (1897 [1896]). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mysore; at Cuddapah, *Wight 2314*.

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

Derivation (Clifford & Bostock 2007): L. velvety. Plant in whole or in part covered with dense short hairs.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Annual, caespitose. Culms 30–50 cm long. Leaf-sheaths keeled, ribbed. Ligule a fringe of hairs. Leaf-blades 10–20 cm long, 5–10 mm wide. Leaf-blade surface pubescent, hairy on both sides. Leaf-blade margins spinulose.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, ovate, 6 cm long. Primary panicle branches whorled at most nodes. Panicle branches apically expanded, pubescent, hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 1 mm long, 0.15–0.2 length of fertile spikelet, ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 5 mm long, shorter than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, pubescent, acute, muticous. Companion sterile spikelet lemmas 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, 6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, pubescent, base truncate.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, without keels. Upper glume lanceolate, 1-keeled. Upper glume primary vein ciliate. Upper glume awned, 1 -awned, awn 7 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret obovate, hyaline, 2 -veined. Fertile lemma linear, hyaline, without keel. 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 puberulous.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Tamilnadu.

Chrysopogon verticillatus (Roxb.) Trin. ex Steud. *Nom. ed.* 2, 1: 360 (1840).

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: *Andropogon verticillatus* Roxb., *Fl. Ind., ed. 1820* 1: 267 (1820)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ... native of mountains, flowering about the end of the wet season.,.

Illustrations (Books): K.M.Matthew, *Flora Palni Hills* (1996) (798, Pl. 798).

Derivation (Clifford & Bostock 2007): L. whorl; -ata, possessing. Primary inflorescence branches whorled.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 150–250 cm long. Leaf-sheaths without keel. Ligule an eciliate membrane. Leaf-blades 20–45 cm long, 10–20 mm wide. Leaf-blade surface pilose. Leaf-blade margins spinulose.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 15–20 cm long. Primary panicle branches whorled at most nodes. Panicle branches straight, apically expanded, pubescent, hairy at tip. Racemes bearing a triad of spikelets, 1 fertile spikelets on each. Rhachis obsolete. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, linear, 3 mm long, 0.5 length of fertile spikelet, ciliate, with red hairs.

Sterile Spikelets. Companion sterile spikelets well-developed, male, lanceolate, 7–8 mm long, longer than fertile, separately deciduous. Companion sterile spikelet glumes chartaceous, acute, awned, one glume awned, with 5–6 mm long awn. Companion sterile spikelet lemmas enclosed by glumes, 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, laterally compressed, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, 1 mm long, pubescent, base obtuse. Spikelet callus hairs red.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, cartilaginous, without keels. Upper glume lanceolate, 1-keeled. Upper glume primary vein pubescent. Upper glume awned, 1 -awned, awn 8–10 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret obovate, hyaline, 2 -veined. Fertile lemma linear, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 30–45 mm long overall, with twisted column. Column of lemma awn puberulous.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Orissa, Tamilnadu.

Chrysopogon zizanioides (L.) Roberty. *Bull. Inst. Franc. Afr. Noire, Ser. A.* 22: 106 (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), 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) (as *Vetiveria*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from India. Basionym or Replaced Name: *Phalaris zizanioides* L., *Mant. Pl.* 2: 183 (1771)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India:, *Koenig s.n.* (LT: LINN-78.12).

Recent Synonyms: *Vetiveria zizanioides* (L.) Nash, Small, *Fl. S.E. U.S.* 67 (1903).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (255, Fig. 93 as *Vetiveria*), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (786 as *Vetiveria*), C-C Hsu, *Taiwan Grasses* (1975) (as *Vetiveria*), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (636), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (406, Fig. 360 as *Vetiveria*), S.A.Rennoize, *The Grasses of Bahia*, 1984 (271, Fig. 102 as *Vetiveria zizanioides*), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (519, Fig. 186 as *Vetiveria zizanioides*), H.J.Noltie, *The Grasses of Bhutan* (2000) (787, Fig. 55 as *Vetiveria*), K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (as *Vetiveria*), T.A.Cope, *Flora of Pakistan 143: Poaceae* (1982) (307, Fig. 34 as *Vetiveria*), H.B.Gilliland, *Grasses of Malaya* (1971) (223, Fig 51 as *Vetiveria*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrata Catarinensis Gramineas* (1981–1982) (1242, Fig. 244 as *Vetiveria*), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (586, Fig. 220 as *Vetiveria*), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (Fig. 114 as *Vetiveria*), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 843).

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

Derivation (Clifford & Bostock 2007): Gk. -oides. Resembling *Zizania*.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe Incertae Sedis.

Habit, Vegetative Morphology. Perennial, caespitose. Roots aromatic. Rhizomes short. Basal innovations intravaginal, flabellate. Culms erect, 150–300 cm long. Ligule a fringe of hairs. Leaf-blades 30–100 cm long, 4–10 mm wide, stiff. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme. Panicle open, lanceolate, 15–40 cm long. Primary panicle branches whorled at most nodes, simple. Racemes 4–8 cm long. Rhachis fragile at the nodes. Rhachis internodes filiform. Rhachis internode tip transverse, cupuliform. Raceme-bases filiform, glabrous. Spikelets appressed, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform.

Sterile Spikelets. Companion sterile spikelets well-developed, male, linear, dorsally compressed, as long as fertile, separately deciduous. Companion sterile spikelet glumes coriaceous, smooth or scaberulous, 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 linear, laterally compressed, compressed slightly, 3.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus square, glabrous, base obtuse, inserted.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 1 length of spikelet, coriaceous, without keels, 5 -veined. Lower glume surface spinose, rough generally or on flanks. Upper glume lanceolate, chartaceous, 1-keeled. Upper glume primary vein spinulose. Upper glume muticous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 2–3 mm long, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex entire, muticous. Palea 0.3–0.5 length of lemma, hyaline, 0 -veined, without keels.

Flower and Fruit. Anthers 3, 2–3 mm long. Caryopsis with adherent pericarp.

$2n = 20$.

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America (*), South America.

Country /Province /State. **Northern Africa, West tropical Africa, West-central tropical Africa, Middle Atlantic ocean, Western Indian ocean.** Egypt (+). Ghana, Liberia, Sierre Leone. Gabon, Rwanda, DRC. St Helena. Mauritius, Madagascar, Reunion, Rodrigues, Seychelles. **China (+), Eastern Asia.** China South Central, Hainan, China Southeast. Kazan-retto, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Assam, Bangladesh, Eastern Himalaya, India, Pakistan, Sri Lanka. Cambodia, Myanmar, Thailand, Vietnam. Java, Lesser Sunda Is, Malaya, Singapore, Philippines, Sumatra. New Guinea PNG. New Guinea. **Australia.** Queensland (*). **Southwestern Pacific, South-central Pacific.** Fiji (*), Niue (*), New Caledonia (*), Samoa (*), Tonga (*). Cook Is (*), Marquesas (*), Society Is (*), Tubuai Is (*). Caroline Is (*). Hawaii (*). **South-central USA, Southeastern USA, Mexico.** Texas. Louisiana. Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America.** Belize, Costa Rica, El Salvador, Honduras, Nicaragua. Cuba (+), Jamaica (+), Windward Islands (+), Puerto Rico (+). Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil Northeast. Paraguay, Uruguay.

TDWG4. Fujian, Guangdong, Zhejiang. Sichuan, Yunnan. North. Catamarca. Chaco, Corrientes, Misiones. Chiapas.

Chusquea abietifolia 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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *N. Wilson s.n.*, Jamaica (US-2874611 (fragm.)).

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (22, Fig. 3).

Derivation (Clifford & Bostock 2007): *L. folium*, leaf. The leaf-blades resemble the leaves of *Abies*.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, pendulous at the tip, 500–700 cm long, woody, without nodal roots. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement several, in a clump, thinner than stem. Culm-sheaths present, persistent. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 1–3 cm long, 2–4 mm wide, glaucous. Leaf-blade apex acuminate, filiform.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 1.5–6 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, 6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.5 mm long, membranous, without keels. Lower glume apex obtuse. Upper glume oblong, 0.5 mm long, 0.08 length of adjacent fertile lemma, membranous, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2 mm long, 0.33 length of fertile lemma, chartaceous, acute. Lemma of upper sterile floret ovate, 2.5 mm long, chartaceous, acuminate. Fertile lemma ovate, 6 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, Trinidad-Tobago.

Chusquea acuminata Doell. *Mart. Fl. Bras.* 2, 3: 204 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.E.B. Warming s.n.*, Brazil: (C(fragm., US-2874612)).

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

Derivation (Clifford & Bostock 2007): *L. acumen*, sharp point; -ata, possessing. Lemmas or glumes acute.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms woody. Culm-internodes terete. Lateral branches dendroid. Branch complement many, in a clump, thinner than stem. Culm-sheaths present. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 2–4 cm long, 2–4 mm wide. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 6–10 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, 7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.2 mm long, membranous, without keels. Lower glume apex obtuse. Upper glume lanceolate or ovate, 0.5–2 mm long, 0.1–0.25 length of adjacent fertile lemma, membranous, without keels. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 5 mm long, 0.66 length of fertile lemma, chartaceous, purple, 3-veined, acute, awned. Awn of lower sterile floret 2 mm long. Lemma of upper sterile floret lanceolate, 5 mm long, chartaceous, acute, awned. Awn of upper sterile floret 2 mm long. Fertile lemma ovate, 7 mm long, coriaceous, without keel, 7-veined, more than 3-veined. Lemma apex acuminate, mucronate.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil. Colombia. Brazil Southeast.

Chusquea acuminatissima (Munro) L.G.Clark. *Syst. Bot.* 34:680 (2009).

Regarded by K as a synonym (*N. aristata*).

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:** *Planotia acuminatissima* Munro, *Trans. Linn. Soc. London* 26(1): 72 (1868). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Goudot s.n.*, Colombia: Tolima (K; ILT: US (fragm.)). LT designated by Clark, *Bamboo Sci. Cult.* 17(1): 60 (2003).

ST: *Linden (Triana) 50*, Hab. in Nova Granada, Tolima.

Recent Synonyms: *Neurolepis acuminatissima* (Munro) Pilger, *Engl. & Prantl, in Engl. & Prantl, Nat. Pflanzenfam. Nachtr.* 3, 21 (1906).

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

Derivation (Clifford & Bostock 2007): *L. acumen*, sharp point; -ata, possessing; -issima, most. Spikelets acuminate in outline.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia.

Chusquea albilanata L.G. Clark & X. Londono. *Nordic J. Bot.*, 11(3): 323 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *S. M. Young 45*, 18 Dec 1979, Ecuador: Pichincha: 2020 m (US-2947396, US-2947395!; IT: QCA!).

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, pendulous at the tip, 300–500 cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes terete, 17–26 cm long, retrorsely scabrous. Culm-nodes with distinct supra-nodal ridge, pubescent. Lateral branches dendroid, extravaginal. Branch complement many, in a clump, with 2 branches dominant or 3 branches dominant and interspersed leafless fibrillar branches, thinner than stem. Culm-sheaths present, persistent, 11–18 cm long, glabrous. Culm-sheath ligule 1–3 mm high. Culm-sheath blade lanceolate, erect, 3–7.4 cm long. Leaves 4–6 per branch. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–10 mm long, obtuse or acute. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.15–0.3 cm long, petiole glabrous. Leaf-blades lanceolate, 8–22 cm long, 18–46 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 11–15 cm long. Primary panicle branches 7–9 cm long. Panicle axis angular, pilose. Panicle branches angular, pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–6 mm long, 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, 4.3–5.1 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 2.4–3 mm long, 0.5 length of fertile lemma, chartaceous, 3-veined, acute. Lemma of upper sterile floret elliptic, 2.8–3 mm long, chartaceous, acute. Fertile lemma elliptic,

4.3–5.1 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma apex obtuse. Palea 3.9–4.9 mm long, 4 -veined.

Flower and Fruit. Lodicules 3, 0.8–1.1 mm long, membranous, glabrous. Anthers 3, 1.9–2.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador.

Chusquea amistadensis Clarke, Davidse & Ellis. *Nat. Geogr. Res.* 5:462 (1989).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *G. Davidse, L.D. Gsmez, G. Herrera, C.R. Chacsn & I. Chacsn, A. Chacsn 25332*, 7 Mar 1984–8 Mar 1984, Panama: Bocas del Toro: Cordillera de Talamanca, 2 airline km NW of the main peak of Cerro Fabrega along the NW ridge of the massif, 9:08'N, 82:53'W, elev. 3150–3200 m, paramo with low-forested gullies, in forested gully, culms to 5 m long, erect, spikelets dark, shiny brown-purple, leaves strongly distichous, anthers pale green, stigmas white (MO-3513100, MO-3513101; IT: BM (2 sheets), CR, US-3180842, US-3180843).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From the Parque Internacional La Amistad, a World Heritage area in Republic of Costa Rica and Panama.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 100–200(–500) cm long, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid, intravaginal. Branch complement three to several, in a horizontal line, thinner than stem. Culm-sheaths present, 5–10 cm long, glabrous, without auricles. Culm-sheath blade lanceolate, demarcated but persistent, erect, 1.5–2 cm long, glabrous on surface. Ligule an eciliate membrane, 10–44 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 6–20.5 cm long, 7–14 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, loose, 6–26 cm long. Primary panicle branches appressed. Panicle axis pilose. Spikelets appressed, 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, curved, subterete, 4.3–7.3 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, 0.2–1.6 mm long, 1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.2–1.6 mm long, 0.05–0.25 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.4–4.9 mm long, (0.5–)0.66–0.75 length of fertile lemma, chartaceous. Lemma of upper sterile floret ovate, 2.9–5.4 mm long, chartaceous. Fertile lemma ovate, 4.3–6.9 mm long, coriaceous, without keel, more than 3-veined. Lemma margins involute, covering most of palea. Lemma apex acute or acuminate. Palea tightly convolute around flower, 1 length of lemma. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica, Panama.

Chusquea annagardneriae L.G.Clark, C.D.Tyrell, Triplett & A.E.Fisher. *J. Bot. Res. Inst. Texas* 1:847 (2007).

Not on *GrassBase*.

TYPE from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Loja: road Velacruz-Catacocha, ca. km 6, 2040 m, ca. 4S, 79.35W, 11 Mar 1989 (fl), *B. Øllgaard, L. Ellemann & B. Eriksen 90959* (HT: QCA; IT: AAU).

Classification. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 250–400 cm long, 5–11 mm diam., woody. Culm-internodes terete, 20–32 cm long, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, extravaginal. Bud complement 40–50. Branch complement many, in a clump, with 2 branches dominant and interspersed leafless fibrillar branches, thinner than stem. Culm-sheaths present, persistent, 22–25 cm long, glabrous, hairy on margins. Culm-sheath ligule 2 mm high, brown, ciliolate. Culm-sheath blade lanceolate, narrower than sheath, erect, 2.2–4 cm long, scabrid. Leaves 3–5 per branch. Leaf-sheaths keeled (above), glabrous on surface or pilose, outer margin hairy. Leaf-sheath auricles falcate. Ligule an eciliate membrane, 0.5–0.8 mm long, truncate or obtuse. 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 lanceolate, 2.9–8.5 cm long, 4–13 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins smooth or scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 3–9 cm long. Primary panicle branches 1.5–4.5 cm long. Panicle axis scabrous. Panicle branches pubescent, pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long, scabrous.

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, 5–5.7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2–3 mm long, 0.5 length of fertile lemma, chartaceous, 3 -veined, ciliolate on margins, fringed above, acute. Lemma of upper sterile floret ovate, 2.2–3.3 mm long, 1.1 length of lower sterile floret, chartaceous, ciliolate on margins, fringed above, acute. Fertile lemma lanceolate, 4.6–5 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex acute. Palea 4.6–5.1 mm long, 1 length of lemma, 4–6 -veined. Palea surface pubescent, hairy on back, hairy above.

Flower and Fruit. Lodicules 3, 1–1.2 mm long, ciliate. Anthers 3, 2.7 mm long.

Distribution (TDWG), Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea andina Phil. *Linnaea*, 29: 103 (1859).

Regarded by K as a synonym (*C. culeou*).

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>: *fide* TROPICOS and Kew Synonymy Database: HT: Chile: Departamento de Chillan (SGO-PHIL-521; IT: SGO-63026, US-556439 (fragm. ex SGO-PHIL-521)).

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

Derivation (Clifford & Bostock 2007): L. -inus, belonging to. From the Andes.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG), Continent. South America.

Country /Province /State. Southern South America. Chile Central.

Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Biobio, La Araucania.

Chusquea anelytra Nees. *Linnaea*, 9: 491 (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).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (83, Fig. 20).

Derivation (Clifford & Bostock 2007): Gk. a-, without; elytron, cover. Lower pair of glumes much reduced.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 3–4 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 10–17 cm long, scaberulous. Lateral branches dendroid. Branch complement three. Culm-sheaths present. Leaf-sheaths keeled (above), striately veined, glabrous on surface or pubescent. Ligule an eciliate membrane, 3 mm long, obtuse. Collar with external ligule. Leaf-blade base cordate, with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long, petiole glabrous or pubescent. Leaf-blades deciduous at the ligule, oblong, 10–14 cm long, 14–20 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, pyramidal, 7–15 cm long. Primary panicle branches reflexed, 9 cm long. Panicle branches pubescent. 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, subterete, acuminate, 8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.2–0.5 mm long, 1 length of upper glume, membranous, without keels. Lower glume apex obtuse. Upper glume orbicular, 0.02–0.05 length of adjacent fertile lemma, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 6 mm long, chartaceous, acute, mucronate. Lemma of upper sterile floret lanceolate, 7 mm long, chartaceous, acute, mucronate. Fertile lemma lanceolate, 8 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acuminate. Palea 1 length of lemma.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo, Catarina, Rio Grande do Sul.

Chusquea anelytroides Rupr. ex Doell. *Mart. Fl. Bras.* 2, 3: 206 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Riedl 1633*, 1833, Brasilia: prov. St. Pauli, pr. Lorena, in collibus siccis (LE-TRIN-3192.01; IT: US-2874616, US-2874615).

ST: *Lund 1833*, Brazil: in Serra do Itaguahy.

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

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Chusquea anelytra*.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms 400–1000 cm long, 20–30 mm diam., woody, without nodal roots. Culm-internodes terete, solid, smooth. Lateral branches dendroid. Branch complement several. Culm-sheaths present. Leaves 5–15 per branch. Leaf-sheaths striately veined, scaberulous, glabrous on surface. Leaf-sheath auricles erect. Ligule a ciliolate membrane, 3–4 mm long, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole pubescent. Leaf-blades deciduous at the ligule, lanceolate or ovate, 6–15 cm long, 8–25 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, pyramidal, 15 cm long, contracted about primary branches. Primary panicle branches 1–12 cm long, bearing spikelets almost to the base. Panicle axis pubescent. Panicle branches bearing approximate spikelets, puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, puberulous.

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, subterete, acute, 7 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, 0.2–0.5 mm long, 1 length of upper glume, membranous. Upper glume lanceolate, 0.2–0.5 mm long, 0.02–0.05 length of adjacent fertile lemma.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 4–5 mm long, 0.66–0.75 length of spikelet, chartaceous. Lemma of upper sterile floret lanceolate, 5–6 mm long, 1.2–1.3 length of lower sterile floret, chartaceous, acute. Fertile lemma lanceolate, 5–6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute, muticous or mucronate. Palea keels scaberulous.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

Chusquea angusta (Swallen) L.G.Clark. *Syst. Bot.* 34:680 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Venezuela. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *B. Maguire 33412*, 15 Mar 1952, Venezuela: Bolívar: Gran Sabana, Ilu-tepuí, saddle between North Peak and central plateau, 2300–2600 m, abundant in open places in low brush on cumbre slopes (US-2078770, US-2078769; IT: NY).

Recent Synonyms: *Neurolepis angusta* Swallen, *Mem. N. Y. Bot. Gard.* ix. 249 (1957). *Neurolepis tessellata* (Pilger) Pilger, *Engl. & Prantl, Nat. Pflanzenfam. Nachtr.* 3, 21 (1906).

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

Derivation (Clifford & Bostock 2007): *L. narrow*. Narrow, with respect to leaf-blades or spicate panicles.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 250 cm long, woody. Culm-internodes terete, solid. Lateral branches lacking. Leaf-sheaths 35 cm long, longer than adjacent culm internode. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect. Ligule an eciliate membrane, 10 mm long, with a secondary abaxial membrane (30mm long). Leaf-blade base with a false petiole (lower leaves), petiole 50 cm long. Leaf-blades lanceolate, 80–165 cm long, 60–65 mm wide, coriaceous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 75 cm long, 3 cm wide, contracted about primary branches. Primary panicle branches ascending, sparsely divided, 2–4 cm long, bearing spikelets almost to the base. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled or sessile. 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, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1–1.5 mm long, 0.5–0.6 length of upper glume, coriaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 2–2.5 mm long, 0.5 length of adjacent fertile lemma, coriaceous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4–5.5 mm long, coriaceous, obtuse. Lemma of upper sterile floret 1 length of lower sterile floret. Fertile lemma ovate, 4–5.5 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1.5–2 mm long overall. Palea ovate, 1 length of lemma, coriaceous, without keels. Palea apex obtuse.

Flower and Fruit. Lodicules 3, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia.

Chusquea angustifolia (Soderstrom & C. Calderon) L.G. Clark. *Ann. Missouri Bot. Gard.*, 74(2): 428 (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).

Basionym or Replaced Name: *Swallenochloa angustifolia* Soderstr. & C.E. Caldersn, *Brittonia* 30(3): 303 (1978)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J.A. Steyermark, G.C.K. Dunsterville & E. Dunsterville 98615*, 20 May 1967–23 May 1967, Venezuela: Tachira (US-2594324; IT: VEN).

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 erect, 30–100 cm long, 2–5 mm diam., woody, without nodal roots. Culm-internodes terete, solid, smooth. Lateral branches dendroid, intravaginal. Branch complement several, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, pubescent. Culm-sheath ligule 0.8–1 mm high. Culm-sheath blade triangular, as wide as sheath at base, 3 cm long, pubescent, acuminate. Leaves 10–13 per branch. Leaf-sheaths pilose. Ligule a ciliolate membrane, 0.8–1 mm long, obtuse. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.1 cm long. Leaf-blades deciduous at the ligule, lanceolate, revolute, 6–8 cm long, 2–5 mm wide, coriaceous, stiff. Leaf-blade venation without cross veins. Leaf-blade surface hispid, hairy on both sides. Leaf-blade apex abruptly acute, filiform.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, secund, 4–10 cm long, 0.5–1.3 cm wide. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 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, 3.5–7.5 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, 0.6–1.7 mm long, 0.25–0.5 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous. Lower glume apex obtuse. Upper glume ovate, 2–2.5 mm long, 0.33 length of adjacent fertile lemma, without keels, 3 -veined. Upper glume surface puberulous. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret obovate, 3.2–5 mm long, 0.66–0.75 length of fertile lemma, chartaceous, 5 -veined, puberulous, acuminate. Lemma of upper sterile floret lanceolate, 5.5–6.6 mm long, 1.1 length of lower sterile floret, chartaceous, pubescent, acuminate. Fertile lemma oblong, 6–7 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex apiculate. Palea 1 length of lemma, 2 -veined. Palea surface puberulous, hairy on back, hairy above.

Flower and Fruit. Lodicules 3, 1.4 mm long, membranous, veined, ciliate. Anthers 3, 2.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia.

Chusquea antioquiensis L.G. Clark & X. London. *Novon*, 8(4): 423 (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: Antioquia: Mun La Unisn: Rmo Buey, 5.6 km SW of Mesopotamia and 25 km NE of Abejorral, 5.53N 75.20W, 2200 m, 18 jun 1994, flowers, L.G. Clark & N. Giraldo 1232 (HT: HUA; IT: COL, ISC, TULV, US).

Illustrations (Journals): *Novon* (8: 424 Fig.6 (1998)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching or leaning, pendulous at the tip, 400–1500 cm long, 13–55 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 25–42 cm long, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, infravaginal. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, persistent, 20.5–46.5 cm long, retrorsely scabrous, hairy on margins. Culm-sheath ligule 1–2.5 mm high, ciliate. Culm-sheath blade lanceolate, erect, 9.7–21 cm long, scabrid (below), acuminate. Leaves 4–7 per branch. Leaf-sheaths keeled, striately veined, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 0.5–1.2 mm long, pubescent on abaxial surface, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades linear, 17–27 cm long, 3–7 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade venation without cross veins. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins cartilaginous, serrulate. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle, subtended by bracts (1.5–2mm). Peduncle 1.5–9 cm long. Panicle open, linear, 13–19 cm long. Primary panicle branches appressed. Panicle axis angular, scabrous. Panicle branches angular, scabrous. 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, 7.9–11 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.7 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.5–0.7 mm long, 0.1 length of adjacent fertile lemma, membranous, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5.3–6.2 mm long, 0.5–0.66 length of fertile lemma, chartaceous, 7 -veined, scabrous, rough above, setaceously acuminate. Lemma of upper sterile floret ovate, 6.2–7.1 mm long, chartaceous, scabrous, setaceously acuminate. Fertile lemma ovate, 7.6–7.9 mm long, coriaceous, without keel,

9 -veined, more than 3-veined. Lemma surface scabrous, rough above and between veins. Lemma apex acute. Palea 7.3–7.6 mm long, 6 -veined.

Flower and Fruit. Lodicules 3, 0.9–1.1 mm long, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, ellipsoid, 4.8 mm long, dark brown, apex unappendaged. Embryo 0.12 length of caryopsis. Hilum linear.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea aperta L.G. Clark. *Ann. Missouri Bot. Gard.*, 74(2): 426 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T.R. Soderstrom 2239*, 4 Oct 1977, Mexico: Oaxaca (US-2946837, US-2946836, US-2946835, US-2946834).

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

Derivation (Clifford & Bostock 2007): L. open. The glumes of the florets in the central portion of the spikelets tend to be open.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms 100–200 cm long, 5–10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, smooth. Culm-nodes swollen, with distinct supra-nodal ridge. Lateral branches dendroid, infravaginal. Branch complement many, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, smooth. Culm-sheath ligule 2–3 mm high. Culm-sheath blade triangular, deciduous, 1 cm long. Ligule an eciliate membrane, 2–9 mm long, obtuse or acute. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades lanceolate, 7–12 cm long, 8–15 mm wide, light green. Leaf-blade venation with distinct cross veins (beneath). Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Peduncle 6–12 cm long. Panicle open, ovate, 7–11 cm long, contracted about primary branches. Primary panicle branches spreading, 4–6 cm long. Panicle axis angular, glabrous. Panicle branches angular, glabrous. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 7–14 mm long, glabrous.

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, 6–8 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, 0.3–0.5 mm long, 0.75 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.4–0.8 mm long, 0.07–0.1 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, with palea (rarely in upper) or without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 4–4.6 mm long, chartaceous, 1–3 -veined, acuminate. Lemma of upper sterile floret ovate, 4.5–5.1 mm long, chartaceous, acuminate. Fertile lemma ovate, 5.7–7.1 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acuminate. Palea 5.5–6.8 mm long, 4–6 -veined. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, membranous. Anthers 3, 4–5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southwest Mexico.

TDWG4. Oaxaca.

Chusquea arachniformis L.G. Clark & X. London. *Novon*, 8(4): 425 (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: Antioquia: Mun. Amalfm: Vereda El Guayabito, kms 3–6 de la via Amalfm-El Guayabito, NE de Amalfm, sitio Tabanito, 6.54N 75.01W, 1650 m, 5 Dec 1898, flowers, *R. Callejas, J. Betancur & O.D. Escobar 8994* (HT: HUA; IT: COL?, MO).

Illustrations (Journals): *Novon* (8: 426 Fig.7 (1998)).

Derivation (Clifford & Bostock 2007): Gk *arachne*, spider; L. *forma*, appearance. The geniculate branches fan out from the nodes thereby resembling the legs of a spider.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, 200–300 cm long, 3–5 mm diam., woody, without nodal roots. Culm-internodes terete, 20–28 cm long, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, infravaginal. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, persistent, 9–26.5 cm long, retrorsely scabrous, pubescent, hairy above, hairy on margins. Culm-sheath ligule 0.5 mm high. Culm-sheath blade lanceolate, indistinctly demarcated from sheath, erect, 0.3–28 cm long, pubescent. Leaves 3–6 per branch. Leaf-sheaths keeled (above), striately veined, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 1.5–3.5 mm long. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.3–0.4 cm long. Leaf-blades lanceolate or ovate, 9–14 cm long, 16–25 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, bracteate at branch bases (1.5–2mm), subtended by an inflated leaf-sheath. Panicle capitate, linear, continuous or interrupted, 2–4 cm long, 1.5 cm wide. Panicle axis angular, pubescent. Panicle branches angular, pubescent. 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, 10.5–11.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3.5–4 mm long, membranous, 1-keeled, 3 -veined. Lower glume surface puberulous. Lower glume apex acuminate, awned, 1 -awned, awn 8.5–16 mm long. Upper glume lanceolate, 4–4.5 mm long, 0.33 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume surface puberulous. Upper glume apex obtuse, awned, 1 -awned, awn 2.4–4 mm long.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 9–11.7 mm long, 0.9 length of fertile lemma, chartaceous, 9 -veined, puberulous, hairy above, acute, awned. Awn of lower sterile floret 2.4–4 mm long. Lemma of upper sterile floret lanceolate, 10.9–13 mm long, chartaceous, pubescent, obtuse. Fertile lemma ovate, 9.8–10.7 mm long, coriaceous, without keel, rounded except near apex, 7 -veined, more than 3-veined. Lemma surface pilose, hairy above. Lemma apex acute. Palea 8.6–9.8 mm long, 4 -veined.

Flower and Fruit. Lodicules 3, 1.5–2.5 mm long, membranous, ciliate. Anthers 3, 6 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea argentina L. Parodi. *Rev. Argent. Agron.* 8: 339 (1941).

Regarded by K as a synonym (*C. culeou*).

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: HT: *A.L. Cabrera & M.M. Job* 253, 12 Jan 1935, Argentina: Rmo Negro: Nahuel Huapm. Puerto Blest (BAA; IT: LP, US-1815752 (fragm.)).

Illustrations (Books): M.N.Corréa, *Flora Patagonica* Parte III, Gramineae (1978) (17, Fig. 1).

Derivation (Clifford & Bostock 2007): From Argentina.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms leaning, 300 cm long, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Branch complement several. Culm-sheaths present. Leaves 10–12 per branch. Leaf-sheaths longer than adjacent culm internode. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1.2–3 mm long, pubescent on abaxial surface. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 6–13 cm long, 5–10 mm wide, herbaceous. Leaf-blade midrib indistinct. Leaf-blade venation with obscure cross veins. Leaf-blade surface pilose, sparsely hairy, hairy adaxially. Leaf-blade apex acute, filiform.

Inflorescence. Inflorescence a panicle. Panicle contracted, ovate, 5–6.5 cm long, 1–1.5 cm wide. Panicle axis pubescent. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 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, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 1 mm long, 0.5 length of upper glume, membranous, much thinner on margins, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex obtuse. Upper glume oblong, 1.8–2 mm long, 0.25 length of adjacent fertile lemma, membranous, with scarious margins, without keels, 0–1 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins absent. Upper glume surface pubescent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.5–5.5 mm long, 0.66 length of fertile lemma, chartaceous, 1 -veined, without lateral veins, pubescent, hairy above, acute. Lemma of upper sterile floret ovate, 4.6–5.6 mm long, 1 length of lower sterile floret, chartaceous, pubescent, acute. Fertile lemma ovate, 7–7.5 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex acuminate. Palea surface pubescent, hairy on back, hairy above.

Flower and Fruit. Lodicules 3, lanceolate, ciliate. Anthers 3, 4 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina South. Río Negro.

Chusquea aristata Munro. *Trans. Linn. Soc. London* 26(1): 61 (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 Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Jameson 92*, Ecuador: Pichincha (K(fragm., US-2874601)).

Recent Synonyms: *Neurolepis aristata* (Munro) Hitchcock, *Contrib. U. S. Nat. Herb.* 24. 313 (1927). *Neurolepis tessellata* (Pilg.) Pilg., *Nat. Pflanzenfam.* 1: 21 (1906)

Illustrations (Journals): *Smithsonian Contributions to Botany* (9: 100, Fig. 41 (1973)), *Ruizia* (13:24, Fig. 1e-g (1993)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): L. arista, bristle; -ata, possessing. The apices of lemmas, paleas or glumes drawn out into a distinct awn.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 100–300 cm long, woody. Culm-internodes terete, solid. Lateral branches lacking. Leaf-sheaths glabrous on surface or pubescent. Ligule a ciliate membrane, 10 mm long. Leaf-blades lanceolate, 30–80 cm long, 40–60 mm wide, coriaceous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 30–50 cm long. Panicle branches channelled. 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, 19 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2 mm long, 0.66 length of upper glume, coriaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 3 mm long, 0.33–0.5 length of adjacent fertile lemma, coriaceous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 5 mm long, coriaceous, acute. Lemma of upper sterile floret 6 mm long. Fertile lemma elliptic, 6–9 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute. Palea 1 length of lemma, coriaceous, without keels.

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, Ecuador, Peru.

Chusquea aspera L.G. Clark. *Iowa State J. Res.*, 61(1): 113 (1986).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *J. Schunke-Vigo 10178*, 20 May 1978, Peru: Huanuco: Prov. Leoncio Prado: Dist. Hermilio Valdizan: la cumbre de la Divisoria, 1600 m, hierba trepadora de 10–15 m de largo, flores blanco amarillenta, bracteas amarillo verdoso, en bosque alto con mucha sombra, terreno hzmedo (US-2889198, US-2889197S; IT: F, ISC, K, MO-3272604, SI, VEN).

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

Derivation (Clifford & Bostock 2007): L. rough. Plants with rough pedicels or leaf-blades.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 1000–1500 cm long, woody, without nodal roots. Culm-internodes terete, solid, antrorsely scabrous. Culm-nodes flush with internodes, with distinct supra-nodal ridge. Lateral branches dendroid, extravaginal or infravaginal. Branch complement several, in a clump, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, antrorsely scabrous. Leaves 6–7 per branch. Leaf-sheaths keeled, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 2.5–7 mm long, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.15–0.6 cm long. Leaf-blades lanceolate, 13–23 cm long, 20–32 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, secund, 13–38 cm long. Primary panicle branches ascending, 1.5–15 cm long. Panicle axis scabrous, glabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–5 mm long, scabrous.

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, 11–15.7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.9–2 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous, pilose, hairy at apex. Lower glume apex acute. Upper glume ovate, 1.3–4 mm long, without keels, 3–5 -veined. Upper glume surface scabrous, pilose, hairy at apex. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5.5–6.4 mm long, chartaceous, 5–9 -veined, scabrous, ciliate on margins, fringed above, acute. Lemma of upper sterile floret ovate, 7.7–11.6 mm long, chartaceous, scabrous, ciliate on margins, fringed above, acute. Fertile lemma ovate, 10.2–13.6 mm long, coriaceous, without keel, 9–13 -veined, more than 3-veined. Lemma surface scabrous, inner surface scabrous (at apex). Lemma margins ciliate, hairy above. Lemma apex acute. Palea 10–12.4 mm long, 4–8 -veined. Palea keels contiguous above a sulcus. Palea surface scabrous.

Flower and Fruit. Lodicules 3, 1.5–2 mm long, membranous, ciliate. Anthers 3, 6–8 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea asymmetrica (L.G. Clark) L.G.Clark. *Syst. Bot.* 34:680 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Laegaard 53681*, 26 Feb 1985, Ecuador: Loja: 3150 m (QCA!; IT: AAU!, LOJA!, QCNE!).

Recent Synonyms: *Neurolepis asymmetrica* L.G. Clark, *Novon*, 6(4): 336 (1996).

Illustrations (Journals): *Novon* (6: 337 Fig. 1 (1996)).

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 200–250 cm long, 5–7 mm diam., woody. Culm-internodes terete. Lateral branches lacking. Leaf-sheaths with infolded margins, striately veined, glabrous on surface, outer margin glabrous or hairy. Leaf-sheath auricles erect (on one side). Ligule a ciliate membrane, 6–8 mm long, pubescent on abaxial surface. Leaf-blade base with a false petiole, petiole 1.5–17.5 cm long, petiole glabrous. Leaf-blades deciduous at the ligule, linear or lanceolate, 27–85 cm long, 15–33 mm wide, indurate, stiff. Leaf-blade midrib conspicuous (and eccentric), keeled beneath. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, subtended by bracts (1 bract 0.5mm long). Peduncle 7–21 cm long, glabrous. Panicle open, ovate or pyramidal, 21–47 cm long, 7–10 cm wide. Primary panicle branches 8–21 cm long. Panicle axis glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long.

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, compressed slightly, 3.6–4.4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet or reaching apex of florets. Lower glume lanceolate, 1.3–4.1 mm long, 0.4–0.9 length of upper glume, coriaceous, without keels, 0–1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface smooth or scabrous, inner surface pubescent. Lower glume apex acuminate, mucronate or awned, 1 -awned, awn 1.4–1.6 mm long. Upper glume ovate, 3–4.4 mm long, 0.6–1.1 length of adjacent fertile lemma, coriaceous, without keels, 1–3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent or obscure. Upper glume surface smooth or scabrous, inner surface pubescent. Upper glume apex attenuate, mucous or awned, 1 -awned, awn 1–2.4 mm long.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.4–3.5 mm long, coriaceous, 3 -veined, pubescent, hairy at apex, acuminate, mucous or mucronate. Lemma of upper sterile floret ovate, 2.6–3.3 mm long, coriaceous, smooth or scabrous (at top), mucous or mucronate. Fertile lemma ovate, 3.2–3.7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface smooth or scaberulous, rough above, inner surface pubescent. Lemma apex acute, mucronate. Palea 3–3.7 mm long, 1 length of lemma, coriaceous, 2–4 -veined, without keels. Palea surface smooth or scaberulous (at top). Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, 0.7–0.9 mm long, glabrous. Anthers 3, 1.5–2 mm long. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Ecuador.

Chusquea attenuata (Doell) L.G. Clark. *Novon*, 3(3): 237 (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>: *vide* TROPICOS and Kew Synonymy Database: Brazil, Itacoliuma: Riedel.

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

Derivation (Clifford & Bostock 2007): L. thin. Spikelets terete or narrow.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 200–400 cm long, 7–10 mm diam., woody, without nodal roots. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement in a clump. Culm-sheaths present. Leaf-sheaths deciduous, pilose. Ligule an eciliate membrane, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 4–8 cm long, 2–4 mm wide, fleshy. Leaf-blade surface puberulous. Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea baculifera Alv. *Silv. Arch. Mus. Nac. Rio de Janeiro*, 22: 99 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A.A. da Silveira *HERB. SILV.* 600, Sep 1911, Brazil: Minas Gerais: Serra do Caparas, 2800 m (R(fragm., US-1255436, US-2463822)).

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

Derivation (Clifford & Bostock 2007): L. baculum, rod; fero, bear. Culms used for canes and walking sticks.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms 100–200 cm long, 10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 4–11.6 cm long, distally pruinose. Lateral branches dendroid, intravaginal. Bud complement 7–19. Branch complement several or many, in a horizontal line, thinner than stem. Culm-sheaths present, persistent, 5–5.7 cm long. Culm-sheath ligule 1–2 mm high, dentate. Culm-sheath blade triangular, demarcated but persistent, erect, 2.3–3.9 cm long. Leaves 10–11 per

branch. Ligule an eciliate membrane, 0.2–0.5 mm long, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.03 cm long. Leaf-blades lanceolate, 2.6–5.6 cm long, 4–5 mm wide, coriaceous, stiff. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or pilose.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear, 2–5 cm long. Primary panicle branches appressed, 0.5–1 cm long. Panicle axis angular, scabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–3 mm long, scabrous.

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, 6.2–8.7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2–0.4 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.2–0.4 mm long, 0.05 length of adjacent fertile lemma, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.1–5.1 mm long, 0.66 length of fertile lemma, chartaceous, 1–3 -veined, without lateral veins or distinctly veined, puberulous, attenuate. Lemma of upper sterile floret ovate, 4–5.5 mm long, chartaceous, pubescent, attenuate or setaceously acuminate. Fertile lemma ovate, 6–8.3 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex attenuate or setaceously acuminate. Palea 5.8–8 mm long, 4 -veined.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea bahiana L.G. Clark. *Brittonia*, 48(2): 250 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.M. de Carvalho, Clark, Cordeiro, Kallunki & Pirani 4386*, 13 Feb 1994, Brazil: Bahia: Mun. Itacari: Serra da Jacutinga, below the Embratel tower at 5 km along road leading to the tower, the turnoff to this road at 15 km E of BR-101 along road to Itacari, 490 m (CEPEC; IT: ISC, MO, NY-23652, NY-74129, RB, SP, US-3321973, US-3321974).

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

Derivation (Clifford & Bostock 2007): L. -*ana*, indicating connection. From Bahia State, Brazil.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, 500–1000 cm long, 10–17.5 mm diam., woody. Culm-internodes terete, 27–40 cm long, retrorsely scabrous. Culm-nodes without obvious supra-nodal ridge, pubescent. Lateral branches dendroid, infravaginal. Bud complement 5–8. Branch complement several, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 14–26 cm long, retrorsely scabrous, hairy on margins. Culm-sheath ligule 0.5 mm high. Culm-sheath blade lanceolate, erect, 3–8.5 cm long, scabrid. Leaves 4–8 per branch. Leaf-sheaths glabrous on surface, outer margin glabrous. Ligule an eciliate membrane, 2–4.5 mm long, glabrous on abaxial surface, obtuse. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.2–0.8 cm long, petiole glabrous. Leaf-blades oblong, 9–28 cm long, 24–58 mm wide. Leaf-blade midrib evident. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, bracteate at branch bases, subtended by an unspecialized leaf-sheath or an inflated leaf-sheath, embraced at base by subtending leaf. Panicle capitate, globose, dense, 2–3 cm long. Panicle axis angular or flat, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long, glabrous.

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, 8–9.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3–5 mm long, membranous, without keels, 3–5 -veined. Lower glume surface scabrous, inner surface pubescent. Lower glume apex attenuate, awned, 1 -awned, awn 6–10 mm long. Upper glume ovate, 4–5 mm long, 0.5 length of

adjacent fertile lemma, membranous, without keels, (3–)5 -veined. Upper glume surface scabrous, inner surface pubescent. Upper glume apex attenuate, awned, 1 -awned, awn 6.9–8 mm long.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 8–9.5 mm long, 1.1 length of fertile lemma, chartaceous, 5–7 -veined, acute, mucronate or awned. Awn of lower sterile floret 1–1.9 mm long. Lemma of upper sterile floret ovate, 8–9.5 mm long, chartaceous, scabrous (above), acute, mucronate. Fertile lemma ovate, 7.7–8.9 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface scabrous, rough above. Lemma apex acute, mucronate. Palea 7–8.8 mm long, 4 -veined. Palea surface scabrous. Palea apex pubescent, with excurrent keel veins.

Flower and Fruit. Lodicules 3, 1–2 mm long, membranous. Anthers 3, 4–5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast, Brazil Southeast.

Chusquea bambusoides (Raddi) Hackel. *Denkschr. Akad. Wien, Math.-Nat.* 79: 81 (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).

Basionym or Replaced Name: *Rettbergia bambusoides* Raddi, *Agrostogr. Bras.* 18, t. 1, f. 1 (1823). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Raddi s.n.*, Brazil: Rio de Janeiro: circa verticem montis Corcovado (PI; IT: FI (2 sheets)).

Illustrations (Books): S.A.Renvoize, *The Grasses of Bahia*, 1984 (16, Fig. 2), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (60, Fig. 16 as var. *bambusoides*, and var. *minor*).

Illustrations (Journals): *Rodriguesia* (60: 753, Fig.2 (2009)).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Culms wooden resembling those of *Bambusa*..

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms decumbent or scandent, 300–400 cm long, 3–6 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, solid, 15–36 cm long, smooth. Lateral branches dendroid. Branch complement several, in a clump. Culm-sheaths present. Leaf-sheaths keeled. Ligule an eciliate membrane, 1–2 mm long, entire, obtuse. Collar with external ligule. Leaf-blade base cuneate, asymmetrical, with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 5–21 cm long, 14–33 mm wide. Leaf-blade venation with 10–12 secondary veins, with obscure cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, dense, 2–8 cm long, 1–4 cm wide. 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 ovate, laterally compressed, 8–10 mm long, 1–3 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3–4 mm long, 1 length of upper glume, membranous, without keels. Lower glume apex acute. Upper glume ovate, 3–4 mm long, 0.33 length of adjacent fertile lemma, without keels. 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 ovate, 4–6 mm long, 0.33–0.5 length of fertile lemma, chartaceous, acute. Lemma of upper sterile floret ovate, 6–8 mm long, 2 length of lower sterile floret, chartaceous, acute. Fertile lemma ovate, 8–10 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

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.

Chusquea barbata L.G. Clark. *Novon*, 3(3): 232 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Gentry, D. Smith & N. Jaramillo 42007, Peru: Pasco: Oxapampa: Serrania de San Matmas, W slope, E of Loma Linda, alt. 400–700 m, vine, inflorescence brownish (MO-3867753; IT: ISC, US).

Illustrations (Journals): *Novon* (3:233, Fig.2 (1993)).

Derivation (Clifford & Bostock 2007): L. bearded, barbed. With hairs on the callus, glumes or lemma.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms woody. Culm-internodes terete, 24 cm long. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, extravaginal. Bud complement 20–25. Branch complement many, in a clump, thinner than stem. Culm-sheaths present. Leaf-sheaths antrorsely scabrous, outer margin hairy. Ligule an eciliate membrane, 1–1.5 mm long, pubescent on abaxial surface, erose. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole pubescent. Leaf-blades lanceolate, 7.7–11.7 cm long, 6–9 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, with glumaceous subtending bracts, without axillary buds at base of spikelet, leafless between clusters.

Fertile spikelets pedicelled. Pedicels present, angular, 0.5–1 mm long.

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, 9.1–12.1 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.1–0.3 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.1–0.3 mm long, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.1–5.7 mm long, 0.5 length of fertile lemma, chartaceous, 7–9 -veined, scabrous, acute, mucronate. Lemma of upper sterile floret ovate, 5.7–8 mm long, chartaceous, scabrous, acute, mucronate. Fertile lemma ovate, 9.7–11.1 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface scabrous, setose, hairy below. Lemma hairs red, 1 mm long. Lemma apex attenuate. Palea 8.5–9 mm long, 4–6 -veined. Palea surface scabrous, pilose, hairy on back. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, 1.8–2.4 mm long, membranous, ciliate. Anthers 3, 3.7–4.4 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea bilimekii Fourn. *Mex. Pl. Enum., Gram.* 132 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Bilimek* 448, 24 Dec 1865, Mexico: Mixico (P; IT: K, NY, US).

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

Derivation (Clifford & Bostock 2007): in honor of Dominik Bilimek (1812–1884) Austrian botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, nodding at the tip, 300–400 cm long, 15–30 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 17.5–30 cm long, smooth. Lateral branches dendroid, intravaginal. Bud complement 7–9. Branch complement many, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present, persistent, 7–10.5 cm long, glabrous. Culm-sheath ligule 0.5–1 mm high. Culm-sheath blade triangular, demarcated but persistent, erect, 1.9–2.1 cm long, glabrous on surface. Leaves 3–7 per branch. Ligule an eciliate membrane, 0.5–0.8 mm long, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades lanceolate, 8.5–15 cm long, 6–12 mm wide, stiff. Leaf-blade venation with distinct cross veins. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or lanceolate, 3–6 cm long. Primary panicle branches appressed, 0.5–1 cm long. Panicle axis angular, pubescent. Panicle branches angular, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, angular, 3–5 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 elliptic, laterally compressed, 8.9–10.4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.9–1 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent or obscure. Lower glume surface pubescent. Lower glume margins ciliate. Lower glume apex obtuse. Upper glume ovate, 1.8–2 mm long, 0.2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface pubescent. Upper glume margins ciliate. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.8–5.7 mm long, 0.5 length of fertile lemma, chartaceous, 3 -veined, pubescent, ciliate on margins, acute. Lemma of upper sterile floret ovate, 5.7–6.1 mm long, chartaceous, pubescent, ciliate on margins, acute. Fertile lemma ovate, 9.6–10.1 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins ciliate, hairy above. Lemma apex apiculate. Palea 8.6–9.4 mm long, 6 -veined. Palea keels contiguous above a sulcus. Palea surface scabrous, pubescent, hairy on back, hairy above.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 4–5.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Central Mexico.

TDWG4. Mexico State.

Chusquea bradei L.G. Clark. *Brittonia*, 48(2): 254 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Espmrito Santo: Mun. Castelo: Brago do Sul, 7 Aug 1948 (fl), A.C. Brade 19181 (HT: RB; IT: SP, UPCB, US(3 sheets)).

Illustrations (Journals): *Rodriguesia* (60: 757, Fig. 4 (2009)).

Derivation (Clifford & Bostock 2007): in honor of Alexander Curt Brade (1881–1971) German-born Brazilian botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, 200–600 cm long, 2–10 mm diam., woody. Culm-internodes terete, 15 cm long, distally pilose. Culm-nodes without obvious supra-nodal ridge, pubescent. Lateral branches dendroid, infravaginal. Bud complement 13–16. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, persistent, 9.8–18 cm long, retrorsely scabrous, hispid, hairy below, glabrous on margins or hairy on margins. Culm-sheath ligule 0.5–1 mm high. Culm-sheath blade linear, indistinctly demarcated from sheath, erect, 3–15 cm long, scabrid. Leaves 5–11 per branch. Leaf-sheaths glabrous on surface or pubescent, outer margin glabrous or hairy. Ligule an eciliate membrane, 1–1.5 mm long, obtuse. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole pubescent. Leaf-blades lanceolate, 6–12 cm long, 7–12 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or pilose, hairy adaxially. Leaf-blade margins glabrous or ciliate. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, bracteate at branch bases and bracteate at pedicel base, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Panicle capitate, globose, dense, 1.5–2 cm long. Panicle axis angular, pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5 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 cuneate, laterally compressed, 7.4–8.1 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3.5–4 mm long, membranous, without keels, 3 -veined. Lower glume surface pilose. Lower glume apex attenuate, awned, 1 -awned, awn 3.9–5.1 mm long. Upper glume ovate, 3.5–4 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface pilose. Upper glume apex attenuate, awned, 1 -awned, awn 4.1–5.1 mm long.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 6–7 mm long, 0.9–1 length of fertile lemma, chartaceous, 5 -veined, pilose, hairy above, attenuate, awned. Awn of lower sterile floret 1.5–3 mm long. Lemma of upper sterile floret ovate, 6.7–8.1 mm long, chartaceous, pilose, acute. Fertile lemma ovate, 7.4–7.7 mm long, coriaceous, without

keel, 7 -veined, more than 3-veined. Lemma surface pilose, hairy above. Lemma apex acute. Palea 6.4–6.7 mm long, 6 -veined. Palea apex pubescent, with excurrent keel veins.

Flower and Fruit. Lodicules 3, 2–2.2 mm long, membranous. Anthers 3, 4–4.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast, Brazil Southeast.

Chusquea breviglumis Phil., appl incert. *Linnaea*, 29: 103 (1858).

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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.N. Germain de Saint-Pierre s.n.*, Chile: los Andes de Chillan (SGO-PHIL-519; IT: SGO-63031, US-2874604 (fragm. ex herb. Boissier)).

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

Derivation (Clifford & Bostock 2007): *L. brevis*, short; gluma, husk. One or both glumes short with respect to the length of the spikelet.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America.

Biobio.

Chusquea caparaoensis L.G. Clark. *Brittonia*, 44(4): 408 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. Clark & M. Morel 701*, 23 Feb 1990, Brazil: Minas Gerais: Mcpo. Caparao: Parque Nacional do Caparao, trail to Pico da Bandeira, just above turnoff to Vale Encantado, 2070 m (SP; IT: MO-4244162).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Serra do Caparao, Brazil.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, nodding at the tip, 450 cm long, 25 mm diam., woody, without nodal roots. Culm-internodes terete, 10–15 cm long, distally pruinose. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, extravaginal. Bud complement 15–17. Branch complement many, in a horizontal line, with 1 branch dominant. Culm-sheaths present, deciduous, 10.8–14 cm long, retrorsely scabrous, glabrous on margins, triangular at apex. Culm-sheath ligule 1.5–2.5 mm high, ciliate. Culm-sheath blade triangular, demarcated but persistent, erect, 1.6–3.6 cm long. Leaves 8–9 per branch. Leaf-sheaths deciduous, glabrous on surface. Ligule an eciliate membrane, 0.5 mm long, obtuse. Collar without external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades linear, 3.8–5.3 cm long, 1.8–2 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea capitata Nees. *Linnaea*, 9: 489 (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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, Brazil: without specific locality (B; IT: LE-TRIN-3193.01, US-557553 (fragm. ex LE), US-79423 (fragm. ex LE)).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (60, Fig. 16), E.J.Judziewicz et al, *American Bamboos* (1999) (213, Fig. 108).

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, woody bamboo. Butt sheaths absent. Culms scandent, 5–7 mm diam., woody, without nodal roots. Culm-internodes elliptical in section, solid, antrorsely scabrous. Lateral branches dendroid. Branch complement many, in a clump. Culm-sheaths present. Leaf-sheaths keeled, striately

veined, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane, 1 mm long, obtuse. Collar with external ligule. Leaf-blade base symmetrical, with a brief petiole-like connection to sheath, petiole 0.15–0.3 cm long, petiole pubescent. Leaf-blades deciduous at the ligule, lanceolate, 5–15 cm long, 10–20 mm wide. Leaf-blade venation with 6 secondary veins, with obscure cross veins. Leaf-blade surface smooth, glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle capitate, globose, 1.5–2 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, 8 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 linear, 5.5–8 mm long, 1 length of upper glume, membranous, 1-keeled. Lower glume apex acute. Upper glume linear, 5.5–8 mm long, 0.75–1 length of adjacent fertile lemma, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 0.75 length of fertile lemma, chartaceous, 1-keeled, acute. Lemma of upper sterile floret ovate, 1 length of lower sterile floret, chartaceous, acute. Fertile lemma lanceolate, 8 mm long, coriaceous, keeled, 11 -veined, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

Chusquea capituliflora Trin. *Mem. Acad. Petersb. Ser. 6, 3: 613 (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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. Riedl s.n.*, Brazil: pr. Rio Janeiro: in sylvatis (LE-TRIN-3194.01; IT: LE, US-2874606, US-2874607). fig. 6.

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (72, Fig. 19), E.J.Judziewicz et al, *American Bamboos* (1999).

Derivation (Clifford & Bostock 2007): *L. caput, head; -ula, diminutive; flos, flower. Spikelets bunched into beads.*

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 3.5 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 20–30 cm long, smooth, distally glabrous. Lateral branches dendroid. Branch complement several or many, in a clump. Culm-sheaths present. Leaf-sheaths without keel, striately veined, smooth, glabrous on surface to pubescent, outer margin glabrous or hairy. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.5–1 mm long, obtuse. Collar with external ligule. Leaf-blade base symmetrical, with a brief petiole-like connection to sheath, petiole 0.2 cm long, petiole pubescent. Leaf-blades deciduous at the ligule, lanceolate, 6–15 cm long, 10–23 mm wide. Leaf-blade venation with 8–10 secondary veins, with obscure cross veins. Leaf-blade surface glabrous or pubescent. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle capitate, elliptic, equilateral or secund, 2–4 cm long. Panicle axis glabrous to pubescent. 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, compressed slightly, 7–8 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, 2.5–3.5 mm long, 1 length of upper glume, membranous, 1-keeled. Lower glume apex acute. Upper glume lanceolate, 2.5–3.5 mm long, 0.33 length of adjacent fertile lemma, without keels. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.5–4.5 mm long, 0.5 length of fertile lemma, chartaceous, without keels, obtuse. Lemma of upper sterile floret ovate, 1.3 length of lower sterile floret, chartaceous, obtuse. Fertile lemma ovate, 7–8 mm long, coriaceous, without keel, more than 3-veined. Lemma lateral veins obscure. Lemma apex obtuse.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

N = 20 (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

Chusquea ciliata Phil. *Linnaea*, 3: 299 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Chile: Provincia de Santiago, cerca de Algarrobo (SGO-PHIL-528, IT: SGO-37585, SGO-63025, US-556441 (fragm. ex SGO-PHIL-528 & photo), US-2874608 ex W, US- (photo SGO-37585)).

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

Derivation (Clifford & Bostock 2007): *L. cilium*, eyelid; -ata, possessing. Plant hairy overall or in part.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms woody. Culm-internodes terete. Lateral branches dendroid. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present. Ligule a ciliolate membrane, 0.2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 4–10 cm long, 5–8 mm wide. Leaf-blade venation without cross veins. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Panicle contracted or spiciform, linear, interrupted, 5–14 cm long. 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, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2–3 mm long, membranous, without keels. Lower glume apex attenuate. Upper glume lanceolate, 3–4 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels. Upper glume apex attenuate, awned, 1 -awned, awn 0.5 mm long.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 3–4 mm long, 0.5 length of fertile lemma, chartaceous, 3–5 -veined, acute, awned. Awn of lower sterile floret 0.5 mm long. Lemma of upper sterile floret lanceolate, 4–5 mm long, chartaceous, acute, awned. Awn of upper sterile floret 1–1.5 mm long. Fertile lemma ovate, 6–8 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex acute.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile Central.

Valparaiso, Santiago.

Chusquea circinata T.R. Soderstrom & C.E. Calderon. *Brittonia*, 30(2): 156 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.M. King & T.R. Soderstrom 4866*, 16 Oct 1961–22 Oct 1961, Mexico: Michoacan: west-facing slopes of Cerro de Carboneras above the Rmo Cupatmtzio, ca. 22 km S of Uruapan, 3300–3700 ft, flowers (US-2380634, US-2380635; IT: NY).

Illustrations (Books): R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983).

Derivation (Clifford & Bostock 2007): *L. circino*, form into a circle. Leaf-blades coiled.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 500–700 cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes terete, solid, smooth. Lateral branches dendroid. Branch complement many, girdling the culm, with 1 branch dominant, thinner than stem. Culm-sheaths present, antrorsely scabrous. Ligule an eciliate membrane, 0.4 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 4.5–5.5 cm long, 6–7 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface pilose, sparsely hairy, hairy on both sides.

Inflorescence. Inflorescence a panicle, comprising 20–40 fertile spikelets. Panicle contracted, linear, 5–9 cm long. Primary panicle branches appressed. 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, 6–8 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, 0.2–0.4 mm long, 0.75–0.9 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.2–0.4 mm long, 0.02–0.05 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 6–6.4 mm long, 0.75–0.8 length of fertile lemma, membranous, 5–7 -veined, obtuse, mucronate. Lemma of upper sterile floret lanceolate, 6.1–6.6 mm long, 1 length of lower sterile floret, membranous, obtuse, mucronate. Fertile lemma lanceolate, 6.3–7.5 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma margins ciliolate, hairy above. Lemma apex acute. Palea 7 mm long, 6–8 -veined. Palea surface glabrous.

Flower and Fruit. Lodicules 3, 1.5–1.8 mm long, membranous, veined, ciliate. Anthers 3, 4.1–4.3 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Southwest Mexico, Southeast Mexico.

TDWG4. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Chiapas.

Chusquea coronalis T.R. Soderstrom & C.E. Calderon. *Brittonia*, 30(2): 158 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.W. Pohl & R. Pinette 13209*, 11 Jun 1976, Costa Rica: San Josi: Canyon of the Rmo Jerics, NW of Rmo Conejo, 1200 m, 9,49N 84.04W (US-2787549; IT: CR-68319, F, ISC, MO (2 sheets)).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (130, Fig. 40), E.J.Judziewicz et al, *American Bamboos* (1999) (221, Fig. 122).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): *L. corona*, crown; -alis, pertaining to. The delicate branches of small leaf-blades, produced in whorls at the nodes resemble a crown.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 300–500 cm long, 10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, smooth. Culm-nodes bearded. Lateral branches dendroid, extravaginal. Branch complement many, girdling the culm, with 1 branch dominant, thinner than stem. Culm-sheaths present, without auricles. Leaves 1–2 per branch. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 1–2.5 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, comprising 2–10 fertile spikelets. Panicle open, linear, 2–4 cm long, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 4–7 mm long.

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, 5–5.5 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, 0.2–0.3 mm long, 1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.2–0.3 mm long, 0.05 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.3–3.7 mm long, chartaceous, 1 -veined, without lateral veins, ciliolate on margins, obtuse. Lemma of upper sterile floret ovate, 2.7–3 mm long, chartaceous, obtuse. Fertile lemma ovate, 5–5.1 mm long, coriaceous, without keel, 8–9 -veined, more than 3-veined. Lemma lateral

veins ribbed. Lemma margins ciliolate, hairy above. Lemma apex acute. Palea 5 mm long, 4 -veined. Palea keels approximate. Palea surface pubescent, hairy on flanks. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3, 3.2–3.5 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

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

Country /Province /State. **Mexico.** Southwest Mexico, Southeast Mexico. **Mesoamerica.** Costa Rica, El Salvador, Guatemala.

TDWG4. Colima. Chiapas.

Chusquea costaricensis L.G. Clark & R.H. March. *Bamboo Sci. Cult.* 14(1): 6–9, f. 1 (2000).

Not on *GrassBase*.

TYPE from Costa Rica. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Costa Rica: Cartago: Interamerican Hwy, 69 km from Cartago on the road to San Isidro del General, less than 1 km from the turn off to Cerro Buenavista in the direction of La Georgiana, E side of road, 3100 m, 83:46' W, 9:35' N, L.G. Clark, G. Reiniers & X. Londoño 1565 (HT: CR; IT: INB, ISC, MO, US, USJ).

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

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Costa Rica.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Chusquea culeou E. Desv. C. Gay, *Fl. Chil.* 6: 450 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: C. Gay s.n., Chile: Valdivia: selvas hzmedas (P; IT: US-2874609 (fragm.)).

Recent Synonyms: *Chusquea argentina* L. Parodi, *Rev. Argent. Agron.* 8: 339 (1941).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (17, Fig. 2), D.Farrelly, *The Book of Bamboo* (1984) (189).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): The vernacular name of the species in Chile.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 100–700 cm long, woody, without nodal roots. Culm-internodes terete, solid, smooth. Lateral branches dendroid. Branch complement several, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane, obtuse. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, revolute, 2.5–8 cm long, 4–8 mm wide, coriaceous, stiff. Leaf-blade midrib evident. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex pungent.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 3–6 cm long, 1.5–2 cm wide. Primary panicle branches bearing 1–3 fertile spikelets on each lower branch. Panicle axis pubescent. 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, 6–8 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, 1.5–2 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 2.5–3 mm long, 0.33 length of adjacent fertile lemma, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 0.66 length of fertile lemma, chartaceous, purple, 3 -veined, pubescent, hairy above, acuminate, muticous or mucronate. Lemma of upper sterile floret ovate, 6–8.5 mm long, 1.5 length of lower sterile floret, chartaceous, pubescent, acuminate, muticous or mucronate. Fertile lemma ovate, 6–8 mm long, coriaceous, purple, without keel, 9–10 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface pubescent. Lemma apex obtuse, muticous or mucronate.

Flower and Fruit. Lodicules 3, 1.2–1.7 mm long, membranous, veined, ciliate. Anthers 3, 5 mm long. Stigmas 2. Caryopsis with adherent pericarp, 4–6 mm long, light brown, apex unappendaged.

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

Country /Province /State. **Southern South America.** Argentina South, Chile Central, Chile South.

TDWG4. Chubut, Neuquén, Río Negro, Coquimbo, Maule, Biobio, La Araucania, Los Lagos, Aisen.

Chusquea cumingii Nees. *Linnaea*, 9: 487 (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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *H. Cuming* 639, 1831, Chile: Valparaiso (US-2874610).

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

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): in honor of Hugh Cuming (1791–1865) English naturalist and traveller.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms 200–500 cm long, woody, without nodal roots. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement many, in a horizontal line, with 1 branch dominant. Culm-sheaths present. 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 linear or lanceolate, 4–8 cm long, 3–7 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted or spiciform, linear or elliptic, 2.5–7 cm long. 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 lanceolate, laterally compressed, 7–9 mm long, 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, 1-keeled. Lower glume apex acute. Upper glume ovate, 2–3 mm long, 0.25–0.33 length of adjacent fertile lemma, membranous, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4 mm long, chartaceous, 3–5 -veined, acuminate. Lemma of upper sterile floret ovate, 5–6 mm long, chartaceous, acuminate. Fertile lemma ovate, 7–9 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Palea 5–7 mm long, 4 -veined.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile Central.

Coquimbo, Valparaiso, Santiago, O'Higgins, Maule.

Chusquea cylindrica L.G. Clark. *Syst. Bot.* 34:680 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Trinidad. **Basionym or Replaced Name:** *Platonia virgata* Griseb., *Fl. Brit. W. I.* 530 (1864). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Crueger s.n.*, Trinidad: Tocucho (GOET(fragm., US-2876325)).

Recent Synonyms: *Neurolepis virgata* (Griseb.) Pilger, *Engl. & Prantl, Nat. Pflanzenfam. Nachtr.* 3, 21 (1906).

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

Derivation (Clifford & Bostock 2007): *L. virga*, broom; -ata, possessing. Inflorescence arms or culms held erect.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, robust, 150–200 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode. Ligule a ciliate membrane. Leaf-blade base with a false petiole. Leaf-blades lanceolate, 50–150 cm long, 30–80 mm wide, coriaceous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted or spiciform, lanceolate, 30–80 cm long, contracted about primary branches. Primary panicle branches appressed, bearing spikelets almost to the base. Panicle branches stiff. Spikelets solitary. Fertile spikelets sessile or pedicelled. Pedicels absent or 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, 6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2 mm long, 1 length of upper glume, coriaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 2 mm long, 0.3–0.4 length of adjacent fertile lemma, coriaceous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3 mm long, 0.5 length of fertile lemma, coriaceous, ciliolate on margins, rostrate. Lemma of upper sterile floret oblong, 4 mm long, 0.66 length of lower sterile floret, coriaceous, ciliolate on margins, acuminate, mucronate. Fertile lemma ovate, 6 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex acuminate, mucronate. Palea ovate, 1 length of lemma, coriaceous, without keels. Palea apex acute, pubescent.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Trinidad-Tobago.

Chusquea decolorata Munro ex L.G. Clark. *J. Amer. Bamboo Soc.* 18(1): 25–28, 24, f. 1–2 (2004).

Accepted by: R.J.Soreng et al., *Catalogue of 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: Peru: without specific locality, *M. Pavon s.n.* (HT: G-8140/12; IT: G (5 sheets), K (2 sheets), P).

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

Derivation (Clifford & Bostock 2007): *L. decoloro*, deprive of its natural color. Spikelets lacking the color of those in related taxa.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms 1.5–3 mm diam., woody. Culm-internodes terete, 16–18.5 cm long, distally glabrous. Lateral branches dendroid, extravaginal. Branch complement many, in a horizontal line. Culm-sheaths present, persistent, glabrous. Leaf-sheaths striately veined, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, 1.5–2 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, petiole 0.05–0.1 cm long, petiole glabrous. Leaf-blades ascending, lanceolate, 3–5 cm long, 3–5 mm wide, stiff. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 2.5–3 cm long, 1–1.5 cm wide. Primary panicle branches indistinct the panicle almost racemose. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–1.5 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 ovate, dorsally compressed, 8.5–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3–3.5 mm long, 0.3–0.4 length of fertile lemma, chartaceous, 5–7 -veined, pubescent. Lemma of upper sterile floret ovate, 3.5–4 mm long, chartaceous, pubescent. Fertile lemma ovate, 8–8.5 mm long, coriaceous, without keel, 9(–11) -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex acute or apiculate. Palea 8 mm long, 6 -veined. Palea surface pubescent, hairy above. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, 1 mm long, veined, ciliate. Anthers 3, 5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea deficiens L. Parodi. *Rev. Argent. Agron.* 8: 335 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.E. Devoto*, *F. Rial Alberti* & *C.A. Lambois 1010*, Jan 1939, Argentina: Salta: El Rey, cerros de Mamz Gordo (BAA(photo, SI); IT: US-1815753).

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

Derivation (Clifford & Bostock 2007): *L. deficio*, be wanting. Lacking in some respect.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning, 300–400 cm long, 7–8 mm diam., woody. Culm-internodes terete, solid, 10–25 cm long, distally glabrous. Lateral branches dendroid. Branch complement several, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaves 2–3 per branch. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole pilose. Leaf-blades lanceolate, 4–9 cm long, 4–8 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface scabrous, rough adaxially, glabrous or puberulous, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, pyramidal, 5–7 cm long. Panicle axis puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long.

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, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure or two, persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2 mm long, 1 length of upper glume, hyaline, without keels. Lower glume apex obtuse. Upper glume ovate, 0.2 mm long, 0.02 length of adjacent fertile lemma, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5.5–6 mm long, 0.5 length of fertile lemma, chartaceous, 3-veined, puberulous, hairy above, acuminate, awned. Awn of lower sterile floret 1–2 mm long. Lemma of upper sterile floret ovate, 5.5–6 mm long, 1 length of lower sterile floret, chartaceous, pubescent, acuminate, awned. Awn of upper sterile floret 1–2 mm long. Fertile lemma lanceolate, 10 mm long, coriaceous, without keel, 7–9-veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex acuminate, mucronate or awned, 1-awned. Principal lemma awn 0.5–1 mm long overall. Palea 4–6-veined. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3, 4–5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northwest.

TDWG4. Salta.

Chusquea deflexa L.G. Clark. *Iowa State J. Res.*, 61(1): 102 (1986).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Pohl 12571*, 10 Jul 1971, El Salvador: Santa Ana: summit of Cerro Monte Cristo, juncture of El Salvador, Honduras, and Guatemala, 2418 m, flowers (ISC; IT: K, MO).

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

Derivation (Clifford & Bostock 2007): *L. bent* abruptly downwards. Inflorescence branches drooping.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 100–200 cm long, 4–8 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 6–12 cm long, yellow, smooth, distally pruinose. Culm-nodes swollen, with distinct supra-nodal ridge. Lateral branches dendroid, intravaginal, erect. Bud complement 7–15. Branch complement many, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent. Culm-sheath blade triangular, deciduous. Leaves 4–7 per branch. Leaf-sheaths keeled, glabrous on surface, outer margin glabrous. Ligule an eciliate membrane, 1–2.5 mm long, pubescent on abaxial surface, obtuse or acute. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades erect, lanceolate, 7.5–13.5 cm long, 10–22 mm wide, stiff. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, smooth or scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, oblong, secund, 7–11 cm long. Primary panicle branches ascending, 1–1.5 cm long. Panicle axis puberulous. Panicle branches angular, puberulous. Spikelets spreading, solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–3 mm long, puberulous.

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, 5.5–6.4 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, 0.6–1 mm long, 0.1–0.2 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.9–1.5 mm long, 0.2–0.25 length of adjacent fertile lemma, without keels, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.2 mm long, 0.66–0.75 length of spikelet, chartaceous, 3–5 -veined, scabrous, ciliate on margins, fringed above, acuminate. Lemma of upper sterile floret ovate, 4.4–4.8 mm long, chartaceous, scabrous, ciliate on margins, fringed above, acuminate. Fertile lemma ovate, 5.6 mm long, coriaceous, without keel, 9 -veined, more than 3-veined. Lemma surface scabrous, rough above, inner surface pubescent. Lemma margins ciliate, hairy above. Lemma apex acuminate. Palea 5.7 mm long, 4 -veined. Palea keels contiguous above a sulcus. Palea surface puberulous, hairy on back.

Flower and Fruit. Lodicules 3, 1.2 mm long, membranous, ciliate. Anthers 3, 2.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. El Salvador, Guatemala, Honduras.

Chusquea delicatula Hitchcock. *Contrib. U. S. Nat. Herb.* 24: 309 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Hitchcock 22748*, 26 Dec 1923, Bolivia: Santa Cruz (US; IT: K).

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

Derivation (Clifford & Bostock 2007): *L. delicatus*, dainty; -ula, diminutive. Small and dainty as of habit.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 300 cm long, 2–5 mm diam., woody, without nodal roots. Culm-internodes terete, solid. Lateral branches dendroid, infravaginal. Branch complement many. Culm-sheaths present. Leaf-sheaths glabrous on surface or hispid. Ligule an eciliate membrane, 0.5–1.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 1.5–4.5 cm long, 2–4 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or ovate, 1.5–3 cm long. Panicle axis scabrous, pubescent. Panicle branches scabrous, pubescent. 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, 4.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.5–4 mm long, chartaceous, acuminate. Lemma of upper sterile floret ovate, chartaceous. Fertile lemma lanceolate, 4–6 mm long, coriaceous, without keel, more than 3-veined.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Chusquea depauperata Pilger. *Fedde, Repert. Nov. Sp.* 1: 149 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Weberbauer 3709*, Oct 1903, Peru: Huanuco: Monzsn, 3300–3400 m (US-2874618; ILT: US-1127078). LT designated by Clark, Syst. Bot. Monogr. 27: 38 (1989).

Illustrations (Books): S.A. Renvoize, *Gramineas de Bolivia* (1998) (44, Fig. 6).

Derivation (Clifford & Bostock 2007): L. reduced. Small compared with related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 100–130 cm long, 3–5 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 5.5–6.5 cm long, yellow, smooth. Lateral branches dendroid, intravaginal. Bud complement 7–9. Branch complement several, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 4.3–5 cm long, smooth, glabrous. Culm-sheath ligule 0.5–1 mm high. Culm-sheath blade lanceolate, narrower than sheath, deciduous, erect, 1.5 cm long. Leaves 4–8 per branch. Ligule an eciliate membrane, 0.5 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05 cm long. Leaf-blades erect or ascending, lanceolate, 3.4–5.5 cm long, 2–5 mm wide, coriaceous, stiff. Leaf-blade midrib indistinct. Leaf-blade venation with 13–15 secondary veins, with obscure cross veins. Leaf-blade surface glabrous or pilose.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear, secund, 6–7.5 cm long. Primary panicle branches appressed, 2–3 cm long. Panicle axis flat, glabrous. Panicle branches angular, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–6 mm long, glabrous.

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 ovate, curved, laterally compressed, 4.4–5.7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.1–2.5 mm long, 0.5 length of fertile lemma, chartaceous, 1 -veined, without lateral veins, acute. Lemma of upper sterile floret ovate, 2.6–2.8 mm long, chartaceous, acute. Fertile lemma ovate, 4.4–4.8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma apex apiculate. Palea 4–4.3 mm long, 2 -veined. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 3–3.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Western South America. Costa Rica. Peru.

Chusquea discolor Hack. *Oesterr. Bot. Zeitschr.* 53: 155 (1903).

Regarded by K as a synonym (*C. oligophylla*).

Accepted by: U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziou 17452*, no date, Brazil: Rio de Janeiro (W(fragm., US-2874619)).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (72, Fig. 19).

Derivation (Clifford & Bostock 2007): L. not of the same color. Spikelets two-colored.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 3–5 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 30 cm long, smooth or scaberulous, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Branch complement several or many, in a clump. Culm-sheaths present. Leaf-sheaths without keel. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, truncate. Collar with external ligule. Leaf-blade base symmetrical, with a brief petiole-like connection to sheath, petiole 0.15–0.3 cm long, petiole pubescent. Leaf-blades deciduous at the ligule, linear or lanceolate, 5–10.5 cm long, 5–15 mm wide. Leaf-blade venation with 4–8 secondary veins, with obscure cross veins. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, equilateral, 3–7 cm long, 2–4 cm wide. Panicle axis glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long.

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 lanceolate, laterally compressed, 5–6 mm long, 1.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1 mm long, 1 length of upper glume, membranous, 1-keeled. Lower glume lateral veins obscure. Lower glume margins ciliolate. Lower glume apex cuspidate. Upper glume ovate, 1 mm long, 0.2 length of adjacent fertile lemma, 1-keeled. Upper glume lateral veins obscure. Upper glume margins ciliolate. Upper glume apex cuspidate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 0.25 length of fertile lemma, chartaceous, 5 -veined, acute. Lemma of upper sterile floret ovate, 3 mm long, 2 length of lower sterile floret, chartaceous, acute. Fertile lemma lanceolate, 4.5 mm long, coriaceous, purple, without keel, 9 -veined, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

Chusquea diversiglumis (Soderstr.)L.G.Clark. *Syst. Bot.* 34:680 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Brazil. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *B. Maguire, J.M. Pires & C.K. Maguire 60480*, 2 Dec 1965, Brazil: Amazonas (US-2537127).

Recent Synonyms: *Neurolepis diversiglumis* Soderstr., *Mem. N. Y. Bot. Gard.* 18. No. 2, 16 (1969).

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

Derivation (Clifford & Bostock 2007): *L. diversus*, variable; *gluma*, husk. One glume of some spikelets long-awned.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, 100 cm long. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode. Leaf-sheath oral hairs ciliate, 5 mm long. Leaf-sheath auricles erect. Ligule a ciliolate membrane. Leaf-blade base with a false petiole. Leaf-blades persistent, lanceolate, 25–50 cm long, 20–35 mm wide, coriaceous. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 15–34 cm long, 2–4 cm wide, contracted about primary branches. Primary panicle branches ascending, 1 -nate, 2–4 cm long, bearing spikelets almost to the base. Panicle axis pilose. Panicle branches with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1 mm long.

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, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet. Lower glume ovate, 1.7–1.9 mm long, coriaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume inner surface pubescent. Lower glume apex acute, awned, 1 -awned, awn 0.5 mm long. Upper glume ovate, 1.6–2.2 mm long, coriaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume inner surface pubescent. Upper glume apex obtuse, awned, 1 -awned, awn 0.5 mm long.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 3.8 mm long, coriaceous, 4 -veined, ciliate on margins, awned. Awn of lower sterile floret 0.5 mm long. Lemma of upper sterile floret ovate, 4.4 mm long, ciliolate on margins, awned. Awn of upper sterile floret 0.5–0.6 mm long. Fertile lemma ovate, 5 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins transversely connected at apex. Lemma margins ciliate, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn 0.5 mm long overall. Palea lanceolate, 3.7 mm long, coriaceous, 2 -veined, without keels.

Flower and Fruit. Lodicules 3, 1 mm long, veined, ciliate. Anthers 3, 1.7–1.8 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Brazil. Venezuela. Brazil North.

Chusquea dombeyana Kunth. *Rev. Gram.* 2: 553. t. 191. (1832).

Accepted by: R.J.Soreng et al., *Catalogue of 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: T: *J. Dombey s.n.*, Peru: (US-2874620).

Recent Synonyms: *Chusquea pubispicula* Pilg., *Repert. Spec. Nov. Regni Veg.* 1(10): 148 (1905).

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

Derivation (Clifford & Bostock 2007): in honor of Joseph Dombey (1742–1794) French physician and naturalist who collected in Peru.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms leaning, 300–400 cm long, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 7–16 cm long, 13–25 mm wide. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 7–11 cm long. Primary panicle branches ascending, lower distant. Panicle axis pubescent. Panicle branches pubescent. 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, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1 mm long, 0.5 length of upper glume, membranous, without keels. Lower glume surface pubescent. Upper glume ovate, 2–2.5 mm long, without keels. Upper glume surface pubescent.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, chartaceous, pubescent, acute. Lemma of upper sterile floret ovate, chartaceous, pubescent, acute. Fertile lemma lanceolate, 5–6.3 mm long, coriaceous, purple, without keel, more than 3-veined. Palea 1 length of lemma.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea elata (Kunth) L.G.Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Ecuador. **Basionym or Replaced Name:** *Platonia elata* Kunth, *Revis. Gramin.* 1: 327, t. 76 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland 3351*, Ecuador: Loja (B (fragm., US-2876330)).

Recent Synonyms: *Neurolepis elata* (Kunth) Pilger, *Engl. & Prantl, Nat. Pflanzenfam. Nachtr.* 3, 21 (1906).

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

Derivation (Clifford & Bostock 2007): L. tall. Culms taller than those of most species of the genus.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 50–300 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches lacking. Leaves cauline. Leaf-sheaths longer than adjacent culm internode. Ligule absent. Leaf-blade base with a false petiole. Leaf-blades drooping, lanceolate, 50–500 cm long, 25–300 mm wide, coriaceous. Leaf-blade venation with obscure cross veins.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 40–100 cm long, contracted about primary branches. Primary panicle branches 8–15 cm long, bearing spikelets almost to the base. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled or sessile. 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, 3.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.5–1 mm long, 0.5–0.7 length of upper glume, coriaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume

apex acute. Upper glume ovate, 1–1.5 mm long, 0.3–0.4 length of adjacent fertile lemma, coriaceous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 1.5–2.2 mm long, 0.4–0.5 length of fertile lemma, coriaceous, 3 -veined, acute. Lemma of upper sterile floret 2.3–2.7 mm long. Fertile lemma ovate, 3.5–5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex acuminate. Palea ovate, 1 length of lemma, coriaceous, 4 -veined, without keels. Palea apex acute.

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.

Chusquea elegans S.A. Renvoize. *Kew Bull.*, 42(4): 924 (1987).

Regarded by K as a synonym (*C. mimosa*).

Accepted by: U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G. Hatschbach* 25386, 13 Nov 1970, Brazil: Parana: Morretes Mun. (MBM; IT: K, US-2783123, US-2783122).

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

Derivation (Clifford & Bostock 2007): *L. elegant*. Inflorescence attractive.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short. Butt sheaths absent. Culms 150 cm long, 5–15 mm diam., woody. Culm-internodes terete. Lateral branches dendroid. Branch complement several or many, in a clump. 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, 4–11 cm long, 4–14 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 2–4.5 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 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, 5.5–6.5 mm long, 1.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 0.5 length of fertile lemma, chartaceous, acuminate or setaceously acuminate. Fertile lemma lanceolate, 5.5–6.5 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acuminate.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

TDWG4.

Chusquea erecta L.G. Clark. *Brittonia*, 44(4): 397 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L. Clark & M. Morel* 826, 25 Feb 1991, Brazil: São Paulo: Mçpo. Salesópolis: Estaco Biológica Boraceia/Reserva Hidrológica do Rio Claro-SABESP, Campos da Boraceia, 870 m (SP; IT: MO).

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

Derivation (Clifford & Bostock 2007): *L. held upright*. Spikelets or inflorescence branches held erect.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 150–250 cm long, 10 mm diam., woody, without nodal roots. Culm-internodes terete, 6–7 cm long, distally pruinose and pubescent. Culm-nodes flush with internodes, without obvious supra-nodal ridge. Lateral branches dendroid, intravaginal. Bud complement 9–13. Branch complement many, in a horizontal line, with 1 branch dominant. Culm-sheaths present, tardily deciduous, 5.9–9.6 cm long, truncate at apex. Culm-sheath ligule 0.5–1 mm high, entire. Culm-sheath blade triangular, narrower than sheath, demarcated but persistent, 5.5–7 cm long, scabrid. Leaves 19–24 per branch. Leaf-sheaths pubescent. Ligule a ciliate membrane, 0.5–0.8 mm long, truncate. Collar without external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm

long. Leaf-blades linear, 4.5–6.5 cm long, 4–4.5 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea exasperata L.G. Clark. *Syst. Bot.*, 15(4): 627 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *McClure 21365*, 13 Jul 1945, Ecuador: Tungurahua: 1455 m (US!; IT: B, F, ISC!, G, K, LE, MO!, NY-4710, NY-4711, NY-4712, P, WIS).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (27, Fig. 10).

Illustrations (Journals): *Systematic Botany* (15: 622, Fig.11 (1990)).

Derivation (Clifford & Bostock 2007): L. rough. Leaf-blade scabrid.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, 1000–1200 cm long, 13–25 mm diam., woody, without nodal roots. Culm-internodes channelled, 14.5–24 cm long, distally glabrous or pilose. Lateral branches dendroid, infravaginal. Bud prophyll 80–100 mm long. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, persistent, 35.5–57 cm long, antrorsely scabrous. Culm-sheath ligule 1.5 mm high, ciliate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 0.8–1.2 cm long, scabrid or pubescent. Ligule an eciliate membrane, 3–6 mm long, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.4 cm long. Leaf-blades lanceolate, 9.2–24.2 cm long, 10–14 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, bracteate at branch bases or bracteate at pedicel base, embraced at base by subtending leaf. Panicle open, linear, 8–14 cm long. Primary panicle branches appressed, 2.5–3.5 cm long. Panicle axis angular, scabrous, glabrous. Panicle branches angular, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 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, 10.7–11.3 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.9–2.2 mm long, membranous, without keels, 2 -veined. Lower glume surface scabrous. Lower glume apex acute. Upper glume ovate, 3–3.2 mm long, 0.25 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.9–5.5 mm long, 0.5 length of fertile lemma, chartaceous, 7–9 -veined, scabrous, acute, mucronate. Lemma of upper sterile floret ovate, 7.5–8.4 mm long, chartaceous, scabrous, acute, mucronate. Fertile lemma ovate, 10.1–10.3 mm long, coriaceous, without keel, 9–11 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex acute. Palea 9.6–9.7 mm long, 4 -veined. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, 2 mm long, membranous, ciliate. Anthers 3, 4.5–5.4 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador, Peru.

Chusquea falcata L.G. Clark. *Novon*, 3(3): 228 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: et al. 74116, 14 May 1988, Ecuador: Loja: 2800–3000 m (QCA!; IT: AAU!).

Illustrations (Journals): *Novon* (3:230, Fig.1 (1993)).

Derivation (Clifford & Bostock 2007): L. *falx*, sickle; *-ata*, possessing. Spikelets curved.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching or scandent, 150–300 cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes terete, smooth or scaberulous, distally glabrous. Lateral branches dendroid, infravaginal. Bud complement 30–60. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, deciduous, 17–80 cm long, hairy on

margins. Culm-sheath ligule 0.5 mm high, ciliate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 1.2–2.7 cm long, pubescent. Leaves 3–4 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, 1 mm long. Ligule an eciliate membrane, 0.5–0.6 mm long, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.15–0.2 cm long, petiole pubescent. Leaf-blades linear, 7.8–20 cm long, 4–8.5 mm wide. Leaf-blade venation without cross veins or with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Peduncle tipped by a glumaceous appendage. Panicle open, linear, 7–16 cm long. Primary panicle branches appressed or ascending, 2–3 cm long. Panicle axis angular, scabrous, glabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–4 mm long, smooth or scaberulous.

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, curved, laterally compressed, 5.1–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.4–0.9 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent, hairy above. Lower glume apex obtuse. Upper glume ovate, 1–1.8 mm long, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface pubescent, hairy above. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 1.6–2.9 mm long, 0.5 length of fertile lemma, chartaceous, 3 -veined, acute, mucronate. Lemma of upper sterile floret ovate, 2.7–4 mm long, chartaceous, acute, mucronate. Fertile lemma ovate, 4.3–5.7 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 4.2–5.3 mm long, 4 -veined. Palea surface scabrous. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, 1.8–2.1 mm long, membranous, ciliate. Anthers 3, 2.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea fasciculata Dvll. *Fl. Bras.* 2(3): 202, pl. 54 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *A.F. Regnell 1427*, Brazil: Minas Gerais: Caldas Mun. (US-2874621).

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

Derivation (Clifford & Bostock 2007): *L. fascis*, bundle; -ulus, diminutive. -ata, possessing. With spikelets or branches clustered in the inflorescence.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms woody. Culm-internodes terete, thick-walled, striate, smooth. Culm-nodes glabrous. Lateral branches dendroid, spreading or reflexed. Branch complement many, in a clump. Culm-sheaths present. Leaf-sheaths striately veined, puberulous. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 2.5–5 cm long, 3–7 mm wide. Leaf-blade surface smooth, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, without bracts or bracteate at branch bases or bracteate at pedicel base. Panicle open, lanceolate, nodding, bearing few spikelets. 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, 12.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.05–0.2 mm long, 0.5–0.6 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 0.1–0.4 mm long, 0.05 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex truncate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 6 mm long, 0.5 length of fertile lemma, chartaceous, 5 -veined, acute. Lemma of upper sterile floret elliptic, 6 mm long, chartaceous, acute. Fertile lemma oblong, 12.5 mm long, coriaceous, without keel, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex acute. Palea 4 -veined.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

Chusquea fendleri Munro. *Trans. Linn. Soc.* 26 : 61 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: A. *Fendler 1627*, 1854–1855, Venezuela: in Colonia Tovar, 6000–7900 ft (K; ILT: MO-2116731, US-2874622, US-1083267). LT designated by Clark, *Bamboo Sci. Cult.* 17(1): 59 (2003).

ST: *Jameson 9*, Ecuador: a litore usque ad 12000 ped. s. m.

Illustrations (Books): D.Farrelly, *The Book of Bamboo* (1984) (189).

Derivation (Clifford & Bostock 2007): in honor of August Fendler (1813–1883) German-born United States botanical collector.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms arching or scandent, pendulous at the tip, 400–800 cm long, 10–20 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, solid, 20–38 cm long. Lateral branches dendroid. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, persistent. Leaves 5–6 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 10–15 cm long, 8–17 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear, 5–12 cm long. Panicle axis angular, glabrous. 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, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.8–2.8 mm long, membranous, without keels. Lower glume apex acute. Upper glume ovate, 4–5.1 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3 mm long, 0.5 length of fertile lemma, chartaceous, 3 -veined, acute, mucronate. Lemma of upper sterile floret ovate, 4 mm long, chartaceous, acute, mucronate. Fertile lemma elliptic, 6–8 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma margins eciliate. Lemma apex acute.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America. Venezuela.

Chusquea fernandeziana Phil. *Anal. Univ. Chil.* 577 (1873).

Accepted by: R.J.Soreng et al., *Catalogue of 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: LT: R.A. *Philippi s.n.*, 26–30 Nov 1864, Chile: Isla de Juan Fernandez (US-2874623 (fragm. ex SGO-63036); ILT: SGO-63036, SGO-PHIL-527, SGO-37593, US- (photo SGO-37593)). LT designated (inadvertently, as type) by Clark, *Contr. U.S. Natl. Herb.* 19: 41 (2000); also later superfluously as SGO-63036 by Baeza et al., *Brittonia* 54: 156 (2002).

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

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Isle de Juan Fernandez.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching, 300 cm long, woody. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 5–15 cm long, 5–13 mm wide, indurate, stiff. Leaf-blade midrib indistinct. Leaf-blade venation without cross veins. Leaf-blade margins cartilaginous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 8–10 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, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3–5 mm long, membranous, without keels. Lower glume apex setaceously acuminate. Upper glume lanceolate, 4 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels. Upper glume apex setaceously acuminate.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 4 mm long, 0.5 length of fertile lemma, chartaceous, 1 -veined, without lateral veins, acute, awned. Awn of lower sterile floret 1.5–2 mm long. Lemma of upper sterile floret lanceolate, 5–6 mm long, chartaceous, acute, awned. Awn of upper sterile floret 1 mm long. Fertile lemma ovate, 7–9 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acuminate, mucronate.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile Central, Juan Fernandez Is. Valparaiso.

Chusquea fimbriligulata (L.G. Clark) L.G. Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Ecuador. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Laegaard* 52632, Ecuador: Pichincha: 2700–3750 m (QCA!; IT: AAU!, QCNE!).

Recent Synonyms: *Neurolepis fimbriligulata* L.G. Clark, *Novon*, 6(4): 338 (1996).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (228, Fig. 132).

Illustrations (Journals): *Novon* (6: 340 Fig. 2 (1996)).

Derivation (Clifford & Bostock 2007): *L. fimbriae*, fringe; *ligula*, small tongue; *-ata*, possessing. Ligule margin with long hairs.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 300–600 cm long, 10–18 mm diam., woody. Culm-internodes terete, thin-walled, 5–28 cm long, distally glabrous. Lateral branches lacking. Leaf-sheaths without keel or medianly thickened, glabrous on surface or hispid, outer margin hairy. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles absent or erect. Ligule a ciliate membrane, 10–50 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long. Leaf-blades erect, deciduous at the ligule, lanceolate, 28–63 cm long, 30–63 mm wide, stiff. Leaf-blade midrib conspicuous. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, smooth or scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle 10–14 cm long, glabrous or hirsute above. Panicle open, lanceolate, 59–84 cm long, 12–20 cm wide. Primary panicle branches appressed, 18–34 cm long. Panicle axis glabrous or puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–2 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, subterete or dorsally compressed, compressed slightly, 3.6–5.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2–4 mm long, coriaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex attenuate, awned, 1 -awned, awn 2.37–9.6 mm long. Upper glume ovate, 1.6–3.5 mm long, coriaceous, without

keels, 1(–3) -veined. Upper glume lateral veins absent or obscure. Upper glume surface pubescent. Upper glume apex attenuate, awned, 1 -awned, awn 2–8 mm long.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.7–4.5 mm long, coriaceous, 3–5 -veined, pubescent, hairy at apex, setaceously acuminate. Lemma of upper sterile floret ovate, 2.5–4.9 mm long, pubescent (at tip), acuminate, muticous or mucronate. Fertile lemma ovate, 3–5 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface pilose, hairy above. Lemma apex acute, mucronate. Palea 3–4.8 mm long, coriaceous, 2–4 -veined, without keels.

Flower and Fruit. Lodicules 3, 1.3–1.7 mm long, ciliate. Anthers 3, 2.8–3.2 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador, Peru.

Chusquea foliosa L.G. Clark. *Iowa State J. Res.*, 61(1): 115 (1986).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *R.W. Pohl & L.G. Clark 13915*, 29 May 1980, Costa Rica: Cartago: Km 79–80 along the Carretera Interamericana, S of El Empalme, 2900 m (ISC; IT: K, US-2982144).

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

Derivation (Clifford & Bostock 2007): *L. folium*, leaf; -osa, abundance. Culms with many leaves often separated by long evenly spaced internodes.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 300–2000 cm long, 20–50 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 22–38 cm long, smooth or scaberulous. Culm-nodes flush with internodes, with distinct supra-nodal ridge. Lateral branches dendroid, infravaginal. Bud complement 50–80. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, 10–25 cm long, 2 times as long as wide, smooth, hairy on margins. Culm-sheath ligule 1–3 mm high. Culm-sheath blade triangular, demarcated but persistent, erect, 1.4–8 cm long, pubescent or with ciliate margins. Leaves 2–5 per branch. Leaf-sheaths keeled, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 0.7–1.5 mm long, glabrous on abaxial surface or pubescent on abaxial surface, truncate or obtuse. Collar with external ligule, glabrous. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long. Leaf-blades linear, 9–39 cm long, 3–7 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface pilose, hairy abaxially. Leaf-blade margins cartilaginous, scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 7–18 cm long. Primary panicle branches appressed, 4–5 cm long. Panicle axis angular, scabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1.5–5 mm long, scabrous.

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, 8.8–11.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.9 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 5–8.4 mm long, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5–8.4 mm long, chartaceous, 3–5 -veined, scabrous, ciliolate on margins, fringed above, acute. Lemma of upper sterile floret ovate, 7.6–11 mm long, chartaceous, scabrous, ciliate on margins, acute. Fertile lemma ovate, 7.9–10 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous, inner surface pubescent. Lemma margins ciliate, hairy above. Lemma apex acute. Palea 7.4–9.1 mm long, 4–6 -veined. Palea surface scabrous, pilose, hairy on margins.

Flower and Fruit. Lodicules 3, 1–1.4 mm long, membranous, ciliate. Anthers 3, 2.3–4.1 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Chusquea galeottiana Rupr. ex Munro. *Trans. Linn. Soc.* 26:59 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.G. Galeotti 5749*, 1840, Mexico: Oaxaca: Cordillera, 8000 ft, flowers (K(fragm., US-2874625); IT: P).

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

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Henri Galeotti (1814–58) French botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 1000–1500 cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 27–50 cm long, mid-green or purple, smooth or retrorsely scabrous. Lateral branches dendroid, extravaginal. Bud complement 100. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, deciduous, 11–22 cm long, glabrous or hispid. Culm-sheath ligule 3–4 mm high, ciliate. Culm-sheath blade triangular, deciduous, reflexed, 2.7–6 cm long, glabrous on surface. Leaves 4–6 per branch. Ligule an eciliate membrane, 2 mm long, truncate or obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long, petiole pubescent. Leaf-blades lanceolate, 5.6–14.4 cm long, 8–18 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 8–14 cm long. Primary panicle branches spreading, 2–4 cm long. Panicle axis angular, pubescent. Panicle branches angular, pubescent, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–3 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 elliptic, laterally compressed, 8–14 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.5 mm long, 0.05 length of adjacent fertile lemma, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5–6 mm long, 0.33–0.5 length of fertile lemma, chartaceous, 3 -veined, acute. Lemma of upper sterile floret ovate, 6.3–7.3 mm long, chartaceous, acute. Fertile lemma ovate, 11.7–14.5 mm long, coriaceous, without keel, 11 -veined, more than 3-veined. Lemma apex apiculate. Palea 13–14 mm long, 6 -veined. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 7.5–8 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Southwest Mexico.

TDWG4. Guerrero, Oaxaca.

Chusquea gigantea J.P. Demoly. *Bambou* 30: 8 (1999).

Not on *GrassBase*.

TYPE from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: cult, ex horto Loritziense in insula Olearo, origin Chile, *Demoly s.n.* (in herb. auctoris).

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

Derivation (Clifford & Bostock 2007): L. very large. Culms tall compared with those of related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Country /Province /State. Los Lagos.

Chusquea glauca L.G. Clark. *Syst. Bot. Monog.*, 27: 95 (1989).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *L.G. Clark, M. Chazaro, P. Tenorio & G. Bol 459*, 21 Jan 1989, Mexico: Veracruz: Xico Mun.: (MEXU; IT: ISC, MO, US-3129504).

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

Derivation (Clifford & Bostock 2007): L. *glauca*, bluish-green. Whole plant or any of its parts glaucous.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, 500–600 cm long, 5–10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, mid-green or mid-green or purple, concolorous or mottled, antrorsely scabrous. Lateral branches dendroid, infravaginal. Bud complement 3. Branch complement several, in a clump, thinner than stem. Culm-sheaths present, persistent, 4.2–8.7 cm long, glabrous. Culm-sheath ligule 0.5 mm high, ciliolate. Culm-sheath blade triangular, deciduous, erect, 1.1–4.8 cm long, scabrid. Leaves 5–8 per branch. Ligule an eciliate membrane, 1–3 mm long, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–0.7 cm long. Leaf-blades lanceolate, 14.4–29 cm long, 2.1–4 mm wide, glaucous. Leaf-blade venation without cross veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 14–18 cm long. Primary panicle branches spreading, 5–11 cm long. Panicle axis angular, pubescent. Panicle branches angular, pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular.

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, 7.2–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.4 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex acute. Upper glume ovate, 0.5 mm long, 0.05–0.1 length of adjacent fertile lemma, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume surface pubescent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3 mm long, 0.33 length of fertile lemma, chartaceous, 1 -veined, without lateral veins, acute. Lemma of upper sterile floret ovate, 3.6 mm long, chartaceous, acute. Fertile lemma ovate, 6.7 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex apiculate. Palea 4.5 mm long, 2 -veined.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America.

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

TDWG4. Puebla. Hidalgo. Veracruz. Nayarit.

Chusquea gracilis McClure & L. B. Smith. *Fl. Illustr. Catar., Pt. 1, Gramin., Supl. Bambus.*, 43 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J.R. Swallen 8285*, 22 Nov 1946, Brazil: Santa Catarina: Cagador, Rio Cacador, mata dum declive do morro (US-2152481; IT: US-2152482).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (93, Fig. 21).

Derivation (Clifford & Bostock 2007): L. slender. Culms or inflorescences slender.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, pendulous at the tip, 18 mm diam., woody, without nodal roots. Culm-internodes terete, 16 cm long, papillose. Culm-nodes flush with internodes. Lateral branches dendroid. Branch complement many, with subequal branches. Culm-sheaths present, 25 cm long, 4 times as long as wide, coriaceous, antrorsely scabrous, pubescent, hairy at the base, glabrous on margins, without auricles. Culm-sheath blade inconspicuous. Leaf-sheaths keeled, puberulous. Leaf-sheath oral hairs ciliate, pale. Ligule a ciliolate membrane, 0.5 mm long, pubescent on abaxial surface, truncate or obtuse. Collar without external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.1 cm long, petiole pubescent. Leaf-blades linear, 7.5 cm long, 3 mm wide. Leaf-blade venation with 2–4 secondary veins, without cross veins. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Catarina, Rio Grande do Sul.

Chusquea grandiflora L.G. Clark. *Ann. Missouri Bot. Gard.*, 74(2): 424 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T.B. Croat 13070*, 6 Jan 1971, Panama: Panama: along road past Cerro Jefe toward La Eneida, vine, flowers old (ISC; IT: COL, CR-129670, K, MEXU, MO-3394063, MO-3394064, PMA, US-2850760).

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

Derivation (Clifford & Bostock 2007): *L. grandis*, large; flos, flower. Spikelets with more florets than those of related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 900–1800 cm long, woody, without nodal roots. Culm-internodes terete, solid, smooth or antrorsely scabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, infravaginal. Branch complement many, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, antrorsely scabrous. Culm-sheath blade lanceolate, indistinctly demarcated from sheath, erect, 4–17 cm long. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 1–1.5 mm long, truncate. 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, 8–20 cm long, 7–10 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, oblong, 6–11 cm long. Primary panicle branches spreading, 1–3 cm long. Panicle axis pubescent. Panicle branches angular, pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–2 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 oblong, laterally compressed, 9.7–12.6 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, 2–2.4 mm long, 0.5 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 2.2–4.8 mm long, 0.25–0.4 length of adjacent fertile lemma, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface asperulous. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 5.2–6.7 mm long, chartaceous, 5–7 -veined, scaberulous, acute. Lemma of upper sterile floret elliptic, 7–9.5 mm long, chartaceous, scabrous, setaceously acuminate. Fertile lemma ovate, 8.4–10.9 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex setaceously acuminate. Palea 6.9–10.2 mm long, 6–8 -veined. Palea keels contiguous above a sulcus. Palea surface scabrous, pubescent, hairy on back.

Flower and Fruit. Lodicules 3, 3–3.5 mm long, membranous. Anthers 3, 4.3–5.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Western South America. Panama. Colombia.

Chusquea guirigayensis S.M.Niño, L.G.Clark & Dorr. *Brittonia* 58(1): 47 (46–51; fig. 1) (2006).

Not on *GrassBase*.

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, pachymorph. Butt sheaths absent. Culms erect, 30–80 cm long, 2–5 mm diam., woody, without nodal roots. Culm-internodes terete, smooth, distally glabrous. Lateral branches dendroid, intravaginal. Branch complement one to several, with subequal branches. Culm-sheaths present, persistent, 1–4.5 cm long. Culm-sheath ligule 0.1–0.2 mm high. Culm-sheath blade triangular, deciduous, 0.5–0.8 cm long. Leaves 3–15 per branch. Leaf-sheaths 0.9–1.2 cm long, keeled, striately veined, puberulous. Ligule an eciliate membrane, 0.3–0.5 mm long, scarious, erose. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.1 cm long. Leaf-blades lanceolate, 1–2.5 cm long, 1.5–3 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous. Leaf-blade apex acute, simple or apiculate.

Inflorescence. Inflorescence a panicle, comprising 7–15 fertile spikelets, embraced at base by subtending leaf. Panicle contracted, linear, continuous or interrupted, 1–2(–3) cm long. Primary panicle branches appressed, 2–3 -nate, indistinct the panicle almost racemose. Panicle axis with lower internodes 0.8–1.2 cm long, angular, pubescent. Spikelets appressed, 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, 5.5–7.2 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.4–0.7 mm long, 0.75–1 length of upper glume, membranous, without keels. Lower glume lateral veins absent or obscure. Lower glume surface puberulous. Lower glume apex acute. Upper glume ovate, 0.8–1 mm long, 0.1–0.13 length of adjacent fertile lemma, membranous, without keels. Upper glume lateral veins absent or distinct. Upper glume surface pubescent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 4–6 mm long, 0.5–0.75 length of fertile lemma, chartaceous, 5 -veined, pubescent, hairy above, acute. Lemma of upper sterile floret lanceolate, 5–8 mm long, chartaceous, pilose (at tip), acute. Fertile lemma lanceolate, 6–8 mm long, coriaceous, without keel, 7–8 -veined, more than 3-veined. Lemma apex acute. Palea lanceolate, 5–6 mm long, 4 -veined. Palea apex undifferentiated or pubescent.

Flower and Fruit. Lodicules 3, 0.6–1.2 mm long, membranous. Anthers 3, 2–3 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America. Venezuela.

Chusquea hatschbachii L.G.Clark. *J. Amer. Bamboo Soc.* 22(1):26–31 (2009).

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Chusquea heterophylla Nees. *Linnaea*, 9: 488 (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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *F. Sellow s.n.*, Brazil (LE; probable ILT: US-1021584, US-2874627). LT designated by Clark, *Brittonia* 44: 417 (1992).

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

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): Gk. heteros, different; phyllon, leaf. Culms with two types of leaf-blade. Usually the basal leaves are fine-bladed and those of the culm are conspicuously broader.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, inclined at the tip or nodding at the tip, 100–200(–300) cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 3.8–8.6 cm long, distally pruinose or pubescent. Culm-nodes swollen, with distinct supra-nodal ridge. Lateral branches dendroid, extravaginal, spreading. Bud complement 12–45. Branch complement many, in an irregular line (crescent). Culm-sheaths present, persistent, 7.5–16 cm long, antrorsely scabrous, without auricles. Culm-sheath ligule 0.5–1 mm high, ciliolate. Culm-sheath blade triangular, demarcated but persistent, erect, 6–9 cm long, scabrid, acute. Leaves 9–12 per branch. Leaf-sheaths tight, pubescent, outer margin glabrous or hairy. Ligule an eciliate membrane, 0.3–0.5 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05 cm long. Leaf-blades linear, 1.3–3.7 cm long, 2–4 mm wide, coriaceous. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 1–4 cm long. Primary panicle branches appressed, 0.5–1 cm long. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–3.5 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 elliptic, subterete, 4.5–6.4 mm long, 1.2–1.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.4–1 mm long, 0.5–1 length of upper glume, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent or obscure. Lower glume surface pubescent. Lower glume apex obtuse or acute. Upper glume oblong, 0.4–2 mm long, 0.1–0.5 length of adjacent fertile lemma, without keels, 0–3 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent or obscure. Upper glume surface pubescent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.9–3.2 mm long, 0.66 length of fertile lemma, chartaceous, 3–5 -veined, pubescent, hairy above, acute, mucronate. Lemma of upper sterile floret ovate, 3.1–4.7 mm long, 1.1 length of lower sterile floret, chartaceous, pubescent, acute, mucronate. Fertile lemma elliptic, 4.6–6.7 mm long, coriaceous, without keel, 5–9 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex acute, mucronate. Palea 4–6.1 mm long, 4–6 -veined.

Flower and Fruit. Lodicules 3, 0.8–1 mm long, membranous, ciliate. Anthers 3, 3 mm long. Stigmas 2. Caryopsis with adherent pericarp, 3.7 mm long, apex unappendaged. Hilum linear.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea huantensis Pilger. *Engl. Jahrb.* 56 *Beibl.* 123, 29 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Weberbauer 5581*, 31 May 1910, Peru: Ayacucho (B (fragm., US-2874628, US-1498092); IT: MO, US-1517186).

Illustrations (Journals): *Ruizia* (13:24, Fig.1a-b (1993)).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Huanta Province, Argentina.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 400–500 cm long, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 6–9 cm long, 9–11 mm wide. Leaf-blade surface puberulous, hairy adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–10 cm long, 1.2–1.5 cm wide. Panicle branches pruinose, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, glabrous.

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, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2 mm long, 1 length of upper glume, membranous, without keels. Upper glume ovate, 2 mm long, without keels.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 6 mm long, chartaceous, acute. Lemma of upper sterile floret lanceolate, 8 mm long, chartaceous, acute. Fertile lemma lanceolate, 11–11.5 mm long, coriaceous, pruinose, without keel, more than 3-veined.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea ibiramae McClure & L. B. Smith. *Fl. Illustr. Catar., Pt. 1, Gramin., Supl. Bambus.* 40 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Reitz & R. Klein 3449*, 18 Jul 1956, Brazil: Santa Catarina: Ibirama, Htrto Florestal, I.N.P., mata, 300 m (US-2263473).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (83, Fig. 20).

Derivation (Clifford & Bostock 2007): From Ibirama, Caterina Province, Brazil.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, woody, without nodal roots. Culm-internodes terete, solid, distally pubescent. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths keeled, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane, 5 mm long, acute. Collar with external ligule. Leaf-blade base broadly rounded, symmetrical, with a brief petiole-like connection to sheath, petiole 0.1 cm long, petiole glabrous. Leaf-blades deciduous at the ligule, oblong or ovate, 6–13 cm long, 30–40 mm wide. Leaf-blade venation with 10–12 secondary veins, without cross veins or with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins smooth or scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 7–14 cm long. Primary panicle branches ascending. Panicle axis scaberulous. 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, 9 mm long, 1 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 3–4 mm long, chartaceous, acute. Lemma of upper sterile floret lanceolate, 3–4 mm long, chartaceous, acuminate. Fertile lemma lanceolate, 7.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous or puberulous, hairy above. Lemma apex acute. Palea 1 length of lemma. Palea surface scaberulous. Palea apex truncate.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil Southeast, Brazil South. Catarina, Rio Grande do Sul.

Chusquea inamoena Pilger. Fedde, *Repert. Nov. Sp.* 1: 150 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: A. Weberbauer 2295, Jan 1903, Peru: (US-2874629, US-1127080).

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

Derivation (Clifford & Bostock 2007): L. in-, not; amoena, beautiful. Appearance unattractive in comparison with related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, 700–900 cm long, woody. Culm-internodes terete, 10–13 cm long. Lateral branches dendroid. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, persistent. Leaf-sheath oral hairs lacking. 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 lanceolate, 4–8.5 cm long, 5–9 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade venation with 6 secondary veins. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Panicle open, linear, 5–8 cm long. Primary panicle branches appressed, 1–2 cm long. Panicle axis angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–5 mm long.

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, 6–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.5 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblate, 0.5–1 mm long, 0.1 length of adjacent fertile lemma, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3–3.5 mm long, 0.5 length of fertile lemma, chartaceous, 5 -veined, obscurely veined, setaceously acuminate. Lemma of upper sterile floret ovate, 3–3.5 mm long, chartaceous, setaceously acuminate. Fertile lemma elliptic, 6–6.5 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma apex acute. Palea elliptic, 1 length of lemma, 4–6 -veined. Palea keels ciliate.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea juergensii Hackel. Fedde, *Repert. Nov. Sp.* 7: 325 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Jurgens* 322, Sep 1907, Brazil: Rio Grande do Sul: Mun. Rio Pardo, ad Fazenda Horticola, 70 m, (W(fragm., US-2874630)).

Recent Synonyms: *Chusquea swallenii* McClure & L. B. Smith, *Fl. Illustr. Catar.*, Pt. 1, *Gramin.*, *Supl. Bambus.* 44 (1967).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (93, Fig. 21 as *C. swallenii*).

Derivation (Clifford & Bostock 2007): in honor of Carlo Juergens (fl. 1905) who collected in Brazil.

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(–500) cm long, 7–15 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 11–19 cm long, distally pruinose or glabrous. Lateral branches dendroid, extravaginal, ascending or spreading. Bud complement 40–80. Branch complement many, in a clump. Culm-sheaths present, deciduous, 9–19.5 cm long, glabrous, glabrous on margins, without auricles. Culm-sheath ligule 1–3 mm high, ciliolate. Culm-sheath blade triangular, demarcated but persistent, erect, 1.4–6 cm long, glabrous on surface or scabrid, acuminate. Leaves 5–9 per branch. Leaf-sheaths deciduous, glabrous on surface or pubescent, outer margin glabrous. Ligule an eciliate membrane or a ciliolate membrane, 0.2–0.5 mm long, glabrous on abaxial surface or pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long. Leaf-blades lanceolate, 4.9–10.3 cm long, 5–12 mm wide, coriaceous. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, without bracts or bracteate at branch bases or bracteate at pedicel base, embraced at base by subtending leaf. Panicle contracted, lanceolate, 1–3 cm long. Primary panicle branches appressed. Panicle branches scabrous, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–6 mm long.

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, dorsally compressed, 6.9–8.7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.05–0.2 mm long, 0.5–0.6 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 0.1–0.4 mm long, 0.05 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex truncate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 2.4–3.3 mm long, 0.33–0.5 length of fertile lemma, chartaceous, 1–3 -veined, without lateral veins or distinctly veined, acute. Lemma of upper sterile floret elliptic, 3.3–3.6 mm long, 1.2–1.5 length of lower sterile floret, chartaceous, acute. Fertile lemma oblong, 6.1–7.2 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 6.4–7.6 mm long, 4 -veined.

Flower and Fruit. Lodicules 3, membranous. Anthers 3, 4.2–4.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, 3.7 mm long, purple, apex unappendaged. Embryo 0.33 length of caryopsis. Hilum linear, 0.75 length of caryopsis.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil Southeast, Brazil South. Uruguay. Catarina, Rio Grande do Sul.

Chusquea laegaardii (L.G. Clark) L.G. Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.G. Clark, S. Laegaard & M. J. Stern* 1112, 2 Jun 1992, Ecuador: Loja: Parque Nacional Podocarpus, Cerro Toledo, 3350 m, 4.22S, 79.08W (QCA!; IT:AAU!, ISC!, MO!, QCNE!, US!, US-3321971).

Recent Synonyms: *Neurolepis laegaardii* L.G. Clark, *Novon*, 6(4): 342 (1996).

Illustrations (Journals): *Novon* (6: 343 Fig. 3 (1996)).

Derivation (Clifford & Bostock 2007): In honor of Simon Laegaard (1933-) Danish botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 15–80 cm long, 3–6 mm diam., woody. Culm-internodes terete, thin-walled, 3–12 cm long. Lateral branches lacking. Leaf-sheaths papillose, glabrous on surface, outer margin hairy. Leaf-sheath auricles absent. Ligule a ciliate membrane, 7–12 mm long. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long. Leaf-blades erect, deciduous at the ligule, lanceolate or ovate, 8–26 cm long, 17–26 mm wide, stiff. Leaf-blade midrib conspicuous. Leaf-blade venation with obscure cross veins. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins cartilaginous.

Inflorescence. Inflorescence a panicle, subtended by an unspecialized leaf-sheath or bracts (1 bract 3–4 mm long). Peduncle 3–10 cm long, glabrous or pubescent above. Panicle open, linear or lanceolate, 16–56 cm long, 2–3 cm wide. Primary panicle branches appressed, 1.5–19 cm long. Panicle axis pubescent. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–2 mm long.

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, subterete or dorsally compressed, compressed slightly, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.4–3.5 mm long, coriaceous, without keels, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface pubescent, inner surface pubescent. Lower glume apex attenuate, awned, 1 -awned, awn 6–20 mm long. Upper glume ovate, 1–4 mm long, coriaceous, without keels, 1(–3) -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent or obscure. Upper glume surface pubescent, inner surface pubescent. Upper glume apex acute, awned, 1 -awned, awn 4–9 mm long.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 1.8–4.1 mm long, coriaceous, 3 -veined, acute. Lemma of upper sterile floret ovate, 1.8–4.1 mm long, mucronate. Fertile lemma ovate, 2.8–4.5 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex acute, mucronate. Palea 2.9–4.2 mm long, coriaceous, 2–4 -veined, without keels. Palea surface glabrous.

Flower and Fruit. Lodicules 3, 1 mm long, veined, ciliate. Anthers 3, 2–2.5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea lanceolata Hitchcock. *Phytologia*, 1: 145 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F. Skutch* 768, 24 Dec 1933, Guatemala: Chimaltenango: Santa Elena, 2400–2700 m (US-1587761).

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

Derivation (Clifford & Bostock 2007): *L. lanceus*, lance; -ola, diminutive; -ata, possessing. Mostly a reference to lanceolate leaf-blades.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 600–800 cm long, 10–20 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 19–21 cm long, smooth or scaberulous. Lateral branches dendroid, extravaginal. Bud complement 3–7. Branch complement several, in a clump, thinner than stem. Culm-sheaths present, persistent, 12.5–13.5 cm long, hispid. Culm-sheath ligule 2 mm high. Culm-sheath blade triangular, deciduous, reflexed, 2 cm long, scabrid, acuminate. Leaves 4–8 per branch. Ligule an eciliate membrane, 1–2 mm long, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.5 cm long. Leaf-blades lanceolate, 13.4–29.5 cm long, 23–42 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface smooth or scaberulous, rough adaxially, glabrous or pilose, hairy abaxially.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, ovate, secund, 6–16 cm long, contracted about primary branches. Primary panicle branches spreading, 4–15 cm long. Panicle axis angular, pubescent. Panicle branches angular, pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–7 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 elliptic, laterally compressed, 6.2–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–1.1 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute.

Upper glume ovate, 0.8–2 mm long, 0.1–0.2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.6–5.6 mm long, 0.5 length of fertile lemma, chartaceous, 3–7 -veined, pubescent, hairy above, ciliolate on margins, fringed above, acute. Lemma of upper sterile floret ovate, 4.3–6.5 mm long, chartaceous, pilose, ciliate on margins, acute. Fertile lemma ovate, 6.1–8 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins ciliolate, hairy above. Lemma apex apiculate. Palea 6.2–7.8 mm long, 2–4 -veined. Palea surface scabrous.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 4–4.2 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Gulf (Mexico), Southeast Mexico. **Mesoamerica.** Guatemala, Honduras.

Veracruz. Chiapas.

Chusquea latifolia L.G. Clark. *Ann. Missouri Bot. Gard.*, 72(4): 868 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *H. Garcma-Barriga* 12259, 20 Jul 1947, Colombia: Tolima (US-1937305; IT: COL).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (220, Fig. 121).

Derivation (Clifford & Bostock 2007): *L. latus*, broad; folium, leaf. Leaf-blades broad or relatively broad with respect to related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms scandent, 2000–4000 cm long, 7–15 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 25–39 cm long, smooth or scaberulous, distally glabrous or pubescent. Lateral branches dendroid, infravaginal. Bud complement 3. Branch complement two or three, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, 15.2–16.5 cm long, 1.8–3 times as long as wide, antrorsely scabrous, glabrous or pubescent. Culm-sheath ligule ciliolate. Culm-sheath blade triangular, deciduous, 1.1–3.5 cm long, pubescent or with ciliate margins, acuminate. Leaves 5–9 per branch. Leaf-sheaths keeled, glabrous on surface or pubescent, outer margin glabrous. Ligule an eciliate membrane, 2–15 mm long, scarious, pubescent on abaxial surface, truncate or obtuse. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.3–0.9 cm long. Leaf-blades lanceolate, 13.3–32.1 cm long, 30–85 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, serrulate. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, secund, 20.5–42.5 cm long. Primary panicle branches appressed, 3–9 cm long. Panicle axis glabrous. Panicle branches angular, glabrous. 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 ovate, laterally compressed, 8.2–12 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, 0.5–1.3 mm long, 0.2–0.5 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 2.4–2.5 mm long, 0.25–0.33 length of adjacent fertile lemma, without keels, 3–5 -veined. Upper glume apex acuminate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.2–4.2 mm long, chartaceous, 7–9 -veined, acuminate. Lemma of upper sterile floret ovate, 4.4–6.5 mm long, chartaceous, acuminate. Fertile lemma ovate, 8–10.6 mm long, coriaceous, shiny, without keel, 9–11 -veined, more than 3-veined. Lemma apex acuminate. Palea 9.3–9.6 mm long, 6–8 -veined. Palea keels contiguous above a sulcus. Palea apex acute.

Flower and Fruit. Lodicules 3, 2.5–2.7 mm long, membranous, ciliate. Anthers 3, 4.5–5.2 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea lehmannii Pilger. *Engl. Jahrb.* 27: 35 (1889).

Accepted by: R.J.Soreng et al., *Catalogue of 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: LT: *Lehmann* 5256, Mar, Colombia: Cauca: Andes of Popayan, paramo de las Delicias, 2500–3300 m (US-1127085; ILT: K, US). LT designated by Clark & Londono, *Nord. J. Bot.* 11: 325 (1991).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): as for *Paspalum lehmanniana*.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, pendulous at the tip, 300–800 cm long, 15–75 mm diam., woody, without nodal roots. Culm-internodes terete, 24–31 cm long, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, extravaginal. Branch complement many, in a clump, with 1 branch dominant and interspersed leafless fibrillar branches, thinner than stem. Culm-sheaths present, persistent, 6.4–23 cm long, glabrous. Culm-sheath ligule 2–6 mm high. Culm-sheath blade lanceolate, cordate, erect, 1.9–20.5 cm long, glabrous on surface or scabrid, acuminate. Leaves 6–10 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 0.5–1.5 mm long, truncate or obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.4 cm long, petiole glabrous. Leaf-blades lanceolate, 9.9–33 cm long, 6–17 mm wide. Leaf-blade venation without cross veins or with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 11–35 cm long. Primary panicle branches appressed, 3–11 cm long. Panicle axis flat, glabrous or puberulous. Panicle branches angular, smooth or scaberulous, glabrous or puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–7 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 oblong, laterally compressed, 6.5–11.2 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–1.1 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.6–1.9 mm long, 0.12 length of adjacent fertile lemma, membranous, without keels, 0–2 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins absent or obscure. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret linear, 3.5–6.4 mm long, 0.6 length of fertile lemma, chartaceous, 3–5 -veined, acute. Lemma of upper sterile floret linear, 4–7.3 mm long, chartaceous, acuminate. Fertile lemma ovate, 6.3–9.3 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface pubescent, hairy all along or above. Lemma apex acute, mucronate. Palea 6.3–9.3 mm long.

Flower and Fruit. Lodicules 3, 1–1.8 mm long, membranous, glabrous. Anthers 3, 2.6–4.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

$2n = 40$ (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador.

Chusquea leonardiorum L.G. Clark. *Brittonia*, 48(2): 256 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.G. Clark et al.* 1109, 1 Jun 1992, Ecuador: Loja: ..., 3050 m (QCA!; IT:AAU!, ISC!, US-3321972).

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

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): L. *-orum*, indicating possession in the plural. In honour of Thomas and Ann Leonard and their family, United States botanical benefactors.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching or scandent, 60–500 cm long, 2–25 mm diam., woody. Culm-internodes semiterete, 4–14 cm long, distally glabrous or hirsute. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid, extravaginal. Bud complement 19–33. Branch complement many, in a clump, with subequal branches, thinner than stem.

Culm-sheaths present, persistent, 11–24.5 cm long, retrorsely scabrous, pilose, hairy below. Culm-sheath ligule 0.5–2 mm high. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 0.7–5.7 cm long, pubescent. Leaves 3–4 per branch. Leaf-sheaths striately veined, pubescent, outer margin glabrous or hairy. Leaf-sheath auricles erect, 1–7 mm long. Ligule an eciliate membrane, 1–3 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long. Leaf-blades linear, 7.5–19 cm long, 2–3 mm wide, stiff, glaucous. Leaf-blade venation without cross veins. Leaf-blade surface scaberulous, rough abaxially. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, subtended by an unspecialized leaf-sheath and bracts, embraced at base by subtending leaf. Panicle open, linear, 6–10.5 cm long. Primary panicle branches 1.5–3 cm long. Panicle axis angular, glabrous. Panicle branches angular, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long.

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 both absent or obscure or two, persistent, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.1–0.2 mm long, membranous, without keels. Lower glume apex obtuse. Upper glume oblate, 0.1–0.2 mm long, 0.02 length of adjacent fertile lemma, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.4–4.2 mm long, 0.5–0.66 length of fertile lemma, chartaceous, 3–5 -veined, acute. Lemma of upper sterile floret ovate, 2.7–4.1 mm long, chartaceous, acute, mucronate. Fertile lemma ovate, 4.5–6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent, hairy above, hairy between veins. Lemma margins scaberulous. Lemma apex acute, mucronate. Palea 4–5.7 mm long, 4 -veined. Palea surface scabrous. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, 0.6–1 mm long, membranous, ciliate. Anthers 3, 1.5–3 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG), Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea leptophylla Nees. *Linnaea*, 9: 489 (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:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow 844*, Brazil (B; IT: LE-TRIN-3182.02, US-2874632 (fragm. ex B), US-1021497 (fragm. ex B)).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (93, Fig. 21).

Derivation (Clifford & Bostock 2007): Gk. leptos, narrow; phyllon, leaf. Leaf-blades narrow.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms leaning or scandent, 2 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 13 cm long, scaberulous. Lateral branches dendroid. Branch complement many. Culm-sheaths present, persistent, antrorsely scabrous. Leaf-sheaths keeled, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5–1.5 mm long, truncate. Leaf-blade base cuneate. Leaf-blades linear, 8–12 cm long, 3 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 3–7 cm long. Primary panicle branches spreading. Panicle branches puberulous. 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, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 3–4 mm long, 0.5 length of spikelet, chartaceous, acute, mucronate. Lemma of upper sterile floret lanceolate, 4.5–5.5 mm long, 1.5 length of lower sterile floret, chartaceous, acute, mucronate. Fertile lemma elliptic, 5–7 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acuminate. Palea 1 length of lemma.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

Chusquea liebmannii Fourn. *Mex. Pl. Enum., Gram.* 132 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Liebmann 125*, Mexico: Oaxaca: between San Miguel del Puente and Sadani (C; IT: US).

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

Derivation (Clifford & Bostock 2007): in honor of Frederik Michael Leibmann (1813–56), Danish botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching or scandent, 300–1000 cm long, 10–25 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, solid, 10.5–27.5 cm long, yellow or brown, smooth. Lateral branches dendroid, infravaginal. Bud complement 100. Branch complement many, girdling the culm, with subequal branches, thinner than stem. Culm-sheaths present, deciduous, 9.2–21.5 cm long, antrorsely scabrous. Culm-sheath ligule 0.5 mm high. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 2.5–9 cm long, scabrid. Leaves 4–9 per branch. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.3 cm long, petiole pubescent. Leaf-blades lanceolate, 2.7–8.5 cm long, 4–15 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, comprising 19–26 fertile spikelets. Panicle open, ovate, 10–15 cm long. Primary panicle branches spreading, 2–4 cm long. Panicle axis angular, glabrous. Panicle branches angular, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–10 mm long, glabrous.

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, 7.2–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.6–1 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.8–1.4 mm long, membranous, without keels, 0–1 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.4–3.1 mm long, 0.25–0.33 length of fertile lemma, chartaceous, 1–3 -veined, without lateral veins or distinctly veined, acute. Lemma of upper sterile floret ovate, 3.4–4 mm long, chartaceous, acute. Fertile lemma ovate, 7.5–8 mm long, coriaceous, without keel, 9–11 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma apex apiculate. Palea 7.3–8 mm long, 4 -veined. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 3 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica.** Costa Rica, El Salvador, Guatemala.

TDWG4. Veracruz. Sinaloa. Colima, Guerrero, Jalisco, Michoacan, Oaxaca. Chiapas.

Chusquea ligulata Munro. *Trans. Linn. Soc.* 26 : 62 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *A. Lindig 1125*, Jan 1867, Colombia: Cundinamarca: Manzanos, near Bogota, 2500 m (K; ILT: MO, P, US-2874633). LT designated by Clark, *Syst. Bot.* 15: 628 (1990).

Illustrations (Journals): *Systematic Botany* (15: 622, Fig.11 (1990)).

Derivation (Clifford & Bostock 2007): *L. ligula*, small tongue; -ata, possessing. Ligule conspicuous.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Branch complement many, in a clump, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–3 mm long,

obtuse. 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, 9.2–12 cm long, 8–13 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, without bracts or bracteate at pedicel base, embraced at base by subtending leaf. Panicle open, linear, 7–20.5 cm long. Primary panicle branches appressed, 5–7 cm long. Panicle axis angular, scabrous. Panicle branches angular, scabrous, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–10 mm long, scabrous.

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, 10–13.3 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2.2–3.8 mm long, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume surface scabrous. Lower glume apex acute. Upper glume ovate, 4–6.6 mm long, 0.33–0.5 length of adjacent fertile lemma, membranous, without keels, 3–7 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5.9–8.7 mm long, 0.75 length of fertile lemma, chartaceous, 5–7 -veined, scabrous, acute, mucronate. Lemma of upper sterile floret ovate, 9.3–11.6 mm long, chartaceous, scabrous, acute, mucronate. Fertile lemma ovate, 9–10.6 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex apiculate. Palea 7.6–10.2 mm long, 2–4 -veined.

Flower and Fruit. Lodicules 3, 1.4–2.1 mm long, membranous, glabrous. Anthers 3, 5.7–6.1 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea linearis N. E. Br. *Trans. Linn. Soc. Ser. 2*, 6: 76 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.V. McConnell & J.J. Quelch 677*, 1808, Guyana: (K(fragm., US-2874634); IT: US-1039490).

Illustrations (Books): J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (74, Fig. 47), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (141, Fig. 21).

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. Butt sheaths absent. Culms erect or scandent, 50–200 cm long, 3–4 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 2–7 cm long, smooth. Lateral branches dendroid, extravaginal. Branch complement several, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, glabrous. Culm-sheath blade inconspicuous. Leaves 10–18 per branch. Leaf-sheaths striately veined, glabrous on surface or puberulous. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate. Ligule an eciliate membrane, 0.5–0.7 mm long, acute. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1 cm long. Leaf-blades deciduous at the ligule, lanceolate, flat or conduplicate or involute, 2–10 cm long, 3–10 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, 8–12 cm long, bearing 3–6 fertile spikelets on each. Spikelet packing lax. Spikelets appressed, 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 lanceolate, laterally compressed, 6.5–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 1–1.5 mm long, 0.33 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 3–5 mm long, 0.5–0.7 length of adjacent fertile lemma, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface puberulous. Upper glume apex obtuse, mucous or mucronate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 6–7.5 mm long, chartaceous, 5–7 -veined, pubescent, ciliate on margins, fringed above, acute. Lemma of upper sterile floret oblong, chartaceous, acute. Fertile lemma

lanceolate, 6–7 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins ciliate, hairy above. Lemma apex obtuse. Palea oblong, 5 mm long, 4 -veined. Palea apex ciliate.

Flower and Fruit. Lodicules 3, membranous. Anthers 3, 1 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Brazil. Guyana, Venezuela. Brazil North.

Chusquea londoniae L.G. Clark. *Syst. Bot.*, 15(4): 628 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Colombia: Antioquia: Alejandria: Vereda Santa Rita, Finca Montepinar, 1850 m, 28 Aug 1986, *Pohl 15444* (HT: HUA; IT: ISC).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (27, Fig. 10).

Illustrations (Journals): *Systematic Botany* (15: 624, Fig.12 (1990)).

Derivation (Clifford & Bostock 2007): in honor of Ximena Londoño (fl.1990) Colombian botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching or scandent, pendulous at the tip, 700–900 cm long, 15–20 mm diam., woody, without nodal roots. Culm-internodes channelled, 20–30 cm long, distally glabrous or pilose. Lateral branches dendroid, infravaginal. Bud complement 40–60. Bud prophyll 30–50 mm long. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, persistent, 17.6–45 cm long, concolorous, antrorsely scabrous, glabrous or hispid, hairy at the base. Culm-sheath ligule 0.2–0.5 mm high. Culm-sheath blade lanceolate, indistinctly demarcated from sheath, erect, 2.2–8 cm long, scabrid, attenuate. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.3 cm long. Leaf-blades lanceolate, 4.4–12.2 cm long, 3–8 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or pilose, hairy abaxially.

Inflorescence. Inflorescence a panicle, without bracts or bracteate at branch bases or bracteate at pedicel base. Panicle open, linear, 3.5–8 cm long. Primary panicle branches appressed, 1–2 cm long. Panicle axis angular, scabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–4 mm long, scabrous.

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, 7.8–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.8–2.8 mm long, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume surface asperulous. Lower glume apex acute. Upper glume ovate, 4–5.1 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface asperulous. Upper glume apex acute, mucronate.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.7–6.2 mm long, 0.75 length of fertile lemma, chartaceous, 7–9 -veined, scaberulous, acute. Lemma of upper sterile floret ovate, 7.2–8.9 mm long, chartaceous, scabrous, acuminate. Fertile lemma ovate, 6.8–8.4 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex apiculate. Palea 6.3–8.2 mm long, 6 -veined.

Flower and Fruit. Lodicules 3, 1.4 mm long, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea longifolia Swallen. *Journ. Wash. Acad. Sc.* 30: 210 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *E. Matuda 2373*, Aug 1938, Mexico: Chiapas: Mount Tacana, 2000–4038 m, flowers (US-1724503; IT: DS-657025, DS-360438, NY, US-2209358).

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

Derivation (Clifford & Bostock 2007): *L. longus*, long; *folium*, leaf. With long leaf-blades.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms geniculately ascending, 800–1000 cm long, 20–30 mm diam., woody, without nodal roots. Culm-internodes terete, solid, smooth or scaberulous. Lateral branches dendroid. Branch complement many, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, without auricles. Culm-sheath ligule 1.5–2 mm high. Culm-sheath blade lanceolate, erect, 13 cm long, attenuate. Leaf-sheaths outer margin hairy. Ligule an eciliate membrane, 1–1.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, linear, 14–27 cm long, 7–12 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or pubescent, hairy abaxially.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, secund, 8–17 cm long, 1–1.5 cm wide. Primary panicle branches appressed, bearing spikelets almost to the base. Panicle branches angular, 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 ovate, 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 ovate, 1–1.3 mm long, 0.7–0.8 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 1.4–1.8 mm long, 0.1–0.2 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse or 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 similar to fertile lemma, ovate, 0.4–0.5 length of spikelet, chartaceous, 7–9 -veined, acute. Lemma of upper sterile floret ovate, 8–13 mm long, chartaceous, acute, awned. Awn of upper sterile floret 1–3 mm long. Fertile lemma ovate, 8–13 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1–1.5 mm long overall. Palea 1–1.1 length of lemma, 6 -veined. Palea keels approximate.

Flower and Fruit. Lodicules 3, obovate, membranous, veined, ciliate. Anthers 3, 5.1–5.4 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, oblong, 9 mm long, apex unappendaged.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southeast Mexico. **Mesoamerica.** Costa Rica, Guatemala, Panama. Chiapas.

Chusquea longiligulata (Soderstrom & C. Calderon) L.G. Clark. *Ann. Missouri Bot. Gard.*, 74(2): 428 (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 Costa Rica. **Basionym or Replaced Name:** *Swallenochloa longiligulata* Soderstr. & C.E. Caldersn, *Brittonia* 30(3): 305, f. 3, 4 (1978)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.W. Pohl 12842*, 4 Jun 1973, Costa Rica: San Josi: 5 km by road SE of Empalme, locale name is Tres de Junio, elev. 2000 m, cut-over *Quercus* forest and pastures, culms to 3 cm thick, erect to 6 m, or longer ones arching and drooping, 30–50 per clump, many blooming, lower internodes solid, upper channeled. Species occurs from 1400–3000 m, most common to 2000 m. First blooming. Chromosome number = 20. (US-2690691, US-2828117; IT: F, ISC, MO-2613119).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (560, Fig 210 as *Swallenochloa*).

Derivation (Clifford & Bostock 2007): *L. longus*, long; *ligula*, small tongue; -ata, possessing. Ligule long.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching, 300–1000 cm long, 20–30 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, distally glabrous or hispid. Culm-nodes glabrous. Lateral branches dendroid, intravaginal. Branch complement several or many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, hispid, hairy throughout, without auricles. Culm-sheath ligule 2 mm high, ciliate. Culm-sheath blade triangular, erect, 5.5 cm long, pubescent. Leaf-sheaths keeled, outer margin glabrous or hairy. Leaf-sheath auricles erect. Ligule an eciliate membrane, 10–70 mm long, acuminate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 12–28 cm long, 8–23 mm wide, dark green. Leaf-blade midrib prominent beneath. Leaf-blade margins cartilaginous, scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 25–50 cm long, 1 cm wide. Primary panicle branches ascending, 5–11 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

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, curved, subterete, 6–7.7 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, 0.3–0.7 mm long, 0.33–0.5 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.9–1.2 mm long, 0.1–0.2 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3 mm long, chartaceous, 3 -veined, acuminate. Lemma of upper sterile floret ovate, 3.7–4.8 mm long, chartaceous, acuminate. Fertile lemma ovate, 5.7–6.4 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma margins involute, covering most of palea. Lemma apex acute. Palea tightly convolute around flower, 1 length of lemma. Palea keels contiguous above a sulcus. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3, 3.5–4.1 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Chusquea longipendula Kuntze. *Rev. Gen.* 3, 2: 348 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Kuntze s.n.*, Apr 1892, Bolivia: Cordillera of Cochabamba (NY; IT: US).

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms arching, 600–1200 cm long, woody, without nodal roots. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement several, in a clump, thinner than stem. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 5–8 cm long, 4–8 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open. Primary panicle branches ascending. 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, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, membranous, without keels. Lower glume apex acuminate. Upper glume ovate, without keels. Upper glume apex acuminate.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, chartaceous, acuminate. Lemma of upper sterile floret ovate, chartaceous, acuminate. Fertile lemma lanceolate, 9–10 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acuminate.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Chusquea longiprophylla L.G. Clark. *Syst. Bot.*, 15(4): 631 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Cundinamarca: La Vega-Facatativa highway, 2100 m, 3 Sep 1947, *Haught 6132* (HT: COL; IT: US).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (219, Fig. 120).

Illustrations (Journals): *Systematic Botany* (15: 630, Fig.14 (1990)).

Derivation (Clifford & Bostock 2007): *L. longus*, long. Prophylls exceptionally long.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, 500–1000 cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes channelled, distally glabrous or pubescent. Lateral branches dendroid, infravaginal. Bud complement 10–24. Bud prophyll 40–75 mm long. Branch complement many, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 16–34.3 cm long, antrorsely scabrous. Culm-sheath ligule 0.5 mm high, ciliate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 2.7–7 cm long, hispid. Ligule an eciliate membrane, 1 mm long, truncate. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long. Leaf-blades lanceolate, 7–16.6 cm long, 10–24 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle, without bracts or bracteate at branch bases or bracteate at pedicel base, embraced at base by subtending leaf. Panicle open, linear, 9–22 cm long. Primary panicle branches appressed, 2.5–3 cm long. Panicle axis angular, scabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–5 mm long, scabrous.

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, 7.1–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–1.2 mm long, membranous, without keels, 1–2 -veined. Lower glume lateral veins absent or obscure. Lower glume surface asperulous. Lower glume apex acute. Upper glume ovate, 1.6–3 mm long, 0.33 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface asperulous. Upper glume apex acute, mucronate.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.9–3.2 mm long, 0.5 length of fertile lemma, chartaceous, 7 -veined, scaberulous, acute. Lemma of upper sterile floret ovate, 5.6–6.2 mm long, chartaceous, scabrous, acute, mucronate. Fertile lemma ovate, 6.4–7.5 mm long, coriaceous, without keel, 6 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute or apiculate.

Flower and Fruit. Lodicules 3, 1–1.8 mm long, membranous, ciliate. Anthers 3, 4–4.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea longispiculata L.G. Clark. *Revista Brasileira de Botânica* 27(1): 34–36, f. 1C–F. 2004 (2004).

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea lorentziana Griseb. *Goett. Abh.* 19: 249 (1874).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *P.G. Lorentz 181*, 7 May 1874, Argentina: Prov. Tucuman: in der Schlucht unmittelbar bei Siambon, Sierra de Tucuman (GOET; IT: CORD (photo, SI)).

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

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of Paul Gnther Lorentz (1835–1881) German-born Urugayan botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, 300–600 cm long, 3–15 mm diam., woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid, infravaginal, ascending or spreading. Branch complement many. Culm-sheaths present. Leaf-sheaths glabrous on surface, outer margin glabrous. Ligule an eciliate membrane, 1–2 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 5–15 cm long, 4–8 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 5–15 cm long. Primary panicle branches ascending. Panicle axis glabrous or pubescent. Panicle branches glabrous or pubescent. 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, 8–9.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–2.5 mm long, 1 length of upper glume, membranous, without keels. Lower glume apex acuminate, mucicous or mucronate. Upper glume ovate, 1–2.5 mm long, without keels. Upper glume apex acuminate, mucicous or mucronate.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.5–5 mm long, chartaceous, acuminate, mucicous or mucronate. Lemma of upper sterile floret ovate, chartaceous. Fertile lemma lanceolate, 7–9 mm long, coriaceous, without keel, more than 3-veined.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Argentina Northwest.

TDWG4. Catamarca, Jujuy, Salta, Tucuman.

Chusquea loxensis L.G. Clark. *Brittonia*, 48(2): 260 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.G. Clark et al. 1114B*, 2 Jun 1992, Ecuador: Loja: Parque Nacional Podocarpus, cerro Toledo, 3350 m, 4.23S, 79.08W (QCA!; IT: AAU!, ISC!, MO!, US-3321966!, US-3321967).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Loja Province, Ecuador.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, 100–150 cm long, 3–5 mm diam., woody. Culm-internodes terete, 5–9 cm long, smooth or scaberulous. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid, extravaginal. Bud complement 20. Branch complement many, in a clump, with subequal branches or 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 4.3–7 cm long, antrorsely scabrous, glabrous on margins. Culm-sheath ligule 0.5 mm high, ciliolate. Culm-sheath blade linear, indistinctly demarcated from sheath, erect, 0.2–0.5 cm long, pubescent, mucronate. Leaves 4–8 per branch. Leaf-sheaths keeled, glabrous on surface, outer margin hairy. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 4.4–12.2 cm long, 3–8 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, bracteate at branch bases. Panicle open, linear, 4.5–6.5 cm long. Primary panicle branches appressed, 1–3 cm long. Panicle axis angular or flat, glabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–5 mm long.

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, 4.8–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.7 mm long, 0.1 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.8–1.3 mm long, 0.2 length of adjacent fertile lemma, membranous, without keels, 0–1 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 2.6–3.1 mm long, 0.66 length of fertile lemma, chartaceous, 1 -veined, without lateral veins, pubescent, hairy above, hairy on veins, acute, mucronate. Lemma of upper sterile floret elliptic, 2.8–3.3 mm long, chartaceous, pubescent on midvein, acute, mucronate. Fertile lemma ovate, 3.6–4.8 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface pubescent, hairy above. Lemma apex acute, mucronate. Palea 3.5–4.8 mm long, 2–4 -veined. Palea surface scabrous. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, 0.6–1.4 mm long, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 3.5 mm long, apex unappendaged. Hilum linear, 1 length of caryopsis.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea maclurei L.G. Clark. *Iowa State J. Res.*, 61(1): 109 (1986).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *L. G. Clark et al.* 309, 27 Aug 1982, Ecuador: Pichincha: 2050 m (ISC(4 sheets)!; IT: K, MO!, QCA!, US-3087572, US-3087353!).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (27, Fig. 10).

Derivation (Clifford & Bostock 2007): in honor of Floyd Alonzo McClure (1897–1970) United States botanist with extensive experience of Chinese bamboos.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect or arching, 400–800 cm long, 10–25 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled or solid, 17–26 cm long, smooth or scaberulous, distally pruinose. Lateral branches dendroid, intravaginal. Bud complement 5–11. Branch complement many, in a horizontal line, thinner than stem. Culm-sheaths present, persistent, 7–24.5 cm long, antrorsely scabrous (at base). Culm-sheath ligule 3–20 mm high, ciliolate. Culm-sheath blade triangular, cordate, indistinctly demarcated from sheath, erect, 7–17.6 cm long, scabrid. Leaves 5–9 per branch. Ligule an eciliate membrane, 10–70 mm long, truncate. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.3–0.7 cm long. Leaf-blades lanceolate, 22–40 cm long, 20–50 mm wide, stiff, yellowish green. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 28–60 cm long. Primary panicle branches appressed, 9–19 cm long. Panicle axis angular, pubescent. Panicle branches angular, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–5 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, straight or curved, laterally compressed, 7.1–9.6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.4–0.6 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.4–0.6 mm long, 0.05 length of adjacent fertile lemma, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.4–4 mm long, 0.4–0.5 length of fertile lemma, chartaceous, 3 -veined, acute. Lemma of upper sterile floret ovate, 3.8–5.7 mm long, chartaceous, acute. Fertile lemma ovate, 6.6–7.7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma apex apiculate. Palea 6.5–8 mm long, 4 -veined.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 2.5–3.2 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea macrostachya R. Phil. *Anal. Univ. Chil.* 94: 350 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Fr. Delfin s.n.*, Chile: Valle del rmo Panela (SGO-PHIL-517; IT: SGO-63016, US-556445 (fragm. ex SGO-PHIL-517 & photo)).

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

Derivation (Clifford & Bostock 2007): Gk. makros, large; stachys, ear of corn. Inflorescence large.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, woody. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement many, in a clump, thinner than stem. Culm-sheaths present. Leaf-sheaths outer margin hairy. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 4–11 cm long, 4–7 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 3–10 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, 6 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 mm long, membranous, without keels. Lower glume apex acuminate, awned, 1 -awned, awn 2 mm long. Upper glume lanceolate, 2 mm long, 0.33 length of adjacent fertile lemma, membranous, without keels. Upper glume apex acuminate, awned, 1 -awned, awn 2 mm long.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.5–3 mm long, 0.5 length of fertile lemma, chartaceous, acute, awned. Awn of lower sterile floret 1 mm long. Lemma of upper sterile floret ovate, 3 mm long, chartaceous, acute, awned. Awn of upper sterile floret 1 mm long. Fertile lemma ovate, 6 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma margins pubescent. Lemma apex acute.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile South.

Los Lagos, Aisen.

Chusquea maculata L.G. Clark. *Syst. Bot.*, 15(4): 632 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: L.G. Clark, J. Gaviria & G. Adamo 523, 14 Jun 1983, Venezuela: Mirida: Sucre: via Estanquez-Las Colorados-El Molino-Cangua, between Estanquez and Las Colorados, 2300 m, 8:23'N, 71:33'W. Vegetation disturbed, secondary after cutting of upper montane forest, bamboo culms mostly exposed, locally common, mostly vegetative with many new shoots, only two culms found in flower, culms erect at base then arching and scandent, to 8–10 m tall, to 2 cm diameter (VEN; IT: ISC, MO, NY, US-3173813).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (219, Fig. 120).

Illustrations (Journals): *Systematic Botany* (15: 630, Fig.14 (1990)).

Derivation (Clifford & Bostock 2007): *L. macula*, spot; -atum, possessing. Culms and leaf-sheaths spotted.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching or scandent, pendulous at the tip, 400–1200 cm long, 10–30 mm diam., woody, without nodal roots. Culm-internodes terete, 17–23 cm long, distally glabrous. Lateral branches dendroid, infravaginal. Bud complement 25–50. Bud prophyll 50–100 mm long. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, persistent, 18–47.5 cm long, distinctly mottled with last colour, antrorsely scabrous. Culm-sheath ligule 1 mm high. Culm-sheath blade linear, indistinctly demarcated from sheath, erect, 2.5–8.5 cm long, scabrid. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.1 cm long. Leaf-blades linear, 10.4–19.5 cm long, 4–9 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, without bracts or bracteate at branch bases or bracteate at pedicel base. Panicle open, linear, 12–16 cm long. Primary panicle branches appressed, 1–3 cm long. Panicle axis angular, scabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–3 mm long, scabrous.

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, 10–11.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.6–2.4 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface smooth. Lower glume apex acute. Upper glume ovate, 4.2–5.4 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume surface smooth. Upper glume apex acute, mucronate.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5.7–7.1 mm long, 0.5–0.66 length of fertile lemma, chartaceous, 5–7 -veined, smooth, acute, mucronate. Lemma of upper sterile floret ovate, 8.5–10.1 mm long, chartaceous,

smooth, acute. Fertile lemma ovate, 9.8–10.2 mm long, coriaceous, without keel, 9 -veined, more than 3-veined. Lemma surface smooth. Lemma apex apiculate. Palea 8.6–9 mm long, 8 -veined. Palea keels contiguous above a sulcus. Palea surface scabrous.

Flower and Fruit. Lodicules 3, 2–4.5 mm long, membranous, ciliate. Anthers 3, 4.3–4.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia.

Chusquea magnifolia L.G.Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Pittier 10067*, 2 Jan 1922, Venezuela: Aragua: between Colonia Tovar and Lagunazo (VEN; IT: US-1064687, US-1064686, US-1064685).

Recent Synonyms: *Neurolepis pittieri* McClure, *Journ. Wash. Acad. Sci.* 32: 181 (1942).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (225, Fig. 128).

Derivation (Clifford & Bostock 2007): in honor of Henry Frangois de Fabrega Pittier (1857–1950) Swiss botanist and civil engineer.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, 550–600 cm long. Culm-internodes distally glabrous or pubescent. Lateral branches lacking or sparse, arising from lower culm. Leaf-sheaths longer than adjacent culm internode, keeled, ribbed, glabrous on surface or pubescent. Leaf-sheath oral hairs ciliate, 2–5 mm long. Leaf-sheath auricles erect, 10–20 mm long. Ligule a ciliolate membrane, 7 mm long, with a secondary abaxial membrane (2 pubescent processes 30–63 mm long), obtuse. Leaf-blade base with a false petiole. Leaf-blades lanceolate, 100–215 cm long, 100–170 mm wide, coriaceous. Leaf-blade venation with 16–17 secondary veins, with obscure cross veins or with distinct cross veins. Leaf-blade margins cartilaginous, spinulose. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle 200 cm long. Panicle open, linear or lanceolate, secund, 100–174 cm long. Primary panicle branches appressed or ascending, 1 -nate, 15–25 cm long, bearing spikelets almost to the base. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–2 mm long.

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, 5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet. Lower glume ovate, 0.75 mm long, 0.75 length of upper glume, coriaceous, 1-keeled. Lower glume apex obtuse or acute. Upper glume oblate, 1 mm long, 0.1–0.25 length of adjacent fertile lemma, coriaceous, 1-keeled. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 0.33 length of fertile lemma, coriaceous. Lemma of upper sterile floret 1.5 length of lower sterile floret. Fertile lemma ovate, 4.5–5 mm long, coriaceous, shiny, without keel, more than 3-veined. Lemma apex acuminate. Palea 1 length of lemma, coriaceous, 2 -veined, without keels.

Flower and Fruit. Lodicules 3, 0.75 mm long, ciliate. Anthers 3, 3 mm long. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Northern South America.

Chusquea mayrae*

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 500–1000 cm long, 3–5 mm diam., woody. Culm-internodes terete, solid, 30–50 cm long, antrorsely scabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, infravaginal. Branch complement many, in a horizontal line (1–2 rows). Culm-sheaths present, persistent (with girdle), 17–34 cm long, antrorsely scabrous, glabrous, hairy on margins, without auricles. Culm-sheath ligule 1 mm high. Culm-sheath blade lanceolate, erect, 4–11 cm long, scabrid, acute. Leaves 3–5 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 0.8–2 mm long, entire or erose, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.3 cm long, petiole glabrous. Leaf-blades

linear or lanceolate, 7.4–11.5 cm long, 4.5–11 mm wide. Leaf-blade venation without cross veins. Leaf-blade apex attenuate. Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica.

Chusquea meyeriana Rupr. ex Doell. *Mart. Fl. Bras.* 2, 3: 203 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Gilob* 1635, 1833, Brazil: prov. St. Paulo: Tayuara Krichiuma, in collibus sylvat. (LE-TRIN-3199.01).

ST: *L. Riedel* 1635, 1833, Brazil: Sco Paulo (US-2874638).

ST: *Riedel s.n.*, Brazil: Sco Paulo: in collibus silvaticus prope Lorena

ST: *Regnell III* 1421, Brazil: Minas Gerais: ad Caldas.

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (83, Fig. 20), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (133, Fig. 41).

Derivation (Clifford & Bostock 2007): in honor of either Carl or Anton Andreevic Meyer (1795–1855) Russian botanists.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching, 1000 cm long, 30–50 mm diam., woody, without nodal roots or with root thorns from the nodes. Culm-internodes terete, solid, scaberulous. Lateral branches dendroid, extravaginal. Branch complement many, in a clump, with subequal branches or 1 branch dominant, thinner than stem. Culm-sheaths present, hispid, without auricles. Culm-sheath ligule 3–5 mm high. Leaves 3–4 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath auricles erect. Ligule an eciliate membrane, 1.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, linear, 14–23 cm long, 4.5–7 mm wide. Leaf-blade surface pubescent, sparsely hairy.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 6–12 cm long. Primary panicle branches spreading, 2–8 cm long. Panicle branches angular, scabrous, pubescent in axils, with prominent pulvini. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, filiform, flexuous, 2–7 mm long.

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, 7.8–9.5 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, 0.3–0.8 mm long, 0.6 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.5–1 mm long, 0.1 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4–6.5 mm long, chartaceous, 3 -veined, acute, mucronate. Lemma of upper sterile floret ovate, 4.8–6.5 mm long, chartaceous, acute, mucronate. Fertile lemma ovate, 7.2–8.5 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea keels approximate.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3, 3.5–5 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

Chusquea microphylla (Doell) L.G. Clark. *Brittonia*, 44(4): 420 (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. **Basionym or Replaced Name:** *Chusquea heterophylla* var. *microphylla* Dvll *Fl. Bras.* 2(3): 207 (1880). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Glaziou* 5436, 1871, Brazil: Minas Gerais: Itatiaia (C). LT designated by Clark, *Brittonia* 44: 420 (1992).

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

Derivation (Clifford & Bostock 2007): Gk. mikros, small; phyllon, leaf. Leaf-blades short.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 50–100 cm long, 3–5 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 1.5–13.5 cm long, distally pruinose or pubescent. Culm-nodes swollen, without obvious supra-nodal ridge. Lateral branches dendroid, extravaginal, spreading. Bud complement 30–60. Branch complement many, in a clump (triangle of 5–6 rows). Culm-sheaths present, persistent, 3.4–9.4 cm long, glabrous, glabrous on margins, without auricles. Culm-sheath ligule 0.5 mm high. Culm-sheath blade triangular, demarcated but persistent, erect, 0.9–2.5 cm long. Leaves 4–7 per branch. Leaf-sheaths tight, pubescent. Ligule an eciliate membrane, 0.2–0.5 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.02–0.05 cm long. Leaf-blades linear, 0.85–2 cm long, 1–2 mm wide, coriaceous, stiff. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 1–1.5 cm long. Primary panicle branches appressed. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 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 ovate, subterete or dorsally compressed, compressed slightly, 4.7–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 0.4–0.8 mm long, 0.75 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex obtuse. Upper glume oblong, 0.6–1.2 mm long, 0.15 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume surface pubescent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.9–4 mm long, 0.5–0.66 length of fertile lemma, chartaceous, 1–5 -veined, without lateral veins or distinctly veined, pubescent, hairy above, acute. Lemma of upper sterile floret ovate, 2.9–4 mm long, 1.2–1.5 length of lower sterile floret, chartaceous, pubescent, acute. Fertile lemma ovate, 4.5–5.5 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex acute, mucronate. Palea 4.5–5.3 mm long, 1 length of lemma, 4 -veined.

Flower and Fruit. Lodicules 3, membranous. Anthers 3, 2.5–2.7 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea mimosa McClure & L. B. Smith. *Fl. Illustr. Catar., Pt. 1, Gramin., Supl. Bambus.* 37 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Reitz & R. Klein 6139*, 10 Jan 1958, Brazil: Santa Catarina: Campo Alegre, Morro de Iquererim, beira do rio, 1300 m (US-2240563; IT: HBR).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (93, Fig. 21).

Derivation (Clifford & Bostock 2007): an abbreviation of cara-mimosa, the vernacular name for the species in Santa Catarina Province of Brazil.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 300–400 cm long, 10–14 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 20–30 cm long, striate, distally glabrous. Lateral branches dendroid. Branch complement many. Culm-sheaths present, deciduous, 7–9 cm long, antrorsely scabrous. Culm-sheath ligule 1 mm high, ciliolate. Culm-sheath blade triangular, erect, scabrid. Leaf-sheaths without keel, striately veined, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.5–2 mm long, truncate. Leaf-blade base cuneate. Leaf-blades linear or lanceolate, 5–8 cm long, 3–8 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 1.5–3 cm long, 1.5 cm wide. Primary panicle branches indistinct the panicle almost racemose or simple. Spikelets solitary. Fertile spikelets sessile or 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, 6–7 mm long, 1.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic or ovate, 3 mm long, 0.5 length of spikelet, chartaceous, 1-keeled, 1 -veined, without lateral veins, acute, mucicous or mucronate. Lemma of upper sterile floret elliptic or ovate, 3 mm long, 1 length of lower sterile floret, chartaceous, acute, mucicous or mucronate. Fertile lemma lanceolate or oblong, 6 mm long, coriaceous, mid-green or red, without keel, 3 -veined, 0–3 -veined. Lemma apex acute. Palea 1 length of lemma.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Sao Paulo Parana, Catarina, Rio Grande do Sul.

Chusquea mollis (Swallen) L.G.Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.P. Killip & A.C. Smith 15830*, 20 Dec 1926–21 Dec 1926, Colombia: Santander: mountains east of Las Vegas, alt. 3000–3300 m (US-1351648; IT: NY).

Recent Synonyms: *Neurolepis mollis* Swallen, *Journ. Wash. Acad. Sc.* 21: 14. (1931).

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

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): L. soft. Softly hairy usually of leaf-blades.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph, knotty. Culms erect, 150–450 cm long. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface. Leaf-sheath oral hairs setose. Ligule a ciliolate membrane, 10–20 mm long, membranous, brown, lacerate. Leaf-blade base with a false petiole. Leaf-blades lanceolate, 20–75 cm long, 20–40 mm wide, coriaceous. Leaf-blade surface pilose, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 45–80 cm long, contracted about primary branches. Primary panicle branches appressed or ascending, 10–20 cm long, bearing spikelets almost to the base. Panicle axis pubescent. Panicle branches pubescent. 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, 2 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet. Lower glume ovate, 1 mm long, coriaceous, 1-keeled. Lower glume apex obtuse. Upper glume ovate, 1 mm long, coriaceous, 1-keeled. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, coriaceous. Fertile lemma ovate, 2 mm long, coriaceous, without keel, more than 3-veined. Lemma surface scaberulous. Lemma apex acute. Palea coriaceous, without keels.

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.

Chusquea montana Phil. *Linnaea* 33: 298 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Krause s.n.*, Chile: in montibus supra Corral (SG0-PHIL-516; IT: SGO-37591, SGO-63034, US-556446 (fragm. ex SGO-PHIL-516), US- (photo SGO-37591)).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (111, Fig. 21), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (17, Fig. 3).

Derivation (Clifford & Bostock 2007): *L. mons*, mountain; -ana, indicating location. Growing on mountains.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect or leaning, 200–300 cm long, woody, without nodal roots. Culm-internodes terete, solid, smooth. Culm-nodes swollen. Lateral branches dendroid. Branch complement several, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule an eciliate membrane, 2–4 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 8–13 cm long, 6–10 mm wide, herbaceous. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 14–20 cm long. Primary panicle branches 5–13 cm long. Panicle axis 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 ovate, laterally compressed, 6–7 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, 0.5–0.6 mm long, 0.75 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.6–0.7 mm long, 0.1 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3–3.5 mm long, 0.5 length of fertile lemma, chartaceous, 3 -veined, pubescent, acute. Lemma of upper sterile floret ovate, 3.5–4.5 mm long, 1.2–1.3 length of lower sterile floret, chartaceous, pubescent, acute. Fertile lemma ovate, 6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex acuminate. Palea 1 length of lemma, 4 -veined. Palea surface pubescent.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3, 4 mm long. Stigmas 2. Caryopsis with adherent pericarp, 5.5–6.5 mm long, apex unappendaged. Hilum linear, 1 length of caryopsis.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina South.

TDWG4. Neuquén, Río Negro.

Chusquea mulleri Munro. *Trans. Linn. Soc.* 26 : 65 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Habitat in Mexico, Vera Cruz, Orizaba, *Muller 2024*.

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

Derivation (Clifford & Bostock 2007): in honor of C.H. Muller (fl. 1939) who collected in Venezuela and Mexico.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, 700–900 cm long, woody. Culm-internodes terete. Lateral branches dendroid. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, persistent. Leaf-sheaths glabrous on surface, outer margin glabrous or hairy. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 5–12 cm long, 6–12 mm wide, glaucous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, 2–6 cm long. 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, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.5 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2 mm long, 0.2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.5–4 mm long, 0.5 length of fertile lemma, chartaceous, 3 -veined, acute, awned. Awn of lower sterile floret 1 mm long. Lemma of upper sterile floret ovate, 4–4.5 mm long, chartaceous, acute, awned. Awn of upper sterile floret 1–2 mm long. Fertile lemma ovate, 8–10 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma apex acuminate, mucronate or awned, 1 -awned. Principal lemma awn 0.5–1 mm long overall.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Gulf (Mexico).

TDWG4. Veracruz.

Chusquea nana (L.G. Clark) L.G. Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Ecuador. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *L. G. Clark et al. 1111*, 2 Jun 1992, Ecuador: Loja: Parque Nacional de Podocarpus, Cerro Toledo, along ridge, 3400 m, 4.23S, 79.08W (QCA(3)!; IT:AAU!, ISC!, MO!, QCNE!, US-3321968, US-3321969, US-3321970).

Recent Synonyms: *Neurolepis nana* L.G. Clark, *Novon*, 6(4): 344 (1996).

Illustrations (Journals): *Novon* (6: 345 Fig. 4 (1996)).

Derivation (Clifford & Bostock 2007): *L. dwarf*. Smaller than related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 20–130 cm long, 2–4 mm diam., woody. Culm-internodes terete, 1–6.3 cm long, distally glabrous. Lateral branches lacking. Leaf-sheaths keeled, striately veined, papillose, glabrous on surface, outer margin glabrous or hairy. Leaf-sheath auricles erect. Ligule an eciliate membrane or a ciliate membrane, 2–5 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades erect, deciduous at the ligule, linear or lanceolate, 11–39 cm long, 6–14 mm wide, stiff. Leaf-blade midrib conspicuous. Leaf-blade venation with distinct cross veins. Leaf-blade surface smooth or scabrous, rough adaxially, glabrous or pubescent, hairy abaxially. Leaf-blade margins cartilaginous, smooth or scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, subtended by an unspecialized leaf-sheath or bracts (1 bract 1–3 mm long). Peduncle 5–44 cm long, glabrous. Panicle contracted, linear, 18–37 cm long, 1–2.5 cm wide. Primary panicle branches appressed or ascending, 2.5–11 cm long. Panicle axis glabrous or pilose. Panicle branches glabrous or pilose, with insignificant pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long.

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, compressed slightly, 3.6–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.5–4.3 mm long, coriaceous, without keels, 1–3 -veined. Lower glume lateral veins absent. Lower glume surface scabrous, inner surface pubescent. Lower glume apex acuminate, awned, 1 -awned, awn 1.7–6.7 mm long. Upper glume ovate, 2–4 mm long, coriaceous, without keels, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume surface scabrous, rough generally, inner surface pubescent. Upper glume apex acuminate, awned, 1 -awned, awn 1.6–7 mm long.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.8–5 mm long, coriaceous, 3(–5) -veined, scabrous, rough above, acute. Lemma of upper sterile floret ovate, 3.1–5 mm long, scabrous (above), acute. Fertile lemma ovate, 3.8–5.4 mm long, coriaceous, without keel, 5(–7) -veined, more than 3-veined. Lemma surface smooth or scaberulous, rough above. Lemma apex acute, muticous or mucronate. Palea 3.5–5 mm long, coriaceous, 2(–4) -veined, without keels. Palea surface scabrous (at tip).

Flower and Fruit. Lodicules 3, 1–1.5 mm long, veined, glabrous. Anthers 3, 2.2–2.5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, 3.1 mm long. Embryo 0.15 length of caryopsis. Hilum linear.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea nelsonii Scribn. & J. G. Sm. ex Scribn. *U.S. Dept. Agric. Bull. Agrost.* 4: 16 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.W. Nelson 2162*, 17 Dec 1894, Mexico: Guerrero: between Chilapa and Tuxtla, alt. 5200–7000 ft (US-218629).

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

Derivation (Clifford & Bostock 2007): in honor of Edward William Nelson (1855–1954) United States explorer and naturalist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning, 300–500 cm long, 5–10 mm diam., woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid, infravaginal. Branch complement many, in an irregular line (bulging downwards at centre), thinner than stem. Culm-sheaths present, 5.6–19 cm long, smooth, without auricles. Culm-sheath blade lanceolate, deciduous, erect, 1.8 cm long, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 6.4–15.4 cm long, 5–10 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface pilose, hairy abaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, dense, 4–6.5 cm long. Primary panicle branches appressed. Panicle axis pilose. Spikelets appressed, 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 lanceolate, laterally compressed, 6.6–7.8 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, 0.6–1.3 mm long, 1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.6–1.3 mm long, 0.15–0.25 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.8–4.8 mm long, 0.5–0.66 length of fertile lemma, chartaceous. Lemma of upper sterile floret ovate, 3.8–4.8 mm long, chartaceous. Fertile lemma lanceolate, 6.4–7.1 mm long, coriaceous, without keel, more than 3-veined. Lemma margins involute, covering most of palea. Lemma apex acuminate. Palea tightly convolute around flower, 1 length of lemma. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southwest Mexico, Southeast Mexico. **Mesoamerica.** Guatemala. Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Chiapas.

Chusquea neurophylla L.G. Clark. *Iowa State J. Res.*, 61(1): 105 (1986).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *Andri 4516*, Jul 1876, Ecuador: Chimborazo: inter Riobambi et Alaum, in Cordillera centrali andinum, 2900 m (K!; IT: K!, US-3047994!).

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

Derivation (Clifford & Bostock 2007): Gk. neos, new. Similar to *Sinocalamus*.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 100–300 cm long, 2–4 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 5–8.5 cm long, yellow, smooth, distally pruinose or glabrous. Culm-nodes swollen, with distinct supra-nodal ridge. Lateral branches dendroid, intravaginal. Bud complement 1, or 3. Branch complement several, in a clump, thinner than stem. Culm-sheaths present, persistent, 4–5 cm long, 4–5 times as long as wide, chartaceous, glabrous. Culm-sheath ligule 0.5 mm high, entire. Culm-sheath blade lanceolate, deciduous, erect, 2.5–3.3 cm long, glabrous on surface. Leaves 3–9 per branch. Leaf-sheaths keeled, striately veined, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 0.2–0.5 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades erect, linear, 3–8 cm long, 2–2.5 mm wide, stiff.

Leaf-blade midrib keeled beneath. Leaf-blade venation prominent, with 2–4 secondary veins, without cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, secund, 4–11 cm long. Primary panicle branches appressed, 1–2 cm long. Panicle branches angular, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–8 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, 5.7–6.4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.3–0.8 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.4–1.2 mm long, without keels, 0–1 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.7–3.6 mm long, chartaceous, 3 -veined, pubescent, hairy at apex, ciliate on margins, fringed above, acute. Lemma of upper sterile floret ovate, 3–4 mm long, chartaceous, pubescent (at apex), ciliate on margins, fringed above, acute. Fertile lemma ovate, 5.3–5.4 mm long, coriaceous, without keel, 5–9 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins ciliate, hairy above. Lemma apex acute. Palea 4.9–5.4 mm long, 4 -veined. Palea surface pubescent, hairy above.

Flower and Fruit. Lodicules 3, 0.8–1.4 mm long, membranous, veined, ciliate. Anthers 3, 2.7–3.4 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador, Peru.

Chusquea nigricans Phil. *Anal. Univ. Chil.* 2: 323 (1865).

Regarded by K as a synonym (*C. montana*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: Nov 1864, Chile: in montibus litoreis prov. Valdivia "Cordillera Pelada" (SGO-PHIL-518; IT: SGO-37577, SGO-63035, US-287641 (fragm. ex SGO, ex. W), US-1099805 (fragm. ex SGO), US- (photo SGO-37577)).

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

Derivation (Clifford & Bostock 2007): *L. nigricans*, become blackish. Becoming black with maturity, usually of spikelets.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

Chusquea nobilis (Munro) L.G. Clark. *Syst. Bot.* 34:681 (2009).

Regarded by K as a synonym (*N. elata*).

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:** *Planotia nobilis* Munro, *Trans. Linn. Soc. London* 26(1): 72 (1868). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *W. Purdie s.n.*, no date, Colombia: Páramo de Rinza (K; IT: US-1021594, US-2876329).

Recent Synonyms: *Neurolepis nobilis* (Munro) Pilger, *Engl. & Prantl, Nat. Pflanzenfam. Nachtr.* 3, 21 (1906).

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

Derivation (Clifford & Bostock 2007): *L.* tall. Culms tall for genus.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador.

Chusquea nudiramea L.G. Clark. *Brittonia*, 44(4): 415 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: A. Bresolin 1002, 9 Dec 1973, Brazil: Santa Catarina (US-2725910).

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

Derivation (Clifford & Bostock 2007): *L. nudus*, bare; *ramus*, branch. Culm leaves deciduous.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or leaning, 200–400 cm long, 10–12 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 16–22 cm long, glaucous, distally glabrous. Lateral branches dendroid, extravaginal, ascending. Bud complement 10–15. Branch complement several, in a clump. Culm-sheaths present, deciduous, 7.2–10.2 cm long, glabrous, hairy on margins, without auricles. Culm-sheath ligule 0.4 mm high, ciliolate. Culm-sheath blade lanceolate, deciduous, reflexed, 1–4.6 cm long, glabrous on surface, acuminate. Leaves 7–8 per branch. Leaf-sheaths deciduous, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 1–3 mm long, pubescent on abaxial surface, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.3 cm long. Leaf-blades lanceolate, 7–16 cm long, 4–11 mm wide, coriaceous. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, lanceolate, 3–3.5 cm long. Primary panicle branches appressed, 0.5–0.8 cm long. Panicle branches scabrous, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–3 mm long, scaberulous, glabrous.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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 elliptic, straight or curved, dorsally compressed, 8.3–9.1 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.1 mm long, 0.5–0.6 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume orbicular, 0.1–0.2 mm long, 0.03 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.5–4.5 mm long, 0.4 length of fertile lemma, chartaceous, 1–3 -veined, without lateral veins or distinctly veined, acute. Lemma of upper sterile floret ovate, 3.5–4.5 mm long, 1 length of lower sterile floret, chartaceous, acute. Fertile lemma elliptic, 7.9–8.3 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute, muticous or mucronate. Palea 7.6–7.9 mm long, 1 length of lemma, 4 -veined. Palea surface scabrous.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Chusquea nutans L.G. Clark. *Brittonia*, 44(4): 398 (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: Bahia: Serra das Almas, lower NE slopes of the Pico das Almas, ca. 25 km WNW of the Vila do Rio de Contas, 17 Feb 1977, *Harley et al. 19596* (HT: CEPEC; IT: IPA, K, MO, NY, P, RB, U, US).

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

Derivation (Clifford & Bostock 2007): *L. nuto*, nod. Inflorescence branches slender, bending under the weight of the spikelets.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, inclined at the tip, (100–)400–500(–600) cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 7.7–14 cm long, distally pruinose or glabrous. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid, intravaginal, reflexed. Bud complement 5–11. Branch complement several, in a horizontal line. Culm-sheaths present, deciduous, 5.6–12.6 cm long, glabrous, without auricles. Culm-sheath ligule 0–0.5 mm high, ciliolate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 0.8–2.3 cm long, scabrid, acuminate. Leaves 4–8 per branch. Leaf-sheaths tight, glabrous on surface or pubescent. Ligule an eciliate membrane, 0.2–0.5 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades aciculate, 2–5.3 cm long, 0.6–1.5 mm wide, coriaceous, stiff. Leaf-blade venation without cross veins. Leaf-blade surface scabrous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 0.5–1 cm long, bearing few spikelets. Primary panicle branches appressed, indistinct the panicle almost racemose. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2.5–4 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 oblong, subterete, 5.6–6.6 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, 0.6–0.8 mm long, 1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume lanceolate, 0.6–0.8 mm long, 0.1 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 2.8–3.2 mm long, 0.5 length of fertile lemma, chartaceous, 1 -veined, without lateral veins, acuminate. Lemma of upper sterile floret lanceolate, 2.8–3.2 mm long, 1 length of lower sterile floret, chartaceous, acuminate. Fertile lemma elliptic, 5.1–5.9 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma apex acute, muticous or mucronate. Palea 4.7–5.6 mm long, 2 -veined. Palea apex acute.

Flower and Fruit. Lodicules 3, membranous. Anthers 3, 2.6–2.8 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast, Brazil Southeast.

Chusquea oligophylla Rupr. *Mem. Acad. Petersb. Ser. 6, 5: 124 (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 Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brasilia, Anon. (HT: PR).

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

Derivation (Clifford & Bostock 2007): Gk. oligos, few; phyllon, leaf. Culms bearing few leaves.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 3–5 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 30 cm long, smooth or scaberulous, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Branch complement several or many, in a clump. Culm-sheaths present. Leaf-sheaths without keel. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, truncate. Collar with external ligule. Leaf-blade base symmetrical, with a brief petiole-like connection to sheath, petiole 0.15–0.3 cm long, petiole pubescent. Leaf-blades deciduous at the ligule, linear or lanceolate, 5–10.5 cm long, 5–15 mm wide. Leaf-blade venation with 4–8 secondary veins, with obscure cross veins. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, equilateral, 3–7 cm long, 2–4 cm wide. Panicle axis glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long.

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, 5–6 mm long, 1.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1 mm long, 1 length of upper glume, membranous, 1-keeled. Lower glume lateral veins obscure. Lower glume margins ciliate. Lower glume apex cuspidate. Upper glume ovate, 1 mm long, 0.2 length of adjacent fertile lemma, 1-keeled. Upper glume lateral veins obscure. Upper glume margins ciliate. Upper glume apex cuspidate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 0.25 length of fertile lemma, chartaceous, 5 -veined, acute. Lemma of upper sterile floret ovate, 3 mm long, 2 length of lower sterile floret, chartaceous, acute. Fertile lemma lanceolate, 4.5 mm long, coriaceous, purple, without keel, 9 -veined, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.
Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

Chusquea oxylepis (Hack.) Ekman. *Arkiv Bot. Stockh.* 13 No. 10, 65 (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:** *Chusquea bambusoides* subsp. *oxylepis* Hack. *Ergebn. Bot. Exp. Sudbras.* 1: 20 (1906)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.R. von Wettstein & V.F. Schiffner s.n.*, Jul 1901, Brazil: Sao Paulo (B; IT: US-2874602).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (60, Fig. 16).

Derivation (Clifford & Bostock 2007): Gk. oxys, sharp; lepis, scale. Glumes or lemmas tapering to a sharp point.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms decumbent or scandent, 300–2000 cm long, 5–10 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, solid, 20–40 cm long, antrorsely scabrous. Culm-nodes glabrous. Lateral branches dendroid. Branch complement several, in a clump. Culm-sheaths present. Leaf-sheaths mostly shorter than adjacent culm internode, keeled, striately veined, antrorsely scabrous, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 1.5 mm long, truncate. Collar with external ligule. Leaf-blade base symmetrical, with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long, petiole pubescent. Leaf-blades deciduous at the ligule, lanceolate or ovate, 1–2.5 cm long, 2–4 mm wide. Leaf-blade venation with 10–12 secondary veins, with obscure cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, dense, 4–6 cm long, 3–4 cm wide. Panicle branches smooth or scaberulous. 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, 11–12 mm long, 2.5–3 mm wide, 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, 0.25 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume surface scabrous, rough above. Lower glume apex acuminate. Upper glume ovate, 6 mm long, 0.33 length of adjacent fertile lemma, without keels, 7 -veined. Upper glume surface scabrous, rough above. Upper glume apex acuminate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5–6 mm long, 0.5 length of fertile lemma, chartaceous, 9–11 -veined, scabrous, rough above, acute, mucronate. Lemma of upper sterile floret ovate, 1.5 length of lower sterile floret, chartaceous, scabrous, acute, mucronate. Fertile lemma ovate, 10–11 mm long, coriaceous, without keel, 15 -veined, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

N = 22 (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast, Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul.

Chusquea pallida Munro. *Trans. Linn. Soc.* 26 : 65 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *W. Purdie s.n.*, Colombia: Santa Marta (US-2874642).

ST: *Fendler 1625*, Venezuela: inter Caracas et La Guayra, alt. 1500 ped. s. m.

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

Derivation (Clifford & Bostock 2007): L. pale-colored. Spikelets or grain pale-green.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 700–900 cm long, woody. Culm-internodes terete, solid, smooth. Lateral branches dendroid. Branch complement many,

in a clump, thinner than stem. Culm-sheaths present, persistent. Leaf-sheaths striately veined, glabrous on surface, outer margin hairy. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 7.5–12 cm long, 9–20 mm wide. Leaf-blade venation prominent, with 8 secondary veins. Leaf-blade surface scabrous, rough adaxially, glabrous or puberulous, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 7–15 cm long. Primary panicle branches spreading. Panicle axis hirsute. 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, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5 mm long, 0.5 length of fertile lemma, chartaceous, 0–1 -veined, without midvein or with obscure midvein, without lateral veins, glabrous, acute, mucronate. Lemma of upper sterile floret ovate, 5 mm long, chartaceous, acute, mucronate. Fertile lemma elliptic, 10 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface glabrous or pubescent, hairy between veins. Lemma apex acuminate, mucronate.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America. Venezuela.

Chusquea paludicola L.G. Clark. *Iowa State J. Res.*, 61(1): 101 (1986).

Accepted by: R.J.Soreng et al., *Catalogue of 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: R.W. Pohl & L.G. Clark 14600, 31 Dec 1984, Costa Rica: San Josi: SE of El Empalme, km 70 along the Carretera Interamericana, elev. 2700 m, 9:44'N, 83:57'W, *Chusquea-Lomaria* bog around margins, canes 1.5–3 x 1 cm, branching early, extravaginal, culms solid, culm sheaths pubescent at base, sheaths pubescent at base, internodes green-reddish, *Chusquea tonduzii* present (ISC; IT: CR-116841, F, K, MO-3304807, MO-3304808, US-3149516).

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

Derivation (Clifford & Bostock 2007): *L. palus*, swamp; -cola, dweller. Growing in swamps.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 150–300 cm long, 8 mm diam., woody, without nodal roots. Culm-internodes channelled, solid, 8–14 cm long, yellow, smooth, distally pruinose. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, intravaginal. Branch complement many, with subequal branches. Culm-sheaths present, tardily deciduous, 8–10 cm long, 1 length of internode, 2 times as long as wide, glabrous or pilose, hairy below, hairy on margins, triangular at apex. Culm-sheath ligule 1–1.5 mm high. Culm-sheath blade triangular, demarcated but persistent, erect, glabrous on surface. Leaves 4–6 per branch. Leaf-sheaths keeled, striately veined, glabrous on surface, outer margin hairy. Ligule a ciliolate membrane, 2–8 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 erect, linear, 7–15 cm long, 4–6 mm wide, stiff, yellowish green. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous or pilose, hairy abaxially. Leaf-blade margins smooth or scaberulous. Leaf-blade apex acuminate, hairy. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia, South America.

Country /Province /State. Malesia. Lesser Sunda Is, Sulawesi. Mesoamerica. Costa Rica.

Chusquea patens L.G. Clark. *Iowa State J. Res.*, 61(1): 119 (1986).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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: side road N of road to Alto del Roble, just at entrance to pass, 2030 m, 28 Jul 1982 (fl), Pohl & Clark 14109 (HT: ISC).

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

Derivation (Clifford & Bostock 2007): *L. pateo*, lie open. Panicle branches spreading or reflexed or habit open.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, 200–1000 cm long, 20–40 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 13.5–17 cm long, smooth or scaberulous. Culm-nodes swollen. Lateral branches dendroid, infravaginal. Bud complement 24–65. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, 12–35 cm long, 2–5 times as long as wide, antrorsely scabrous, glabrous or pilose, hairy above, hairy on margins. Culm-sheath ligule 2–4 mm high. Culm-sheath blade triangular, demarcated but persistent, erect, 5–12 cm long, pubescent or scabrid. Leaves 2–5 per branch. Leaf-sheaths keeled, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 0.5–4 mm long, pubescent on abaxial surface, truncate or obtuse. Collar with external ligule, ciliate. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades linear, 8.5–31.2 cm long, 4–9 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or pilose, hairy abaxially. Leaf-blade margins cartilaginous, scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 6–17 cm long, contracted about primary branches. Primary panicle branches spreading or reflexed, 4–5 cm long. Panicle axis scabrous. Panicle branches angular, scabrous, pubescent in axils, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 3–10 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 elliptic, laterally compressed, 6.9–11.2 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.6–0.9 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.7–1.2 mm long, without keels, 0–1 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.1–6.6 mm long, chartaceous, 3–7 -veined, pubescent, ciliolate on margins, fringed above, acute. Lemma of upper sterile floret ovate, 5–8.8 mm long, chartaceous, pubescent, ciliate on margins, acute. Fertile lemma ovate, 6.9–10.3 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins ciliate, hairy above. Lemma apex acute. Palea 6.5–8.7 mm long, 4–6 -veined. Palea surface pubescent, hairy above.

Flower and Fruit. Lodicules 3, 1.1–1.5 mm long, membranous, ciliate. Anthers 3, 4.1–4.7 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica, Panama.

Chusquea perligulata (Pilger) McClure. *Smithsonian Contrib. Bot.*, 9: 75 (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 Ecuador. **Basionym or Replaced Name:** *Guadua perligulata* Pilg. *Biblioth. Bot.* 29(116): 57, f. (1937). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Diels* 565, Aug 1933, Ecuador: Chimborazo: c. 3200 m (B destr.).

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

Derivation (Clifford & Bostock 2007): L. per, very; ligulus, tongue; -atus, possessing. Ligule prominent.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths striately veined, glabrous on surface. Leaf-sheath auricles erect (united to form a collar), 5 mm long. Ligule a ciliolate membrane, 5–7 mm long. Collar without external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades lanceolate, 17–23 cm long, 30–40 mm wide, fleshy. Leaf-blade venation with 14 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins smooth. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea perotensis L.G. Clark, G. Cortes R. & M. Chazaro B. *Syst. Bot.*, 22(2): 225 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: L. G. Clark, G. Cortis R., M. Chazaro B., I. Calzada & D. Farrar 1308, 20 Sep 1994, Mexico, below La Garita, Caqada El Toche, 3 km above Oxtlapa, 20 km above Xico, 2150: Veracruz: Mun. Xico: road from Tonalaco to Oxtlapa to Xico (HT: MEXU; IT: CHAPA, ENCB, F, GH, ISC, K, MICH, MO, MSC, NY, US-3427303, W).

Illustrations (Journals): *Systematic Botany* (22: 221, Fig.2; 222, Fig.2 (1997)).

Derivation (Clifford & Bostock 2007): L. *-ensis*, denoting origin. Growing on the slopes of Volcan Cofre de Perote, Mexico.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching, 600–1500 cm long, 15–50 mm diam., woody. Culm-internodes terete, thin-walled, 19–32 cm long, distally glabrous. Lateral branches dendroid, intravaginal. Bud complement 40–50. Branch complement many, girdling the culm, thinner than stem. Culm-sheaths present, persistent, 6.8–12.6 cm long, 0.5 length of internode, hairy on margins. Culm-sheath ligule 1 mm high, ciliate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 2.8–4.2 cm long, with ciliate margins, mucronate. Leaves 4–9 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, 1–1.8 mm long. Ligule an eciliate membrane, 1–3(–7) mm long, glabrous on abaxial surface or pubescent on abaxial surface. 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, 10–17 cm long, 8–15 mm wide. Leaf-blade venation without cross veins or with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, bracteate at branch bases. Peduncle 3–9.5 cm long, pubescent above. Panicle open, ovate, 7–12 cm long. Primary panicle branches spreading or reflexed, 2.5–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–8 mm long, scabrous.

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, subterete, 7.4–8.7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.4–0.8 mm long, 0.05 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.7–1.3 mm long, 0.1 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.6–4.5 mm long, 0.5–0.6 length of fertile lemma, chartaceous, 3(–7) -veined, scabrous, rough on midvein, acute. Lemma of upper sterile floret ovate, 4.3–5 mm long, chartaceous, acute. Fertile lemma ovate, 7–7.8 mm long, coriaceous, without keel, 7(–9) -veined, more than 3-veined. Lemma midvein scabrous. Lemma surface pilose, hairy above. Lemma apex acute, mucronate. Palea 6.9–8.1 mm long, 4 -veined. Palea surface scabrous.

Flower and Fruit. Lodicules 3, 1.5 mm long, membranous, veined, ciliate. Anthers 3, 5.4–6 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, oblong, 5–5.2 mm long, apex unappendaged. Embryo 0.2 length of caryopsis. Hilum linear.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Gulf (Mexico), Southwest Mexico.

TDWG4. Veracruz. Oaxaca.

Chusquea peruviana E. G. Camus. *Les Bambusees*, 88 (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).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (44, Fig. 6).

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating location. From Peru.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms arching, 200–300 cm long, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 4–5.5 cm long, 2.5–4 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, linear, 4–5 cm long, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose. 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, 5.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.8–1 mm long, 1 length of upper glume, membranous, without keels. Lower glume apex obtuse or acute. Upper glume ovate, 0.8–1 mm long, without keels. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, chartaceous, acute. Lemma of upper sterile floret lanceolate, chartaceous, acute. Fertile lemma lanceolate, 5.5–6 mm long, coriaceous, without keel, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Chusquea petiolata (G. Davidse & L.G. Clark) L.G. Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Antioquia: Mun. de La Unión: km 32.5 of road Sonsón-LA Unión (23.5 km from La Unión), montane vegetation on slopes near stream, 05.52N 75.18W, 2300 m, large clump-forming grass with culms to 4 m tall, above stream at forest margin, 4 Oct 1987, J.L. Zarucchi, A.E. Brant & F.J. Roldán 6265 (HT: HUA; IT: COL, ISC, MO).

Recent Synonyms: *Neurolepis petiolata* G. Davidse & L.G. Clark, *Novon* 6(2): 153 (1996).

Illustrations (Journals): *Novon* (6:154, Fig.4 (1996)).

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 100–400 cm long, 10–15 mm diam., firm or wiry, with prop roots. Culm-internodes terete, solid, distally glabrous. Culm-nodes glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths glabrous on surface. Leaf-sheath auricles erect. Ligule a ciliate membrane, 40–120 mm long. Leaf-blade base asymmetrical, with a false petiole, petiole 21–46 cm long, petiole glabrous. Leaf-blades erect, deciduous at the ligule, lanceolate, 67–93 cm long, 70–110 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 80–160 cm long. Primary panicle branches spreading, 1-nate, 15–36 cm long. Panicle axis glabrous. Panicle branches with prominent pulvini. 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, 8–9.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.3–0.6 mm long, coriaceous, without keels, 0-veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.9–1.7 mm long, coriaceous, without keels, 0-veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex emarginate or obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4–6 mm long, chartaceous, much thinner above, purple, 3–5-veined, scaberulous, rough above, pubescent, hairy at base, bearing hairs 0.5–1 mm long, acute. Lemma of upper sterile floret ovate, 6–7 mm long, scabrous (above), glabrous. Fertile lemma ovate, 7–9 mm long, coriaceous, without keel, 5–7-veined, more than 3-veined. Lemma surface glabrous. Lemma apex setaceously acuminate. Palea 6–7 mm long, coriaceous, 4-veined, without keels. Palea surface glabrous.

Flower and Fruit. Lodicules 3, 1.4–1.5 mm long, glabrous. Anthers 3, 5.1–5.2 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, 5.2–5.5 mm long. Embryo 0.2 length of caryopsis. Hilum linear.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea picta Pilger. *Fedde, Repert. Nov. Sp.* 1: 151 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Ruiz-Lopez s.n.*, Peru: (B; IT: US-2874645).

Illustrations (Journals): *Ruizia* (13:24, Fig. 1e-g (1993)).

Derivation (Clifford & Bostock 2007): L. painted. Glumes and/or lemmas with conspicuous pigmented veins or margins.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms woody, without nodal roots. Culm-internodes abbreviated and closely packed at the base, terete. Lateral branches dendroid. Branch complement many, girdling the culm. Culm-sheaths present. Leaf-sheaths striately veined, glabrous on surface. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 5–8 cm long, 3–3.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, linear, 5–8 cm long. Primary panicle branches indistinct the panicle almost racemose. 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, 10–11 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2 mm long, 1 length of upper glume, membranous, without keels. Upper glume ovate, 0.2 mm long, 0.03 length of adjacent fertile lemma, without keels.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 7 mm long, chartaceous, acuminate, muticous or mucronate. Lemma of upper sterile floret ovate, 9 mm long, chartaceous, acuminate, muticous or mucronate. Fertile lemma lanceolate, 10–10.5 mm long, coriaceous, without keel, more than 3-veined. Lemma apex obtuse or acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Chusquea pinifolia (Nees) Nees. *Linnaea* 9: 490 (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).

TYPE from Brazil. **Basionym or Replaced Name:** *Arundinaria pinifolia* Nees *Fl. Bras. Enum. Pl.* 2(1): 525. (1829)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *F. Sellow 1073*, Brazil (US-2874646). LT designated by Clark, *Syst. Bot. Monogr.* 27: 51 (1989).

Illustrations (Books): S.A.Renvoize, *The Grasses of Bahia*, 1984 (16, Fig. 2).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): L. folium, leaf. The leaf-blades resemble those of *Pinus*..

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 50–200 cm long, 10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 3–9 cm long, smooth, distally pruinose. Lateral branches dendroid, intravaginal. Bud complement 7–20. Branch complement several or many, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 3.2–9.1 cm long. Culm-sheath ligule 1–2 mm high, dentate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 0.9–3.3 cm long. Leaves 12–16 per branch. Ligule an eciliate membrane, 0.5 mm long, truncate. Collar without external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1 cm long. Leaf-blades linear, 1.3–5.3 cm long, 7–20 mm wide, coriaceous, stiff. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear, 1–4 cm long. Primary panicle branches appressed, 0.5–1 cm long. Panicle axis angular, scaberulous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–3 mm long, scabrous.

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, 5–7.2 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.4–0.6 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute.

Upper glume ovate, 0.4–1.3 mm long, 0.1 length of adjacent fertile lemma, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.4–4 mm long, 0.5–0.66 length of fertile lemma, chartaceous, 1–5 -veined, without lateral veins or distinctly veined, puberulous, acute. Lemma of upper sterile floret ovate, 2.9–4 mm long, chartaceous, pubescent, acute. Fertile lemma ovate, 4.7–5.7 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface puberulous. Lemma apex apiculate. Palea 4.3–5.8 mm long, 4 -veined.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 2.8–3.3 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

TDWG4. Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

Chusquea pittieri Hack. *Oesterr. Bot. Zeitschr.* 53: 153 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: San Marcos: Pittier 2249 (W holo, ISC).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (135, Fig 42), E.J.Judziewicz et al, *American Bamboos* (1999).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): in honor of Henry Frangois de Fabrega Pittier (1857–1950) Swiss botanist and civil engineer.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms geniculately ascending, 1000–15000 cm long, 20–40 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, solid, yellow or mid-green. Lateral branches dendroid, extravaginal. Branch complement many, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, brown or purple, concolorous or distinctly mottled with last colour, antrorsely scabrous, pilose, without auricles. Culm-sheath ligule 3.5 mm high, ciliate. Culm-sheath blade linear, 15 cm long. Leaves 3–6 per branch. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate, 2–3 mm long. Ligule an eciliate membrane, 0.5 mm long, erose. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.1 cm long. Leaf-blades deciduous at the ligule, linear, 6–10 cm long, 4–7 mm wide, light green. Leaf-blade surface pubescent, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, dense, 4–7 cm long, 1–2 cm wide. Primary panicle branches ascending, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–2 mm long, scaberulous.

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, dorsally compressed, acute, 11–12.3 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, 0.5 mm long, 0.5 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 1.1 mm long, 0.1 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 6.4–7 mm long, chartaceous, 7 -veined, acute, mucronate. Lemma of upper sterile floret ovate, 7 mm long, chartaceous, acute, mucronate. Fertile lemma ovate, 10.5–12 mm long, coriaceous, without keel, 11–14 -veined, more than 3-veined. Lemma apex acute. Palea 1.1 length of lemma, 7–8 -veined. Palea keels approximate. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America.** Costa Rica, Guatemala, Panama. Venezuela.

Guerrero, Michoacan. Chiapas.

Chusquea pohlii L.G. Clark. *Ann. Missouri Bot. Gard.* 72(4): 867 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.G. Clark & M.S. Clark 275*, 27 Feb 1982, Costa Rica: San Josi: along the Interamerican Hwy. between Km 44–45, closer to KM 45, along roadside, climbing over and hanging from other trees and shrubs. Sterile, vigorously producing new shoots. Although it first appears at about 1900 m, it is most common between 1950–2200 m. Culms to at least 6–8 m, maybe more, culms leaves persistent, overlapping next node about halfway, sheaths slightly fused at the base, covered with prickly hairs, primary bud when developed rebranching, forming long trailing complexes, primary bud subtended by 2–6 rather stout subsidiary branches, these not rebranching, older culms quite large, but younger culms and branches viny at the tip, internodes solid, pubescent below the node, elev. 2190 m (ISC; IT: CR-114067, MO-3304845, MO-3304846, US).

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

Derivation (Clifford & Bostock 2007): Gk. -idium, diminutive but here used as a name-forming suffix. In honor of Richard Walter Pohl (1916-) United States agrostologist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 1000–1500 cm long, 20–30 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 22–36 cm long, antrorsely scabrous. Lateral branches dendroid, infravaginal, spreading. Bud complement (2–)4–9(–12). Branch complement several, in a clump, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, 18.5–39.2 cm long, 3.5 times as long as wide, antrorsely scabrous, hispid. Culm-sheath ligule 1–2 mm high. Culm-sheath blade triangular, demarcated but persistent, 2.5–8.4 cm long, scabrid, acuminate. Leaves 4–6 per branch. Leaf-sheaths keeled, hispid, outer margin hairy. Ligule an eciliate membrane, 11–30 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.5 cm long. Leaf-blades linear or lanceolate, 14–25.6 cm long, 10–23 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins serrulate. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 21–30 cm long. Primary panicle branches appressed, 5–6 cm long. Panicle axis pubescent. Panicle branches angular, puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–4 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, 6.8–9 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, 0.5–0.6 mm long, 0.66–0.75 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.8 mm long, 0.1–0.15 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume surface pubescent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.1–4.5 mm long, chartaceous, 5 -veined, pubescent, hairy above, ciliate on margins, fringed above, acuminate. Lemma of upper sterile floret lanceolate, 4.1–5.1 mm long, chartaceous, pilose, ciliate on margins, fringed above, acuminate. Fertile lemma lanceolate, 6.6–7.6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous, rough above. Lemma margins ciliate, hairy above. Lemma apex acuminate. Palea 6.4–7.7 mm long. Palea keels contiguous above a sulcus. Palea surface scabrous. Palea apex acuminate.

Flower and Fruit. Lodicules 3, 1.5–1.9 mm long, membranous, ciliate. Anthers 3, 3.3–3.9 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica, Panama.

Chusquea polyclados Pilger. Fedde, *Repert. Nov. Sp.* 1: 147 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *A. Weberbauer 4021*, May 1904, Peru: Cajamarca (US-2874647, US-1127086).

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

Derivation (Clifford & Bostock 2007): Gk. polys, several; klados, branch. Plants with much branched culms often with the branches in fascicles.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 300–600 cm long, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 5–12 cm long, 3–9 mm wide.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, interrupted, 7–10 cm long. Panicle axis 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.2–1.4 mm long, 1 length of upper glume, membranous, without keels. Upper glume ovate, 1.2–1.4 mm long, without keels.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, chartaceous. Lemma of upper sterile floret lanceolate, chartaceous. Fertile lemma lanceolate, 6–7 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute, muticous or mucronate.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea pubescens Steud. *Syn. Pl. Gram.* 337 (1854).

Regarded by K as a synonym (*C. quila*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Chile, (Ex Hb. Musei Paris in hb. Lug. Batav. [L]).

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

Derivation (Clifford & Bostock 2007): *L. pubesco*, become hairy. Plant whole or in part hairy.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Chusquea pubispicula Pilger. *Fedde, Repert. Nov. Sp.* 1: 148 (1905).

Regarded by K as a synonym (*C. dombeyana*).

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 Peru. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: T: *A. Weberbauer* 688, Apr 1902, Peru: (US-2874648).

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

Derivation (Clifford & Bostock 2007): *L. pubes*, signs of puberty; *spica*, thorn; *-ula*, diminutive. Glumes and sterile lemmas pubescent.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms leaning, 300–400 cm long, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 7–16 cm long, 13–25 mm wide. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 7–11 cm long. Primary panicle branches ascending, lower distant. Panicle axis pubescent. Panicle branches pubescent. 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, 5.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1 mm long, 0.5 length of upper glume, membranous, without keels. Lower glume surface pubescent. Upper glume ovate, 2–2.5 mm long, without keels. Upper glume surface pubescent.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, chartaceous, pubescent, acute. Lemma of upper sterile floret ovate, chartaceous, pubescent, acute. Fertile lemma lanceolate, 5–6.3 mm long, coriaceous, purple, without keel, more than 3-veined. Palea 1 length of lemma.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea pulchella L.G. Clark. *Novon*, 3(3): 236 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: L.G. Clark & W. Deoliveira 939, 19 Mar 1991, Brazil: Sao Paulo: BR-116, ca km 517, heading N to Sao Paulo, rio Braco Feio, ca 60 km before spring, 560 m, 24.57S, 48.19W (SP; IT: ISC, MO-04628231, SJRP, US-3278485).

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

Derivation (Clifford & Bostock 2007): L. pretty. Attractive in some respect, usually the inflorescence.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 200–300 cm long, 2–3 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 9.5–15 cm long, distally glabrous. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid, infravaginal. Bud complement 20–36. Branch complement many, in a horizontal line, with 1 branch dominant, as thick as stem. Culm-sheaths present, persistent, 9.8–11.2 cm long, retrorsely scabrous, hairy on margins. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 0.9–1 cm long, glabrous on surface. Leaves 7–10 per branch. Leaf-sheaths pilose, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.3–0.5 mm long, truncate. Collar with external ligule, glabrous. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1 cm long, petiole pilose. Leaf-blades lanceolate, 3.5–7.1 cm long, 2.5–5 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface pubescent, densely hairy, hairy abaxially. Leaf-blade margins ciliate.

Inflorescence. Inflorescence a panicle, bracteate at branch bases or bracteate at pedicel base (rarely). Panicle open, oblong, 2 cm long. Primary panicle branches ascending, 0.5 cm long. Panicle axis pubescent (below). Panicle branches angular, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–2 mm long, glabrous.

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, 5.5–5.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.9–1.1 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex acute. Upper glume ovate, 1.2–1.7 mm long, 0.2 length of adjacent fertile lemma, membranous, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface pubescent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.5–2.7 mm long, 0.5 length of fertile lemma, chartaceous, 3 -veined, pubescent, hairy below, acute. Lemma of upper sterile floret ovate, 4.5–5.2 mm long, chartaceous, pubescent, acute. Fertile lemma ovate, 4.7–5 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acute. Palea 5–5.5 mm long, 4–6 -veined. Palea surface scabrous.

Flower and Fruit. Lodicules 3, 0.9–1.4 mm long, membranous, ciliate. Anthers 3, 2.6 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea purdieana Munro. *Trans. Linn. Soc.* 26: 56 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Hab. in Nova Granada, in humidis Monte del Moro, prov. Velez, *Purdie s.n.*

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

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of William Purdie (c. 1817–1857) Scots-born plant collector in West Indies and South America.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms woody. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement many, in a clump, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 2–7 cm long, 2–7 mm wide. Leaf-blade venation prominent, with 4 secondary veins, without cross veins. Leaf-blade surface glabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Panicle contracted or spiciform, linear, 5–10 cm long. Panicle axis scaberulous. 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, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–1.5 mm long, membranous, without keels. Lower glume surface puberulous. Lower glume apex obtuse. Upper glume ovate, 1.5–2 mm long, 0.1–0.2 length of adjacent fertile lemma, membranous, without keels. Upper glume surface puberulous. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 7 mm long, 0.66 length of fertile lemma, chartaceous, 5–7 -veined, setaceously acuminate. Lemma of upper sterile floret lanceolate, 7 mm long, chartaceous, acute, awned. Awn of upper sterile floret 2 mm long. Fertile lemma lanceolate, 10 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute, awned, 1 -awned. Principal lemma awn 2–3 mm long overall. Palea apex awned, awns 1 mm long.

Flower and Fruit. Lodicules 3, membranous, veined. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG), Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia.

Chusquea quila Kunth. *Rev. Gram.* 1: 138, 329. t. 77 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *J. Dombey s.n.*, no date, Chile (US-2874650, US-78066 (fragm.)).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (20, Fig. 4).

Derivation (Clifford & Bostock 2007): vernacular name in Chile for several reed-like grasses.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms woody. Culm-internodes terete, solid, 20 cm long. Lateral branches dendroid. Branch complement many, in a clump, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base cuneate, asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 5–15 cm long, 6–14 mm wide. Leaf-blade venation with 6–10 secondary veins, with obscure cross veins. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or ovate, 5–15 cm long. Primary panicle branches ascending or spreading, 3–6 cm long. Panicle axis angular, puberulous. 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, 4–6 mm long, 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. Lower glume apex acute. Upper glume ovate, 1–2 mm long, 0.33 length of adjacent fertile lemma, membranous, without keels. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3–4 mm long, 0.66 length of fertile lemma, chartaceous, 3 -veined, acute. Lemma of upper sterile floret ovate, 3–4 mm long, chartaceous, acute. Fertile lemma ovate, 4–6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Palea 4–6 -veined.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina South, Chile Central.

TDWG4. Neuquén, Valparaíso, O'Higgins, Maule, Biobío, La Araucanía.

Chusquea ramosissima Lindm. *Svensk. Vet.-Akad. Handl.* 4 no. 6. 24. (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Exp. I. Regnell., A, 1239*, Jan-Feb, Brazil: Rio Grande do Sul: Ex colonia Santo Angelo, in silvis primaevis sub montibus capiose usque ad iugum montium arida adscendens, "Creciuma" (S).

LT: *Balansa 134a*, Sep 1874, Paraguay: Cordillera de Villa Rica, in silvis abundans, florens (S; ILT: US-2874652). LT designated by Parodi, *Revista Argent. Agron.* 8: 338 (1941).

Recent Synonyms: *Chusquea affinis* Munro ex E. G. Camus, *Les Bambusees*, 80 (1913).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (72, Fig. 19), E.J.Judziewicz et al, *American Bamboos* (1999) (27, Fig. 10).

Derivation (Clifford & Bostock 2007): L. ramus, branch; -osa, abundance; -issima, most. Inflorescence an open, much branched panicle.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect or scandent, 400–1000 cm long, 15 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 5–10 cm long, smooth, distally glabrous. Lateral branches dendroid. Branch complement many, in a clump. Culm-sheaths present. Culm-sheath blade lanceolate, 10–15 cm long. Leaf-sheaths without keel. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1–1.5 mm long, obtuse. Collar with external ligule. Leaf-blade base symmetrical, with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long, petiole pubescent. Leaf-blades deciduous at the ligule, linear or lanceolate, 5–9 cm long, 6–17 mm wide. Leaf-blade venation with 8–10 secondary veins, with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, oblong, secund, 2–2.5 cm long, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose. Panicle axis pubescent. 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, acuminate, 6–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.5–1 mm long, 1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume orbicular, 0.5–1 mm long, 0.05–0.1 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 0.66 length of fertile lemma, chartaceous, ciliate on margins, truncate. Lemma of upper sterile floret ovate, 1 length of lower sterile floret, chartaceous, ciliate on margins, acute. Fertile lemma ovate, 7–9 mm long, coriaceous, yellow, without keel, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, Southern South America. Bolivia. Brazil Northeast, Brazil Southeast, Brazil South. Paraguay, Uruguay.

TDWG4. Minas Gerais, Rio de Janeiro, Espírito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Misiones.

Chusquea renvoizei L.G.Clark. *J.Amer.Bamboo Soc.*17:55 (2003).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolivia: Depto. La Paz: Prov. Nor Yungas: cerca de Cotapata, ceja de monte, 16:17'S, 67:53'W, 3500 m, 12 Oct 1997, flowers, *S.G. Beck 24406* (HT: LPB; IT: K (2 sheets)).

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

Derivation (Clifford & Bostock 2007): In honor of Stephen Andrew Renvoize (1944-) English agrostologist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms 150 cm long, 2 mm diam., woody. Culm-internodes terete, 6–8.5 cm long, smooth, distally glabrous. Lateral branches dendroid, intravaginal. Branch complement one. Culm-sheaths present, persistent. Leaves 4–5 per branch. Leaf-sheaths without keel, striately veined, glabrous on surface, outer margin glabrous. Leaf-sheath oral hairs pubescent. Ligule an eciliate membrane, 0.3–0.4 mm long, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades lanceolate, 20–26 cm long, 5–6 mm wide. Leaf-blade venation without cross veins or with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 12.5–15 cm long, 0.5–0.8 cm wide. Primary panicle branches 1.2–1.5 cm long. Panicle axis angular, pubescent. Panicle branches pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–2 mm long.

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, compressed slightly, 6.5–7.2 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.6–1.3 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume surface glabrous. Lower glume apex obtuse. Upper glume ovate, 1–2 mm long, membranous, without keels, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent. Upper glume surface glabrous. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.1–3.7 mm long, chartaceous, 5 -veined, puberulous, hairy above, acute, awned. Awn of lower sterile floret 1.7–2.4 mm long. Lemma of upper sterile floret ovate, 3.8–4.1 mm long, chartaceous, pubescent, acute, awned. Awn of upper sterile floret 1.5–2.7 mm long. Fertile lemma ovate, 5.3–5.4 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex awned, 1 -awned. Principal lemma awn 1–1.6 mm long overall. Palea 4.8–5 mm long, 4 -veined. Palea surface puberulous.

Flower and Fruit. Lodicules 3, 1.4–2 mm long, membranous, ciliate. Anthers 3, 3.3–3.6 mm long. Stigmas 2.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Chusquea repens L.G. Clark & X. Londono. *Nordic J. Bot.*, 11(3): 327 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.F. Andrie 446*, 13 Mar 1965, Mexico: Chiapas (US-2533944).

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

Derivation (Clifford & Bostock 2007): L. repo, crawl. Rhizome well developed.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms rambling or leaning or scandent, 100–600 cm long, 20–30 mm diam., woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid, extravaginal. Branch complement many, in a horizontal line (1–2 rows), thinner than stem. Culm-sheaths present, persistent, 4.5–6 cm long, glabrous, without auricles. Culm-sheath ligule 0.5–1 mm high, ciliate. Culm-sheath blade lanceolate, deciduous, reflexed, 0.3–1 cm long, glabrous on surface, attenuate. Ligule an eciliate membrane, 2–8 mm long, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 3.3–9.2 cm long, 3–9 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface pilose, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, lanceolate, nodding, 2–5 cm long. Primary panicle branches appressed, 0.5–1.5 cm long. Panicle axis angular, glabrous. Panicle branches angular, glabrous, pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long.

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 linear, dorsally compressed, 6.3–7 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, 0.2–0.4 mm long, 1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.2–0.4 mm long, 0.05 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.4–3.5 mm long, 0.5 length of fertile lemma, chartaceous, 3 -veined, cuspidate. Lemma of upper sterile floret ovate, 3.5–4 mm long, chartaceous, acuminate. Fertile lemma ovate, 5–5.6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma margins involute, covering most of palea. Lemma apex apiculate. Palea tightly convolute around flower, 1 length of lemma. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Southwest Mexico, Southeast Mexico.

TDWG4. Oaxaca. Chiapas.

Chusquea rigida (L.G. Clark) L.G. Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Øllgaard et al.* 38498, 15 May 1982, Ecuador: Napo: Llanganati, páramo SE of Chosa Aucacocha, between Aucacocha and Pan de Azucar, 3800–3900 m (QCA; IT: AAU, F).

Recent Synonyms: *Neurolepis rigida* L.G. Clark, *Novon* 6(4): 347 (1996).

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

Derivation (Clifford & Bostock 2007): L. stiff. Culms, spikelets or inflorescence branches held stiffly erect.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 100–250 cm long, 4–8 mm diam., woody. Culm-internodes terete. Lateral branches lacking. Leaf-sheaths keeled, glabrous on surface or pubescent. Leaf-sheath auricles erect, 4–11 mm long. Ligule a ciliate membrane, 5–15 mm long. Leaf-blade base without a false petiole. Leaf-blades erect, deciduous at the ligule, lanceolate, 24–63 cm long, 11–21 mm wide, stiff. Leaf-blade midrib conspicuous. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, smooth or scaberulous.

Inflorescence. Inflorescence a panicle, subtended by an unspecialized leaf-sheath or bracts (1 bract 3mm long). Peduncle 10–66 cm long, glabrous. Panicle open, lanceolate, 33–68 cm long. Primary panicle branches ascending or spreading, 9–26 cm long. Panicle axis hirsute. Panicle branches hirsute, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–2 mm long, scabrous.

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, subterete, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2.5–3 mm long, coriaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous, inner surface pubescent. Lower glume apex acuminate. Upper glume ovate, 2–3 mm long, coriaceous, without keels, 1(–3) -veined. Upper glume lateral veins absent or obscure. Upper glume surface scabrous, inner surface pubescent. Upper glume apex acuminate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2–4.5 mm long, coriaceous, 3 -veined, smooth or scaberulous, rough above, glabrous or puberulous, hairy all along or above, acuminate, mucronate. Lemma of upper sterile floret ovate, 2.2–4.5 mm long, smooth or scabrous (above), mucronate. Fertile lemma ovate, 2.9–5 mm long, coriaceous, without keel, 5(–7) -veined, more than 3-veined. Lemma surface smooth or scaberulous, rough above, glabrous or pubescent, hairy above. Lemma apex acute, mucronate. Palea 2.8–4.5 mm long, coriaceous, 2 -veined, without keels. Palea surface smooth or scaberulous.

Flower and Fruit. Lodicules 3, 1.2–1.3 mm long, veined, glabrous. Anthers 3, 1.5–3 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea riosaltensis L.G. Clark. *Brittonia*, 44(4): 403 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *L. Clark & M. Morel 775*, 2 Feb 1991, Brazil: Minas Gerais: Mco. Lima Duarte, Serra do Ibitipoca, Parque Estadual (Florestal) do Ibitipoca, Paredao do Rio Salto, forking from trail to Ponte da Pedra; 1300m (MO-4244176).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Paradao do Rio Salto, Minas Gerias State, Brazil.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 100–150 cm long, 10–15 mm diam., woody, without nodal roots. Culm-internodes terete, 5–8 cm long, distally pruinose. Culm-nodes flush with internodes, with distinct supra-nodal ridge. Lateral branches suffrutescent, intravaginal. Bud complement 5–7. Branch complement several, in a horizontal line, with 1 branch dominant. Culm-sheaths present, persistent, 3.6–8 cm long, retrorsely scabrous, glabrous on margins, truncate at apex, ciliate on shoulders. Culm-sheath ligule 0.5 mm high, ciliolate. Culm-sheath blade triangular, demarcated but persistent, erect, 2–4 cm long. Leaves 8–10 per branch. Leaf-sheaths pubescent. Ligule a ciliolate membrane, 0.3 mm long, truncate. Collar without external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades linear, 3.5–4.7 cm long, 3–4 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea robusta L.G. Clark & Losure. *Bamboo Sci. Cult.* 19 (1): 5–10, f. 1a-f (2005).

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

TYPE from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.A. McClure 21431*, 11 Nov 1945, Ecuador. Pichincha: Saloya River valley on steep hillside NE of Hacienda La Favorita (HT: QCA; IT: ISC, US, AAU, US-(2955170, 2955171, 2955172, 2955173, 2955174)).

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms 700–1200 cm long, 30–70 mm diam., woody. Culm-internodes terete, 22–32 cm long, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, intravaginal. Branch complement many, in a clump. Culm-sheaths present, persistent, 13.5–31 cm long, antrorsely scabrous, pubescent, hairy on margins. Culm-sheath ligule 2–3 mm high, entire or ciliolate. Culm-sheath blade triangular, erect, 3–6 cm long, pubescent (above), acuminate. Leaves 2–6 per branch. Leaf-sheaths striately veined, outer margin hairy. Ligule an eciliate membrane, 0.7 mm long, brown, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long. Leaf-blades linear, 8–21 cm long, 3–7 mm wide. Leaf-blade surface scabrous, rough adaxially, pilose, hairy abaxially. Leaf-blade margins cartilaginous, serrulate. Leaf-blade apex attenuate, filiform, hairy.

Inflorescence. Inflorescence a panicle, subtended by bracts (1.5–5mm). Panicle open, lanceolate, 6–16 cm long. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–10 mm long.

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, 12–15.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes brief up to lowest fertile floret or elongated between glumes. Rhachilla elongation 0.1–2 mm long.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 mm long, membranous, purple, without keels. Lower glume apex obtuse. Upper glume oblate, 1–1.5 mm long, membranous, dark brown or purple, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3–3.5 mm long, 0.3–0.4 length of fertile lemma, chartaceous, 7–9 -veined, scabrous, ciliate on margins, setaceously acuminate. Lemma of upper sterile floret ovate, 7–10 mm long, chartaceous, scabrous, ciliate on margins, setaceously acuminate. Fertile lemma ovate, 12–15 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex setaceously acuminate. Palea 9–11 mm long, 7–9 -veined.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea scabra T.R. Soderstrom & C.E. Calderon. *Brittonia*, 30(3): 300 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: R.W. Pohl & R. Pinette 13305, 4 Jun 1976, Costa Rica: Cartago: crossing of Rmo Coliblanco, 4 km NE of Capellades, 1630 m, flowers (US-2787563; IT: F, ISC).

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

Derivation (Clifford & Bostock 2007): L. rough or gritty to the touch. Plants with rough leaf-blades, spikelets or stems.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 500–1000 cm long, 20–30 mm diam., woody, without nodal roots or with aerial roots from the nodes. Culm-internodes terete, solid, mid-green, concolorous, antrorsely scabrous. Lateral branches dendroid, extravaginal. Branch complement many, in a clump, with subequal branches or interspersed leafless fibrillar branches, thinner than stem. Culm-sheaths present, green or purple, distinctly mottled with last colour, antrorsely scabrous, without auricles. Culm-sheath ligule 0.3–0.5 mm high. Culm-sheath blade lanceolate. Leaves 2–3 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles erect, 3 mm long, obtuse. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.4 cm long. Leaf-blades deciduous at the ligule, lanceolate, 11–15 cm long, 12–15 mm wide. Leaf-blade surface scaberulous, rough on both sides, glabrous or pubescent, sparsely hairy, hairy abaxially. Leaf-blade margins cartilaginous, scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 10–24 cm long, 1 cm wide. Primary panicle branches appressed, 1–8 cm long, bearing spikelets almost to the base. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–8 mm long.

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, acuminate, 8.2–10.3 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, 2–3.2 mm long, 0.6–0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 1 mm long. Upper glume ovate, 3.2–4.1 mm long, 0.4–0.5 length of adjacent fertile lemma, without keels, 3–4 -veined. Upper glume primary vein scabrous. Upper glume apex acute, awned, 1 -awned, awn 1 mm long.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.2–5.6 mm long, membranous, 5 -veined, scaberulous, ciliate on margins, acute, awned. Awn of lower sterile floret 1 mm long. Lemma of upper sterile floret ovate, 6.2–8 mm long, membranous, scabrous, ciliolate on margins, acute, awned. Awn of upper sterile floret 1 mm long. Fertile lemma ovate, 8–9.3 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Palea keels contiguous above a sulcus, scabrous. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules 3, ovate, membranous, veined, ciliate. Anthers 3, 4.3–4.5 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Chusquea scandens Kunth. *Syn. Pl. Aequin.* 1: 254 (1822).

Accepted by: R.J.Soreng et al., *Catalogue of 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): S.A.Renvoize, *Gramineas de Bolivia* (1998) (44, Fig. 6).

Illustrations (Journals): *Smithsonian Contributions to Botany* (9: 70, Fig. 30; 72, Fig. 31 (1973)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): L. scando, climb up. Of scrambling habit.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms scandent, 500 cm long, woody, without nodal roots. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement several, in a clump, thinner than stem. Culm-sheaths present, hispid. Culm-sheath blade linear or lanceolate. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 9–10 cm long, 10–12 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 5–12 cm long, 2 cm wide. Primary panicle branches ascending or spreading, bearing spikelets almost to the base. Panicle branches scabrous. Spikelets spreading or deflexed, solitary. Fertile spikelets pedicelled. Pedicels present, scabrous.

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 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1 mm long, membranous, without keels. Lower glume apex acute. Upper glume ovate, 1 mm long, without keels. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4 mm long, chartaceous, acuminate. Lemma of upper sterile floret ovate, 4.5 mm long, chartaceous, acuminate. Fertile lemma lanceolate, 6–7 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acuminate.

Flower and Fruit. Lodicules 3, 1 mm long, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

N = 20 (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Colombia, Ecuador, Peru.

Chusquea sclerophylla Doell. *Mart. Fl. Bras.* 2, 3 : 200 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *A.F.M. Glaziou 4311*, 3 Apr 1870, Brazil: (US-734831).

LT: *Glaziou 6463*, Brazil: near Rio de Janeiro (C; ILT: US-734832 (fragm.)). LT designated by Clark, *Brittonia* 44: 403 (1992).

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

Derivation (Clifford & Bostock 2007): Gk. skleros, hard; phyllon, leaf. Leaf-blades indurate or coriaceous.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 4 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 3–3.5 cm long, distally pruinose. Culm-nodes flush with internodes, without obvious supra-nodal ridge. Lateral branches dendroid, intravaginal, erect. Bud complement 1, or 3. Branch complement one or three, solitary or in a horizontal line. Culm-sheaths present, persistent, without auricles. Leaves 6–7 per branch. Leaf-sheaths tight, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 1 mm long, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1 cm long. Leaf-blades lanceolate, 7.3–10.8 cm long, 8–11 mm wide, coriaceous. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 3–4 cm long. Primary panicle branches appressed. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 mm long, scabrous.

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, 5.2–5.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.3–0.5 mm long, 0.66 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume orbicular, 0.5 mm long, 0.1–0.15 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.5–3.8 mm long, 0.5–0.66 length of fertile lemma, chartaceous, 3 -veined, acute. Lemma of upper sterile floret ovate, 3.4–3.8 mm long, 1.3 length of lower sterile floret, chartaceous, acute, mucronate. Fertile lemma ovate, 5.2–5.8 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute, mucronate. Palea 1 length of lemma.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

Chusquea sellowii Rupr. *Mem. Acad. Petersb. Ser.* 6, 5 : 125 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, Brazil (B; IT: LE-TRIN-3204.012, US-2874655).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (72, Fig. 19).

Derivation (Clifford & Bostock 2007): in honor of Friedrich Sellow (1789–1831) German botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 200–300 cm long, 3 mm diam., woody, without nodal roots. Culm-internodes elliptical in section, solid, 10–17 cm long, smooth, distally glabrous. Lateral branches dendroid. Branch complement several or many, in a clump, as thick as stem or thinner than stem. Culm-sheaths present, persistent, antrorsely scabrous. Leaf-sheaths without keel, striately veined, pubescent. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles erect. Ligule an eciliate membrane, 0.5 mm long, obtuse. Collar with external ligule. Leaf-blade base broadly rounded, symmetrical, with a brief petiole-like connection to sheath, petiole 1.5 cm long, petiole glabrous. Leaf-blades deciduous at the ligule, lanceolate, 3–9 cm long, 6–12 mm wide. Leaf-blade venation with 4–8 secondary veins, with obscure cross veins. Leaf-blade surface pubescent, sparsely hairy, hairy on both sides.

Inflorescence. Inflorescence a panicle, terminal and axillary, embraced at base by subtending leaf. Panicle spiciform, elliptic or globose, secund, 1–2 cm long. Panicle axis pubescent. 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, compressed strongly, 6 mm long, 2.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 1–1.5 mm long, 1 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume surface pubescent. Lower glume apex cuspidate. Upper glume oblate, 1–1.5 mm long, 0.33 length of adjacent fertile lemma, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface pubescent. Upper glume apex cuspidate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3–4 mm long, 0.5 length of fertile lemma, chartaceous, ciliate on margins, truncate. Lemma of upper sterile floret ovate, 6 mm long, 2 length of lower sterile floret, chartaceous, ciliate on margins, truncate. Fertile lemma ovate, 6 mm long, coriaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma apex truncate.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

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.

Chusquea serpens L.G. Clark. *Ann. Missouri Bot. Gard.*, 72(4): 870 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R.W. Pohl & G. Davidse 11023*, 26 Aug 1968, Costa Rica: Alajuela (ISC(2 sheets); IT: F, K, MO(3 sheets), US-2835729).

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

Derivation (Clifford & Bostock 2007): *L. serpo*, creep. Plants conspicuously rhizomatous or scandent.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms scandent, 1000–2000 cm long, 5–10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 20–39 cm long, mid-green or mid-green or purple, concolorous or mottled, retrorsely scabrous. Lateral branches dendroid, infravaginal. Bud complement 3. Branch complement three, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, 6.7–11.3 cm long, 2.7–3 times as long as wide, chartaceous, glabrous or hispid. Culm-sheath ligule ciliolate. Culm-sheath blade triangular, cordate, deciduous, 3–8.4 cm long, glabrous on surface or with ciliate margins. Leaves 3–7 per

branch. Leaf-sheaths keeled, glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 1–2 mm long, scarious, truncate. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.3–1.2 cm long. Leaf-blades lanceolate, 11.7–35.8 cm long, 18–51 mm wide. Leaf-blade venation without cross veins or with obscure cross veins. Leaf-blade surface glabrous or pilose, hairy abaxially. Leaf-blade margins cartilaginous, serrulate. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, secund, 35–55 cm long. Primary panicle branches appressed, 5–9 cm long. Panicle axis glabrous. Panicle branches angular, glabrous or puberulous. 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 ovate, laterally compressed, 11.3–14.6 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 or ovate, 1.2–2.5 mm long, 0.33 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3.5–7 mm long, 0.33–0.5 length of adjacent fertile lemma, without keels, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume apex acute, awned, 1 -awned, awn 3 mm long.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5.4–8.6 mm long, chartaceous, (5–)7(–9) -veined, acute, awned. Awn of lower sterile floret 3 mm long. Lemma of upper sterile floret ovate, 7.7–9.9 mm long, chartaceous, acute, awned. Awn of upper sterile floret 1 mm long. Fertile lemma ovate, 10.6–13.2 mm long, coriaceous, shiny, without keel, 7–18 -veined, more than 3-veined. Lemma inner surface glabrous or pubescent. Lemma apex acute, awned, 1 -awned. Principal lemma awn 0.5 mm long overall. Palea 10.1–11.5 mm long, 2–4 -veined. Palea keels contiguous above a sulcus. Palea surface pilose, hairy on margins, hairy above.

Flower and Fruit. Lodicules 3, 2–2.5 mm long, membranous, ciliate. Anthers 3, 5.5–7.5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Northern South America, Western South America. Costa Rica, Panama. Venezuela. Colombia, Ecuador.

Chusquea serrulata Pilger. *Engl. Jahrb.* 25 : 719 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M.A. Stuebel 344*, no date, Colombia (B; IT: S-1127084).

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

Derivation (Clifford & Bostock 2007): *L. serra*, saw; -ula, diminutive; -ata, possessing. Margin of leaf-blade bearing short, stiff hairs.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect or arching, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Branch complement many, girdling the culm. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 5–13 cm long, 5–12 mm wide. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–12 cm long. Primary panicle branches appressed. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, scaberulous.

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, 6.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1 mm long, 1 length of upper glume, membranous, without keels. Upper glume ovate, 1 mm long, without keels.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, chartaceous, acute. Lemma of upper sterile floret lanceolate, chartaceous, acute. Fertile lemma lanceolate, 6.2–6.5 mm long, coriaceous, without keel, more than 3-veined.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador.

Chusquea silverstonei (G. Davidse & L.G. Clark) L.G. Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.A. Silverstone-Sopkin, N. Paz, R.T. González, A. Henao, J.E. Ramos & L.H. Ramos 4409*, 15 Aug 1988, Colombia: Chocó: Mun. de San José del Palmar: Cerro del Torrá, filo de Cumbre, vegetación abierta herbácea y arbustiva, ca. 2730 m, hierba hasta 200 cm altura, brácteas e inflorescencia rojo-violeta (CUVC; IT: ISC, MO-5022453).

Recent Synonyms: *Neurolepis silverstonei* G. Davidse & L.G. Clark, *Novon* 6(2): 150 (1996).

Illustrations (Journals): *Novon* (6:151, Fig.1 (1996)).

Derivation (Clifford & Bostock 2007): In honor of P.A. Silverstone-Sopkin (fl. 1982–1988).

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 100–200 cm long, 4 mm diam., woody. Culm-internodes terete. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Leaf-sheath auricles erect. Ligule a ciliate membrane, 16–25 mm long. Leaf-blade base tapering to the midrib. Leaf-blades erect, deciduous at the ligule, aciculate or lanceolate, 30–44 cm long, 12–22 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 25–65 cm long, bearing few spikelets. Primary panicle branches spreading, 1-nate, sparsely divided, 15–35 cm long. Panicle axis glabrous. Panicle branches with prominent pulvini. 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 lanceolate, laterally compressed, 9–10.4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.9–1.6 mm long, coriaceous, without keels, 0-veined. Lower glume lateral veins absent. Lower glume apex obtuse, awned, 1-awned. Upper glume ovate, 1.7–2.5 mm long, coriaceous, without keels, 0-veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse, awned, 1-awned.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 6.1–8.1 mm long, coriaceous, purple, 3–4-veined, acuminate. Lemma of upper sterile floret ovate, 7.6–9.8 mm long. Fertile lemma ovate, 8–10 mm long, coriaceous, without keel, 3–5-veined, 0–3-veined or more than 3-veined. Lemma surface glabrous. Lemma apex acuminate. Palea 1–1.4 mm long, coriaceous, 2–3-veined, 1-keeled (at tip).

Flower and Fruit. Lodicules 3, 1.2–1.4 mm long, veined, glabrous, obtuse. Anthers 3, 3.5–5 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea simpliciflora Munro. *Trans. Linn. Soc.* 26: 54 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *S. Hayes 661*, Oct 1862, Panama: in dense woods, Lion Hill Station, Panama Railroad (K; ILT: BM, F, US-2184718). LT designated by Clark. *Syst. Bot. Monogr.* 27: 89 (1989).

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

Derivation (Clifford & Bostock 2007): *L. simplex*, simple; flos, flower. Inflorescence a raceme.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, culms solitary. Rhizomes elongated, pachymorph. Butt sheaths absent. Culms scandent, 1000–2500 cm long, 5–10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, smooth or antrorsely scabrous. Lateral branches dendroid, extravaginal. Branch complement many, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, purple, glabrous, without auricles. Culm-sheath blade linear, 2 cm long. Leaves 3–5 per branch. Leaf-sheaths glabrous on surface or puberulous, outer margin hairy. Leaf-sheath oral hairs ciliate. 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 0.1 cm long. Leaf-blades deciduous at the ligule, lanceolate, 5.5–9 cm long, 8–14 mm wide.

Leaf-blade venation comprising 6 vascular bundles (primary). Leaf-blade surface glabrous or pubescent, sparsely hairy.

Inflorescence. Inflorescence composed of racemes. Racemes bearing few fertile spikelets, 2–4 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–4.5 mm long.

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, 7.7–10.5 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, 0.2 mm long, 0.5 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.3–0.5 mm long, 0.05 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.6–5 mm long, chartaceous, 1–3 -veined, without lateral veins or obscurely veined, glabrous or puberulous, hairy at base, acute. Lemma of upper sterile floret ovate, 4.9–6.2 mm long, chartaceous, glabrous or pubescent (at base), acute. Fertile lemma ovate, 8–9.7 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma apex acute. Palea 5–10 mm long, 5 -veined. Palea keels approximate. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southeast Mexico. **Mesoamerica, Northern South America, Western South America.** Costa Rica, Guatemala, Nicaragua, Panama. Venezuela. Colombia, Ecuador.

TDWG4. Chiapas.

Chusquea smithii L.G. Clark. *Iowa State J. Res.*, 61(1): 107 (1986).

Accepted by: R.J.Soreng et al., *Catalogue of 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: *D.N. Smith 7730*, 12 Jul 1984, Peru: Pasco: Oxapampa Prov.: trail to summit of Cordillera Yanachaga via Rmo San Daniel, 75.27W, 10.23S, 3350–3420 m (ISC(2 sheets); IT: K, MO, US-3071957).

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

Derivation (Clifford & Bostock 2007): In honor of David Nelson Smith (1945–1991) United States botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 50–100 cm long, 1–2 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, 2.5–3 cm long, yellow, smooth. Culm-nodes flush with internodes, without obvious supra-nodal ridge. Lateral branches lacking or sparse, intravaginal. Bud complement 1. Branch complement one to several, solitary or in a clump, thinner than stem. Culm-sheaths present, persistent. Leaves 8–10 per branch. Leaf-sheaths without keel, striately veined, pubescent, outer margin hairy. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Collar with external ligule, ciliate. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades erect, lanceolate, 5.7–7 cm long, 7–9 mm wide, stiff. Leaf-blade midrib evident. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous, smooth.

Inflorescence. Inflorescence a panicle, subtended by a spatheole, enclosed. Panicle contracted, linear, secund, 7–8 cm long. Panicle axis puberulous. Panicle branches angular, puberulous. Spikelets spreading, solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1.5–6 mm long, puberulous.

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, 7.7–9.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2–0.3 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.3–0.4 mm long, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.2–5.8 mm long, chartaceous, 1 -veined, without lateral veins,

pubescent on midvein, ciliate on margins, fringed above, acute. Lemma of upper sterile floret ovate, 7–8.5 mm long, chartaceous, pubescent on midvein, eciliate on margins, acute. Fertile lemma ovate, 7.6–9.2 mm long, coriaceous, keeled, 5–7 -veined, more than 3-veined. Lemma inner surface scabrous (at apex). Lemma margins pubescent, hairy above. Lemma apex acute. Palea 7–7.9 mm long, 4 -veined. Palea surface pubescent, hairy above.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp, 3.3 mm long, apex unappendaged. Embryo 0.25 length of caryopsis.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea sneidernii Asplund. *Bot. Notiser*, 1939, 797 (1939).

Accepted by: R.J.Soreng et al., *Catalogue of 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: Colombia: Cauca: El Tambo, in silva primaeva ad Munchique, 11 Sep 1936, von Sneider *1121* (HT: S; IT: F, NY).

Illustrations (Journals): *Systematic Botany* (15: 624, Fig.12 (1990)).

Derivation (Clifford & Bostock 2007): in honor of Kjell von Sneider (fl. 1910) who collected in Colombia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 1000–1600 cm long, 23–40 mm diam., woody, without nodal roots. Culm-internodes terete, smooth or scaberulous. Lateral branches dendroid, infravaginal. Bud complement 40–60. Bud prophyll 50–100 mm long. Branch complement many, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 21.6–52.6 cm long, pubescent, hairy at the base. Culm-sheath ligule 0 mm high. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 1–10.2 cm long, scabrid. Ligule an eciliate membrane, 1–3 mm long, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.4 cm long. Leaf-blades lanceolate, 9.6–15 cm long, 6–10 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, bracteate at pedicel base, exerted or embraced at base by subtending leaf. Panicle open, linear, 11.5–12.5 cm long. Primary panicle branches appressed, 1–3 cm long. Panicle axis angular, scabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–3 mm long, scabrous.

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, 9.8–10.9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.3–2.3 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume ovate, 3.1–3.6 mm long, 0.33 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume surface asperulous. Upper glume apex acute, mucronate.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.1–4.3 mm long, 0.5 length of fertile lemma, chartaceous, 5–7 -veined, scaberulous, acute, mucronate. Lemma of upper sterile floret ovate, 7.5–7.8 mm long, chartaceous, scabrous, acute. Fertile lemma ovate, 8.8–9 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex apiculate. Palea 8–8.1 mm long, 6 -veined.

Flower and Fruit. Lodicules 3, 2 mm long, membranous, ciliate. Anthers 3, 5.3 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea spadicea Pilger. *Engl. Jahrb.* 27: 35 (1899).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Lehmann 3171*, Oct 1883, Colombia: Antioquia: Westabhange des Ruiz, 2800 m, flowers (US-821330; ILT: G (2 sheets), K, US-1646309 (fragm.)). LT designated by Clark, *Bamboo Sci. Cult.* 17(1): 59–60 (2003).

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

Derivation (Clifford & Bostock 2007): L. spadix, chestnut-brown; -ea, pertaining to. The spikelets and/or inflorescence branches are chestnut-brown.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms woody. Culm-internodes terete. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Leaf-sheaths striately veined. Leaf-sheath oral hairs pubescent. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 4–8 cm long, 4–6 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 13 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, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 2 mm long, 0.33–0.5 length of upper glume, membranous, without keels. Upper glume lanceolate, 4–6 mm long, 0.5–0.75 length of adjacent fertile lemma, membranous, without keels. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 3 mm long, 0.4 length of fertile lemma, chartaceous. Lemma of upper sterile floret lanceolate, 6 mm long, chartaceous. Fertile lemma elliptic or ovate, 8 mm long, coriaceous, without keel. Lemma apex acuminate. Palea lanceolate, 1 length of lemma, 2-keeled.

Flower and Fruit. Lodicules 3, ovate, ciliate.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea spathacea L.G. Clark. *Novon*, 3(3): 235 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Magdalena: forest on trail above africa (Sierra Perija), 1700 m, 16 Dec 1944, O. Haught 4512 (HT: COL; IT: US).

Illustrations (Journals): *Novon* (3:234, Fig.3 (1993)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): inflorescence bracts spatula-like.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 200–600 cm long, 10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 13.5–15 cm long, mid-green or purple, mottled, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, infravaginal. Bud complement 20–25. Branch complement many, in a clump, with subequal branches or 1 branch dominant, thinner than stem. Culm-sheaths present, 4.5–11 cm long, glaucous. Culm-sheath ligule 3–4 mm high, ciliolate. Culm-sheath blade triangular, cordate, demarcated but persistent, erect, 4–9 cm long. Leaves 8–12 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs scanty. Ligule an eciliate membrane, 1–1.5 mm long, truncate or obtuse. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.1 cm long, petiole glabrous. Leaf-blades lanceolate, 4.6–8 cm long, 8–12 mm wide. Leaf-blade venation without cross veins or with obscure cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, subtended by a spatheole (two), embraced at base by subtending leaf. Spatheole lanceolate, 2.4–3.2 cm long. Panicle contracted, elliptic, secund, 2–4 cm long. Primary panicle branches spreading, 1–1.5 cm long. Panicle axis angular, scabrous. Panicle branches angular, pubescent, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–2 mm long, scabrous.

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, 8.8–10.3 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.1–0.7 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.2–1.3 mm long, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3–4.6 mm long, chartaceous, 3 -veined, acute, mucronate. Lemma of upper sterile floret ovate, 3.5–5.1 mm long, chartaceous, acute, mucronate. Fertile lemma ovate, 7.8–9.4 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma margins ciliate, hairy above. Lemma apex acute, mucronate. Palea 8.2–9.6 mm long, 4–6 -veined. Palea keels contiguous above a sulcus. Palea surface pubescent, hairy on back, hairy above. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, 1.5–2 mm long, membranous, ciliate. Anthers 3, 4.6–5.2 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Chusquea spencei Ernst. *Journ. Bot.* 10: 262 (1872).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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: LT: *J.M. Spence s.n.*, c. 1871, Venezuela: mountains of Caracas, summit of Naiguata (BM). LT designated by Clark, *Bamboo Sci. Cult.* 14(1): 1–2 (2000).

NT: *Tillett, Morillo, Morillo & Manara 41*, 6 Dec 1973, Venezuela: Miranda/Distrito FEderal: the Amphitheatre and along trail to Pico Naiguata, Cordillera de la Costa, 2700–2765 m, flowers NT designated by Clark, *Syst. Bot. Monogr.* 27: 54 (1989), now superceded by the lectotype, see Clark, *Bamboo Sci. Cult.* 14(1): 1–3 (2000).

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

Derivation (Clifford & Bostock 2007): in honor of James F. Spence (fl. 1812) who collected in Venezuela.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, pendulous at the tip, 200–600 cm long, 5–40 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 7–11 cm long, yellow or brown or purple, smooth, distally pruinose. Lateral branches dendroid, intravaginal. Bud complement 30–38. Branch complement many, in a horizontal line, thinner than stem. Culm-sheaths present, persistent, 6–22 cm long, hispid. Culm-sheath ligule 0.5–2 mm high, dentate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 3–6 cm long, pubescent. Leaves 3–5 per branch. Ligule an eciliate membrane, 0.5–1 mm long, glabrous on abaxial surface, truncate. Collar without external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.2 cm long. Leaf-blades lanceolate, 5–14 cm long, 2–6 mm wide, stiff or firm. Leaf-blade venation without cross veins. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear, secund, 2.5–12 cm long. Primary panicle branches appressed, 1–1.5 cm long. Panicle axis angular, pubescent. Panicle branches angular, pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2 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 oblong, laterally compressed, 4.6–7.3 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.7–2.1 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent or obscure. Lower glume surface scabrous. Lower glume margins ciliate. Lower glume apex obtuse. Upper glume ovate, 1.1–2.7 mm long, 0.2–0.5 length of adjacent fertile lemma, membranous, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface pubescent, hairy above. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.3–4.6 mm long, 0.5–0.75 length of fertile lemma, chartaceous, 1–5 -veined, without lateral veins or distinctly veined, scabrous, rough on midvein, acute. Lemma of upper sterile floret ovate, 3.5–6.1 mm long, chartaceous, scabrous (on midvein), acute. Fertile lemma ovate, 4–5.9 mm long, coriaceous, without keel, 5–9 -veined, more than 3-veined. Lemma midvein scabrous (above). Lemma apex apiculate. Palea 3.8–5.9 mm long, 4–6 -veined. Palea surface smooth or scaberulous.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 2, 2.5–3.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, 3.7 mm long, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Colombia. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso.

Chusquea spicata Munro. *Trans. Linn. Soc.* 26: 60 (1868).

Regarded by K as a synonym (*C. tessellata*).

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 Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *W. Lechler* 2154, Jul 1854, Peru: Sachapata in Cordillera (K(fragm., US-1021567, US-1126704)). LT designated by Clark, *Syst. Bot. Monogr.* 27: 62 (1989).

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

Derivation (Clifford & Bostock 2007): *L. spica*, thorn; -ata, possessing; Inflorescence a spike or spicate panicle.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 30–45 cm long, 1–5 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled or solid, 1.5–4 cm long, smooth. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement many. Culm-sheaths present, 3–5 cm long. Culm-sheath blade triangular, cordate, 5–11.5 cm long, glabrous on surface, acuminate. Ligule an eciliate membrane, 0.5 mm long, truncate. Leaf-blade base truncate or broadly rounded, with a brief petiole-like connection to sheath, petiole 0.1 cm long. Leaf-blades lanceolate, 3–6 cm long, 3–5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 3–14 cm long. Primary panicle branches appressed. 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, 3–5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.7 mm long, 1 length of upper glume, membranous, without keels. Upper glume ovate, 0.5–0.7 mm long, without keels.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, chartaceous, pubescent, acuminate. Lemma of upper sterile floret ovate, chartaceous. Fertile lemma lanceolate, 3–4 mm long, coriaceous, without keel, more than 3-veined. Lemma apex apiculate, pubescent, mucicous or awned, 1 -awned. Principal lemma awn 1 mm long overall.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Peru.

Chusquea spectabilis L.G. Clark. *Syst. Bot.* 34:681 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Colombia. **Basionym or Replaced Name:** *Planotia aperta* Munro, *Trans. Linn. Soc. London* 26(1): 73 (1868). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Goudot s.n.*, 1844, Colombia: Páramo de Tolima, cachilla de la divisadera (K(fragm., US-2876331); IT: P).

Recent Synonyms: *Neurolepis aperta* (Munro) Pilger, *Engl. & Prantl, Nat. Pflanzenfam. Nachtr.* 3, 21 (1906).

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

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): *L. open*. The glumes of the florets in the central portion of the spikelets tend to be open.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, robust, 600–800 cm long, woody. Culm-internodes terete. Lateral branches lacking. Leaf-sheaths striately veined, pubescent. Leaf-sheath auricles erect. Ligule a ciliolate membrane, 40 mm long, scarious, bilobed. Leaf-blade base without a false petiole or with a false petiole, petiole 7–10 cm long. Leaf-blades lanceolate, 70 cm long, 40 mm wide, indurate. Leaf-blade midrib conspicuous. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate. Primary panicle branches 1 -nate. Panicle axis glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 20–30 mm long.

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, similar, shorter than spikelet. Lower glume oblong, 2 mm long, 1 length of upper glume, coriaceous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 2 mm long, 0.2–0.4 length of adjacent fertile lemma, coriaceous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 4–5 mm long, 0.66 length of fertile lemma, coriaceous, 3 -veined, ciliolate on margins, fringed above, obtuse. Lemma of upper sterile floret lanceolate, 4–5 mm long, coriaceous, ciliolate on margins, fringed above, obtuse. Fertile lemma lanceolate, 6–8 mm long, coriaceous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma apex acute. Palea lanceolate, coriaceous, 2 -veined, without keels. Palea apex obtuse.

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, Ecuador.

Chusquea steyermarkii L.G. Clark. *Syst. Bot.* 34:681 (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, 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 74925 in part, 13 Apr 1953, Venezuela: Bolívar: Chimantá Massif, Bonnetia forest, NW part of Summit of Abácapa-tepuí, 2125–2300 m (US-2182879; IT: F-1449651, F-1449640, NY, US-2182878, US-2182881, US-2182882 (fragm., MO)).

Recent Synonyms: *Neurolepis glomerata* Swallen, *Mem. N. Y. Bot. Gard.* 9: 399 (1957). *Neurolepis nigra* Swallen, *Mem. N. Y. Bot. Gard.* ix. 400 (1957).

Illustrations (Books): J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (166, Fig. 120).

Derivation (Clifford & Bostock 2007): *L. glomus*, ball of thread; *-ata*, possessing. Spikelets crowded and forming clusters in the inflorescence.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, 100–150 cm long, 8 mm diam., 12 -noded, without nodal roots or with prop roots. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, smooth. Leaf-sheath oral hairs setose. Leaf-sheath auricles erect. Ligule a ciliolate membrane, 8 mm long, with a secondary abaxial membrane (20 mm long). Leaf-blade base with a false petiole, petiole 10 cm long. Leaf-blades deciduous at the ligule, linear, 150 cm long, 40–50 mm wide, coriaceous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, bracteate at branch bases. Panicle open, pyramidal, 80 cm long, 20 cm wide, contracted about primary branches. Primary panicle branches ascending or spreading, bearing spikelets almost to the base. Panicle branches with prominent pulvini. 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, 5.5–6.3 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet. Lower glume ovate, 1.3–1.6 mm long, coriaceous, 1-keeled. Lower glume apex obtuse or acute. Upper glume ovate, 2–2.3 mm long, coriaceous, 1-keeled. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret oblong, 2.6 mm long, coriaceous, ciliolate on margins, obtuse. Lemma of upper sterile floret 3.6–4 mm long. Fertile lemma ovate, 5.5–6.3 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute, mucicous or mucronate. Palea 1 length of lemma, coriaceous, without keels.

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.

Chusquea stuebelii (Pilger) L.G.Clark. *Syst. Bot.* 34:681 (2009).

Regarded by K as a synonym (*N. aristata*).

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:** *Planotia stuebelii* Pilg., *Bot. Jahrb. Syst.* 25(5): 720 (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Columbia: collecta in itinere oppido Popoyan ad Paramo de Huila in valle fluminis Río Paez, alt. 3500 m, *Stübel* 293.

Recent Synonyms: *Neurolepis stuebelii* (Pilger) Pilger, *Engl. & Prantl, Nat. Pflanzenfam. Nachtr.* 3, 21 (1906).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (225, Fig. 128).

Derivation (Clifford & Bostock 2007): in honor of Moritz Alphons Stübel (1835–1904) German botanist-traveller who collected in South America.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador, Peru.

Chusquea straminea Pilger. *Fedde, Repert. Nov. Sp.* 1: 147 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *A. Weberbauer 14408*, no date, Peru: Amazonas (US-2874660).

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

Derivation (Clifford & Bostock 2007): L. straw-yellow. Spikelets and attendant structures straw-colored.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, pendulous at the tip, woody. Culm-internodes terete, 15–25 cm long. Lateral branches dendroid. Branch complement several, in a clump, thinner than stem. Culm-sheaths present. Leaf-sheaths striately veined. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 6–11 cm long, 7–12 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade venation prominent, with 4–6 secondary veins. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 8–10 cm long. Primary panicle branches appressed, bearing spikelets almost to the base. Panicle axis puberulous. 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, 6.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume oblate, 0.75 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblate, 1 mm long, 0.15 length of adjacent fertile lemma, membranous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.5 mm long, 0.66 length of fertile lemma, chartaceous, scaberulous, rough above, ciliolate on margins, fringed above, acute. Lemma of upper sterile floret ovate, 5.5 mm long, chartaceous, scabrous, ciliolate on margins, fringed above, acute. Fertile lemma ovate, 6.5–7 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute. Palea 6 mm long, 4 -veined.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea subtessellata Hitchc. *Proc. Biol. Soc. Wash.* 40: 81 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Tonduz 3367*, Jan 1891, Costa Rica: San Josi: Cerro de la Muerte (Buenavista), flowers, 1320 m, 9.30N 83.40W (US-821342; IT: CR-3367, US-1021539).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (562, Fig 211 as *Swallenochloa*).

Illustrations (Journals): *Smithsonian Contributions to Botany* (9: 107, Fig. 43; 109, Fig. 44 (1973), as *Swallemochloa*).

Images: E.J.Judzewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): *L. sub*, approaching. Resembling other species with the epithet *tesselata*.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 1500–3000 cm long, 4–8 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled, distally pruinose or glabrous. Culm-nodes swollen. Lateral branches dendroid, intravaginal. Branch complement several, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, pilose, with yellow hairs, without auricles. Culm-sheath ligule 1.7 mm high. Culm-sheath blade triangular, 2–2.5 cm long, acuminate. Leaf-sheaths keeled, glabrous on surface or pubescent, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.5–1 mm long. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.2 cm long. Leaf-blades deciduous at the ligule, ovate, 1.5–11 cm long, 4.5–12 mm wide, coriaceous, light green. Leaf-blade venation with distinct cross veins. Leaf-blade margins cartilaginous, scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle contracted, linear, 5–13 cm long, 0.7–1.4 cm wide. Primary panicle branches appressed. 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, 5.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.4–0.8 mm long, 0.5–0.6 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume orbicular, 0.5–1.8 mm long, 0.1–0.25 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume surface villous to hispid. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5–6.5 mm long, chartaceous, purple, 7–9 -veined, eciliate on margins or ciliolate on margins, acute, muticous or mucronate. Lemma of upper sterile floret ovate, 5–7 mm long, chartaceous, eciliate on margins or ciliolate on margins, acute, muticous or mucronate. Fertile lemma ovate, 5–6.5 mm long, coriaceous, purple, without keel, 5–7 -veined, more than 3-veined. Lemma apex acute, muticous or mucronate. Palea 2–4 -veined. Palea keels approximate.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3, 2.7–3.5 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

$2n = 40$ (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica, Panama.

Chusquea subtilis Y. Widmer & L.G. Clark. *Ann. Missouri Bot. Gard.*, 78(1): 167 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Y. Widmer 508*, 9 Dec 1988, Costa Rica: Cartago: Villa Mills, El Sitio, Quebrada Siberia a Voltea, 2550 m, 9.34N 83.43W (CR-147153; IT: CATIE/SBN, ISC, US-3175073, ZT).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (78: 166, Fig. 1F-H (1991)).

Derivation (Clifford & Bostock 2007): *L. fine*. Leaf-blades linear.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, 200–600 cm long, 15–30 mm diam., woody, without nodal roots. Culm-internodes terete, 15–35 cm long, smooth or scaberulous. Lateral branches dendroid, infravaginal. Bud complement 70–80. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, 17–20 cm long, pilose, hairy at the base. Culm-sheath ligule 1–2 mm high, ciliolate. Culm-sheath blade triangular, narrower than sheath, demarcated but persistent, erect, 2.6–4.5 cm long, pubescent. Leaves 3–5 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, curly, 1–1.5 mm long. Ligule an eciliate membrane, 1 mm long, pubescent on abaxial surface, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.2 cm long. Leaf-blades linear, 12–21.6 cm long, 3–6 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 11–18 cm long. Primary panicle branches 2–4.5 cm long. Panicle axis angular, smooth or scabrous, glabrous. Panicle branches angular, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–7 mm long, glabrous.

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, 9.8–11.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.8 mm long, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.6–1 mm long, without keels, 0 -veined. Upper glume primary vein absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 7.5–9.2 mm long, chartaceous, 7 -veined, scabrous, attenuate. Lemma of upper sterile floret ovate, 9.3–11.8 mm long, chartaceous, scabrous, acute, awned. Awn of upper sterile floret 1–2 mm long. Fertile lemma ovate, 10–11.7 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex acute, awned, 1 -awned. Principal lemma awn 2 mm long overall. Palea 7.4–9 mm long, 4–6 -veined. Palea surface scabrous.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 4.2–5.2 mm long. Stigmas 2. Caryopsis with adherent pericarp, 4.7–6 mm long, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Chusquea subulata L.G. Clark. *Novon*, 3(3): 229 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *S.M. Young 124*, 2 May 1980, Ecuador: Pichincha: on the road N from Calacali to San Josi de Niebli, 2750 m (QCA!; IT: NY-4709, US!).

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 Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, 700–1000 cm long, 60–80 mm diam., woody, without nodal roots. Culm-internodes terete, distally glabrous or pubescent. Lateral branches dendroid, extravaginal. Bud complement 16–30. Branch complement many, in a clump, with subequal branches or 1 branch dominant, thinner than stem. Culm-sheaths present, 19–45 cm long, pubescent, hairy at the base, hairy on margins. Culm-sheath ligule 1–3 mm high, ciliolate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 1.3–4 cm long, pubescent. Leaves 4–5 per branch. Leaf-sheaths glabrous on surface or pubescent, outer margin hairy. Ligule an eciliate membrane, 1–4 mm long, pubescent on abaxial surface, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.5 cm long, petiole glabrous. Leaf-blades lanceolate, 11–23 cm long, 13–20 mm wide. Leaf-blade venation without cross veins or with obscure cross veins. Leaf-blade surface glabrous or pilose, hairy abaxially. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, linear, 10–25 cm long. Primary panicle branches appressed or ascending, 3–8 cm long. Panicle axis angular, scabrous, glabrous. Panicle branches angular, scabrous, glabrous or puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–3 mm long, scabrous.

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 linear, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.6–0.8 mm long, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex obtuse or acute. Upper glume ovate, 0.8–1 mm long, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface pubescent. Upper glume apex obtuse or acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.8–4.6 mm long, 0.5 length of fertile lemma, chartaceous, 3–5 -veined, pubescent, setaceously acuminate. Lemma of upper sterile floret ovate, 5.8–7.7 mm long, chartaceous, pubescent, setaceously acuminate. Fertile lemma ovate, 7.2–8.6 mm long, coriaceous, without keel, 7–9 -veined,

more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1 mm long overall. Palea 5.5–6.9 mm long, 4–6 -veined. Palea apex ciliate, with excurrent keel veins.

Flower and Fruit. Lodicules 3, 0.8–1.5 mm long, membranous, ciliate. Anthers 3, 3.8–5 mm long. Stigmas 2. Caryopsis with adherent pericarp, 3.5 mm long, dark brown, apex unappendaged. Embryo 0.15 length of caryopsis.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador.

Chusquea sulcata Swallen. *Journ. Wash. Acad. Sc.* . 209. (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Matuda* 321, Apr 1936, Mexico: Chiapas (US-1722000; IT: DS, US-1685149).

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, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or arching, 200–500 cm long, 10–20 mm diam., woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid, extravaginal. Branch complement many, in a horizontal line, thinner than stem. Culm-sheaths present, deciduous, 9.8–13.3 cm long, without auricles. Culm-sheath blade lanceolate, erect, 0.5–1.2 cm long, glabrous on surface. Ligule an eciliate membrane, 0.2–0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 11.7–18.3 cm long, 5–9 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or pilose, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, dense, nodding, 6–10 cm long. Primary panicle branches appressed. Panicle branches glabrous. 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 linear, dorsally compressed, 6.7–8.6 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, 0.3–0.5 mm long, 1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.3–0.5 mm long, 0.05 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.1–3.4 mm long, 0.4–0.5 length of fertile lemma, chartaceous. Lemma of upper sterile floret ovate, 3.4–4 mm long, chartaceous. Fertile lemma ovate, 7.2–7.6 mm long, coriaceous, without keel, more than 3-veined. Lemma margins involute, covering most of palea. Lemma apex apiculate. Palea tightly convolute around flower, 1 length of lemma. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Southeast Mexico. **Mesoamerica.** Costa Rica, Guatemala. Chiapas.

Chusquea talamancensis Y. Widmer & L.G. Clark. *Ann. Missouri Bot. Gard.*, 78(1): 169 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *L.G. Clark, Y. Widmer & U. Stein* 502, 30 May 1989, Costa Rica: Cartago: Cordillera de Talamanca: filo de los Cerros de Cuerici, 3030 m, 9:35'N, 83:38'W, dominant understory plant in mature upper montane forest of *Quercus costaricensis*, *Clusia*, and *Drimys*, plants in this area just starting to flower, subsidiary branches 35, 52, and 69 cm long, excluding inflorescences (CR-147155; IT: ISC, MO-3799319, MO-3799320, NY-38783, NY-38784, NY-38785, US-3175082, US-3715083, US-3715084).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (78: 170, Fig.2A-F (1991)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Cordillera de Talamanca, Costa Rica.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching, 300–600 cm long, 7–38 mm diam., woody, without nodal roots. Culm-internodes terete, 27–37 cm long, smooth, distally mealy or pruinose. Lateral branches dendroid, intravaginal. Bud complement 6–12. Branch complement several to many, in a clump, thinner than stem. Culm-sheaths present, 10.6–18 cm long, glabrous. Culm-sheath ligule 1–2 mm high, ciliolate. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 1.6–6.5 cm long, scabrid. Leaves 6–11 per branch. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2.5 mm long, truncate or obtuse. Collar with external ligule, glabrous. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long. Leaf-blades linear or lanceolate, 13–29 cm long, 10–18 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, lanceolate, 11–29 cm long, contracted about primary branches. Primary panicle branches 3–9 cm long, bearing spikelets almost to the base. Panicle axis smooth or scaberulous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1.5–4 mm long, scabrous.

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, 5.6–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.6–1 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acute. Upper glume ovate, 0.9–1.6 mm long, without keels, 1 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4.2–5 mm long, chartaceous, 3–5 -veined, pubescent, hairy above, acute. Lemma of upper sterile floret ovate, 5.3–6.3 mm long, chartaceous, pubescent (above), acute. Fertile lemma ovate, 6–7.1 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex acute. Palea 5.6–6.2 mm long, 4 -veined. Palea surface pubescent, hairy on back.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, sulcate on hilar side, apex unappendaged.

N = 10 (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Chusquea tarmensis Pilger. Fedde, *Repert. Nov. Sp.* 1: 151 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Weberbauer 2129, Jan 1903, Peru: Tarma (B (fragm., US-2874661)).

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

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Tarma Province, Peru.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms 300–400 cm long, woody, without nodal roots. Culm-internodes terete. Lateral branches dendroid. Branch complement many, girdling the culm. Culm-sheaths present. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 8–13 cm long, 5–10 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 8–15 cm long. Panicle axis scabrous. Panicle branches scabrous. 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, 9–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.8–1.1 mm long, 1 length of upper glume, membranous, without keels. Lower glume apex obtuse. Upper glume ovate, 0.8–1.1 mm long, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 3.5–4 mm long, chartaceous, ciliate on margins, mucronate. Lemma of upper sterile floret lanceolate, 5–6 mm long, chartaceous, ciliate on margins, mucronate. Fertile lemma elliptic, 8–9 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute. Palea 1 length of lemma.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Peru.

Chusquea tenella Nees. *Linnaea*, 9: 492 (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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Lhotsky s.n.*, no date, Brazil (B (fragm., US-2874662)).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineae* (1981–1982) (83, Fig. 20).

Derivation (Clifford & Bostock 2007): L. slender. Culms or inflorescence branches slender.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 3–4 mm diam., woody, without nodal roots. Culm-internodes terete, solid, 10–19 cm long, striate, distally glabrous. Culm-nodes brown. Lateral branches dendroid. Branch complement several or many. Culm-sheaths present. Leaf-sheaths mostly shorter than adjacent culm internode, keeled (above). Leaf-sheath oral hairs lacking or ciliate. Leaf-sheath auricles erect. Ligule an eciliate membrane, 3 mm long. Collar with external ligule. Leaf-blade base broadly rounded, asymmetrical, with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long, petiole pilose. Leaf-blades deciduous at the ligule, lanceolate or oblong, 9–13 cm long, 12–27 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle, axillary. Panicle contracted, oblong, secund, 2–6 cm long. Primary panicle branches indistinct the panicle almost racemose. Panicle axis glabrous or puberulous. 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, acuminate, 9–10 mm long, 2 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.2–0.5 mm long, 1 length of upper glume, membranous, without keels. Lower glume apex obtuse. Upper glume orbicular, 0.02–0.05 length of adjacent fertile lemma, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4 mm long, chartaceous, acute. Lemma of upper sterile floret ovate, 5 mm long, chartaceous, acute. Fertile lemma oblong, 9–10 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute. Palea 1 length of lemma. Palea apex emarginate.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil Southeast, Brazil South. Uruguay.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Misiones.

Chusquea tenuiglumis Doell. *Mart. Fl. Bras.* 2, 3: 199 (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).

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

Derivation (Clifford & Bostock 2007): *L. tenuis*, slender; *glumis*, glume.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms arching or scandent, 200–800 cm long, 5–7 mm diam., woody, without nodal roots. Culm-internodes terete, solid, concolorous, distally glabrous. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid, infravaginal. Branch complement many, in a horizontal line, with 1 branch dominant. Culm-sheaths present, 17–

20 cm long, glabrous or hispid. Culm-sheath blade triangular, deciduous, reflexed, 17–20 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 10–11 mm long, acuminate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 19–20.5 cm long, 18–28 mm wide. Leaf-blade venation without cross veins. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–10 cm long. 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, 8.4–11.9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.6–1.2 mm long, membranous, without keels. Lower glume apex obtuse. Upper glume ovate, 0.6–1.2 mm long, 0.1 length of adjacent fertile lemma, membranous, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 1–6.7 mm long, 0.5–0.6 length of spikelet, chartaceous, acuminate. Lemma of upper sterile floret ovate, 6.2–6.9 mm long, chartaceous, acuminate. Fertile lemma ovate, 8–11 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast. Minas Gerais, Rio de Janeiro, Espirito Santo.

Chusquea tenuis Glaziov ex E. G. Camus. *Les Bambusees*, 90 (1913).

Regarded by K as a synonym (*C. acuminata*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziov 9056*, 20 Nov 1877, Brazil: Rio de Janeiro (P (fragm., US-1126697)).

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

Derivation (Clifford & Bostock 2007): L. thin. Culms, leaf-blades or pedicels, slender.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea tessellata Munro. *Trans. Linn. Soc.* 26: 60 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *J.J. Triana 306*, 1851–1857, Colombia: Antioquia (US-2874664, US-1647876).

LT: *Holton 97*, 14 Jan 1854, Colombia: Cundinamarca: in montibus ad orient Bogotae, Guadeloupe (K; ILT: PH). LT designated by Clark, *Syst. Bot. Monogr.* 27: 62 (1989).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (200, Fig. 100).

Illustrations (Journals): *Smithsonian Contributions to Botany* (9: 111, Fig. 45; (1973), as *Swallenochloa*).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): L. tessela, little tile; -ata, possessing.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 200–300 cm long, 5–10 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled or solid, 6.5–8 cm long, yellow, smooth, distally mealy. Lateral branches dendroid, intravaginal. Bud complement 1–3. Branch complement several or many, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, 5–8.5 cm long, glabrous. Culm-sheath ligule 1.5–4 mm high, ciliolate. Culm-sheath blade triangular, cordate, deciduous, erect, 5–11.5 cm long, acuminate. Leaves 4–10 per branch. Ligule an eciliate membrane, 0.8–2 mm long, scarious, glabrous on abaxial surface or pubescent on abaxial surface, truncate. Collar with external ligule, glabrous. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.5 cm long. Leaf-blades lanceolate, 5.8–23 cm long, 6–26 mm wide, stiff. Leaf-blade venation with obscure cross veins or with distinct cross veins. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, continuous or interrupted, 6–30 cm long. Primary panicle branches appressed, 1–3 cm long. Panicle axis angular, pubescent. Panicle branches angular, pubescent. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, angular, 1–3 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 oblong, laterally compressed, 3.9–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.6–1.7 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent or obscure. Lower glume surface glabrous or puberulous. Lower glume apex acute. Upper glume ovate, 0.9–2.9 mm long, 0.25–0.33 length of adjacent fertile lemma, membranous, without keels, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume surface glabrous or pubescent. Upper glume margins ciliate. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 1.4–4.6 mm long, 0.5–0.75 length of fertile lemma, chartaceous, 3–5 -veined, pubescent, hairy above, ciliate on margins, fringed above, attenuate. Lemma of upper sterile floret ovate, 2.2–5.9 mm long, chartaceous, pilose, ciliate on margins, attenuate. Fertile lemma ovate, 3–7.6 mm long, coriaceous, without keel, 5–7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins ciliate, hairy above. Lemma apex attenuate. Palea 2.1–6.8 mm long, 2–4 -veined. Palea surface pubescent, hairy on back or on margins.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 2.2–3.6 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America. Venezuela. Bolivia, Colombia, Ecuador, Peru.

Chusquea tomentosa Y. Widmer & L.G. Clark. *Ann. Missouri Bot. Gard.*, 78(1): 165 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: L.G. Clark, Y. Widmer & U. Stein 500, 30 May 1989, Costa Rica: Cartago: Villa Mills, road to Piedra Alta, 2880 m, 9:34'N, 83:41'42"W, disturbed upper montane forest, culms to 6–7 m tall, 2.6–3–7 cm basal diameter, erect at base, arching above, a few culms flowering, the rest vegetative, many culms forming a witches broom at lower shaded nodes, adventitious roots are present above soil level, with branch buds appearing at the fifth node above soil level, central bud usually not developing, unless there is an injury to the main culm, internodes (11–14) 18–32 cm long (CR-147151, CR-147157; IT: ISC, MO-3799307, MO-3799308, NY-38781, NY-38782, US-3175086, CR-3715085).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (78: 166, Fig.1A-E (1991)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): *L. tomentum*, stuffing material of a pillow; -osa, abundance. Plant invested in part or totally with short hairs.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 600–900 cm long, 13–40 mm diam., woody, without nodal roots. Culm-internodes terete, 18–38 cm long, smooth or scaberulous. Lateral branches dendroid, infravaginal. Bud complement 50–60. Branch complement many, in a clump, thinner than stem. Culm-sheaths present, persistent, 11.8–25.4 cm long. Culm-sheath ligule 1–4 mm high. Culm-sheath blade triangular, narrower than sheath, demarcated but persistent, erect, 1.5–5.4 cm long, pubescent. Leaves 4–9 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, erect or deciduous, 1–2 mm long. Ligule an eciliate membrane, 0.5–1 mm long, pubescent on abaxial surface, truncate or obtuse. Collar with external ligule, glabrous. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades linear, 15–27 cm long, 3–7 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface pubescent, densely hairy, hairy abaxially.

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, linear, 8–16 cm long. Primary panicle branches 3–4 cm long. Panicle axis angular, scabrous, glabrous. Panicle branches angular, scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, angular, 2–6 mm long.

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, 11.5–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–1.3 mm long, membranous, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.7–1.5 mm long, without keels, 0–1 -veined. Upper glume primary vein absent or obscure. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 7.2–9.7 mm long, chartaceous, 5–7 -veined, scabrous, acute. Lemma of upper sterile floret ovate, 11.7–14 mm long, chartaceous, scabrous, acute. Fertile lemma ovate, 11.5–13.5 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex acute. Palea 9.5–12.1 mm long, 6–8 -veined. Palea keels contiguous above a sulcus. Palea surface scabrous.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3, 6–8 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Chusquea tonduzii Hack. *Oesterr. Bot. Zeitschr.* 53: 155 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Tonduz 10755*, Oct 1896, Costa Rica: Alajuela: cima del Volcan Poas, 2644 m, 10.11N 84.14W (W; IT: CR-10755, US-821339, US-2874665, US-365922).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (139, Fig 43).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (78: 170, Fig.2G (1991)).

Derivation (Clifford & Bostock 2007): in honor of Adolpheo Tonduz (1862–1921) Swiss-born cleric and Central American botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short or elongated, pachymorph. Butt sheaths absent. Culms arching, 500–2000 cm long, 10–30 mm diam., woody, without nodal roots. Culm-internodes terete, solid, distally glabrous or pubescent. Culm-nodes swollen. Lateral branches dendroid, extravaginal. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, without auricles. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 2–5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.3 cm long. Leaf-blades deciduous at the ligule, lanceolate, 9–19 cm long, 9–18 mm wide, light green or dark green. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous or pubescent, hairy abaxially.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle open, ovate, 11–19 cm long, 3–8 cm wide. Primary panicle branches spreading, 1–2 -nate, 3–6 cm long. Panicle branches puberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–4 mm long.

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, acute or acuminate, 6–7 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, 0.3–1 mm long, 1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 0.3–1 mm long, 0.05–0.15 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3–4 mm long, chartaceous, purple, 3 -veined, acuminate, muticous or mucronate. Lemma of upper sterile floret ovate, 3.8–5 mm long, chartaceous, emarginate or truncate. Fertile lemma ovate, 5.6–6.6 mm long, coriaceous, purple, without keel, 5–7 -veined, more than 3-veined. Lemma apex acuminate. Palea tightly convolute around flower, 1–1.1 length of lemma, 4–7 -veined. Palea keels approximate. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3, 2.6–3.8 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

$2n = 40$ (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica.

Chusquea tovari L.G. Clark. *Syst. Bot.* 34:682 (2009).

Regarded by K as a synonym (*N. aristata*).

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 Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: A. *Weberbauer 7030*, Aug 1914, Peru: La Libertad (US-2876346, US-1497338).

Recent Synonyms: *Neurolepis weberbaueri* Pilger, *Fedde, Repert.* 17: 446 (1921).

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

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);

Derivation (Clifford & Bostock 2007): in honor of August Weberbauer (1871–1948) German botanist resident in Peru.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

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

Country /Province /State. Western South America. Ecuador, Peru.

Chusquea tuberculosa Swallen. *Journ. Wash. Acad. Sc.* 21: 14 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia: Santander: on the edge of woods between California and Vetas, 2500 m, 15–22 Jan 1927, *Killip & Smith 18005* (HT: US-1353497).

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

Derivation (Clifford & Bostock 2007): *L. tuberculus*, wart; -osa, abundance. Lemmas or glumes bearing warty projections.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 3–6 mm diam., woody. Culm-internodes terete, solid, papillose. Culm-nodes pubescent. Lateral branches dendroid. Branch complement many, in a clump, thinner than stem. Culm-sheaths present. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or ovate, 2–3 cm long, 4–10 mm wide. Leaf-blade surface smooth, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 7–10 cm long, 5–6 cm wide. Primary panicle branches spreading. Panicle axis pilose. Panicle branches stiff, pilose. 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5 mm long, 0.8–0.9 length of fertile lemma, chartaceous, 3 -veined, acute. Lemma of upper sterile floret ovate, 5 mm long, chartaceous, acute. Fertile lemma ovate, 6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

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

Country /Province /State. Western South America. Colombia.

Chusquea uliginosa Phil. *Linnaea* 30: 207 (1860).

Accepted by: R.J.Soreng et al., *Catalogue of 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: Chile: Valdivia: in pratis illis pluvias inundatis, uliginosis, quae in collis Nadi (SGO-PHIL-520; IT: SGO-63023, US-556453 (fragm. ex SGO-PHIL-520)).

Recent Synonyms: *Chusquea tenuiflora* Phil., *Linnaea*, 30: 206 ((1860).

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

Derivation (Clifford & Bostock 2007): *L. uligo*, wetness of the earth; -osa, abundance. Growing in swampy places.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms 200 cm long, 3–7 mm diam., woody. Culm-internodes terete, solid, 17.5 cm long, distally glabrous. Lateral branches dendroid. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 3–13 cm long, 4–9 mm wide, glaucous. Leaf-blade venation with 4–6 secondary veins, with distinct cross veins. Leaf-blade margins cartilaginous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted or spiciform, linear, interrupted, 5–10 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 cuneate, laterally compressed, 6–7 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 mm long, membranous, without keels, 3 -veined. Lower glume apex acuminate, awned, 1 -awned, awn 6 mm long. Upper glume lanceolate, 4 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acuminate, awned, 1 -awned, awn 4 mm long.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4 mm long, 0.66 length of fertile lemma, chartaceous, 3 -veined, acute, awned. Awn of lower sterile floret 1–1.5 mm long. Lemma of upper sterile floret ovate, 5 mm long, chartaceous, acute, awned. Awn of upper sterile floret 1 mm long. Fertile lemma ovate, 6–7 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Palea surface pubescent, hairy on back.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile South.

Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Los Lagos, Aisen.

Chusquea uniflora Steud. *Syn. Pl. Gram.* 337. (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *J.J. Linden* 892, 1843, Colombia: (US-2874666).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): *L. unus*, one; flos, flower. Spikelets with one fertile floret.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 100–600 cm long, 7–25 mm diam., woody. Culm-internodes terete, solid, 16–25 cm long, mid-green and purple, mottled. Lateral branches dendroid. Branch complement many, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, persistent, antrorsely scabrous. Leaf-sheaths striately veined, outer margin hairy. Ligule an eciliate membrane, 1 mm long, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 2–5 cm long, 3–10 mm wide. Leaf-blade venation with 4 secondary veins. Leaf-blade surface scabrous, rough adaxially, pubescent, hairy abaxially. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 3–6 cm long. Primary panicle branches 1 -nate. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 2–4 mm long.

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, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 1.5–2 mm long, 0.33–0.5 length of fertile lemma, chartaceous, acute. Lemma of upper sterile floret ovate, 1.5–2 mm long, chartaceous, acute. Fertile lemma lanceolate, 4–6

mm long, coriaceous, purple, without keel, more than 3-veined. Lemma surface with longitudinal folds. Lemma apex obtuse.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador.

Chusquea urelytra Hack. *Oesterr. Bot. Zeitschr.* 53: 158 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A.F.M. Glaziou 17920*, no date, Brazil: Rio de Janeiro (W; IT: US-2874667).

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

Derivation (Clifford & Bostock 2007): Gk. oura, tail; elytrum, cover. The lower glume of the pedicelled spikelet is long-awned.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 350–600(–1200) cm long, 2–10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, concolorous, distally hispid. Culm-nodes without obvious supra-nodal ridge. Lateral branches dendroid, infravaginal. Branch complement many, in a horizontal line, with 1 branch dominant. Culm-sheaths present, 21–54 cm long, concolorous, antrorsely scabrous. Culm-sheath blade triangular, indistinctly demarcated from sheath, erect, 2–17 cm long. Leaf-sheaths hispid. Ligule an eciliate membrane, 0.7–2 mm long, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 9.6–15.3 cm long, 12–15 mm wide. Leaf-blade venation without cross veins. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, subtended by a spatheole. Panicle capitate, globose, 1.5–2 cm long. 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, 7.3–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.4–1.8 mm long, membranous, without keels. Lower glume apex acuminate, awned, 1 -awned, awn 5.1–6.3 mm long. Upper glume ovate, 1.9–2.5 mm long, 0.25 length of adjacent fertile lemma, membranous, without keels. Upper glume apex acuminate, awned, 1 -awned, awn 4–5.6 mm long.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 5.1–6.5 mm long, 0.66 length of spikelet, chartaceous, acuminate, awned. Awn of lower sterile floret 1–2 mm long. Lemma of upper sterile floret ovate, 7–8.9 mm long, chartaceous, acute. Fertile lemma ovate, 7–9 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute.

Flower and Fruit. Lodicules 3. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

Minas Gerais, Rio de Janeiro, Espirito Santo.

Chusquea valdiviensis E. Desv. *C. Gay, Fl. Chil.* 6: 446 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *C. Gay 292*, no date, Chile: Valdivia: muy abundante en sitios hzmedos (P; IST: US-2874668).

ST: *Philippi s.n.*, Chile (P).

Recent Synonyms: *Chusquea palenae* R. Phil., *Anal. Univ. Chil.* 94: 350 (1896).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Valdivia, Chile.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, 500–1000 cm long, woody, without nodal roots. Culm-internodes terete, solid, smooth. Lateral branches dendroid. Branch complement several, in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present.

Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs ciliate, 2 mm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 6–18 cm long, 5–23 mm wide, herbaceous. Leaf-blade venation with distinct cross veins. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 14–18 cm long, contracted about primary branches. Primary panicle branches 6–10 cm long, bearing spikelets almost to the base. Panicle axis pubescent. 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 lanceolate, laterally compressed, 6–7 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, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex acute, mucicous or mucronate. Upper glume lanceolate, 0.33–0.5 length of adjacent fertile lemma, 1-keeled, 3 -veined. Upper glume surface pubescent. Upper glume apex acute, mucicous or mucronate.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 0.5–0.66 length of fertile lemma, chartaceous, 3–5 -veined, pubescent, hairy above, setaceously acuminate. Lemma of upper sterile floret ovate, 1.5–2 length of lower sterile floret, chartaceous, setaceously acuminate. Fertile lemma ovate, 6–7 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acute. Palea 1 length of lemma, 4 -veined. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Chile Central, Chile South.

TDWG4. Neuquén, Río Negro. Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valpariso. Biobio, La Araucania. Los Lagos.

Chusquea villosa (L.G. Clark) L.G. Clark. *Syst. Bot.* 34:682 (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, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Laegaard 52884*, 2 Sep 1984, Ecuador: Azuay: 4000–4150 m (QCA; IT: AAU, QCNE).

Recent Synonyms: *Neurolepis villosa* L.G. Clark, *Novon* 6(4): 349 (1996).

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 Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Culms erect, reed-like, 30–120 cm long, 2–4 mm diam., woody. Culm-internodes terete, thin-walled, 1.7–3 cm long, striate, distally glabrous. Lateral branches lacking. Leaf-sheaths striately veined, papillose, glabrous on surface or hirsute, outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles erect. Ligule a ciliate membrane, 1–3 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades erect, deciduous at the ligule, lanceolate, 8–27 cm long, 10–16 mm wide, stiff. Leaf-blade midrib conspicuous. Leaf-blade venation with distinct cross veins. Leaf-blade surface hirsute, hairy adaxially or on both sides. Leaf-blade margins cartilaginous, scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Peduncle 12–30 cm long, hirsute above. Panicle open, linear or lanceolate, 20–40 cm long, 1–2 cm wide. Primary panicle branches appressed, 1.5–3 cm long. Panicle axis villous. Panicle branches villous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–1.5 mm long.

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, subterete or dorsally compressed, compressed slightly, 3–4.4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.2–2 mm long, coriaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous, inner surface pubescent. Lower glume apex acuminate, awned, 1 -awned, awn 1.2–6.8 mm long. Upper glume ovate, 1.5–2.5

mm long, coriaceous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface puberulous, inner surface pubescent. Upper glume apex acuminate, awned, 1 -awned, awn 1.9–5.9 mm long.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 4–4.2 mm long, coriaceous, 1–3 -veined, ciliolate on margins, setaceously acuminate. Lemma of upper sterile floret ovate, 2.5–4 mm long, ciliolate on margins, acute, mucronate. Fertile lemma ovate, 2.5–3.9 mm long, coriaceous, without keel, (3–)5 -veined, more than 3-veined. Lemma apex acute, pubescent, mucronate. Palea 2.5–4 mm long, coriaceous, 2 -veined, without keels. Palea surface scaberulous (at tip).

Flower and Fruit. Lodicules 3, 0.9–1 mm long, veined, ciliate. Anthers 3, 1.2–2 mm long. Stigmas 2. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Chusquea virgata Hack. *Oesterr. Bot. Zeitschr.* 53: 156 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A. Tonduz (Pittier) 7730*, Mar 1893, Costa Rica: San Josi: San Marcos de Tarrazz, 1355 m, 9.40N 84.02W (W; IT: CR-7730, US-2874670, US-471816, US-102150).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (139, Fig 43).

Derivation (Clifford & Bostock 2007): *L. virga*, broom; -ata, possessing. Inflorescence arms or culms held erect.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 600–700 cm long, 5–10 mm diam., woody, without nodal roots. Culm-internodes terete, solid, mid-green or purple, mottled, distally glabrous. Culm-nodes swollen. Lateral branches dendroid, extravaginal. Branch complement several, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, purple, glabrous, without auricles. Culm-sheath ligule 1.5 mm high. Culm-sheath blade linear, erect, 1 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.3 cm long. Leaf-blades deciduous at the ligule, ovate, 7.5–17 cm long, 16–33 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, ovate, 9–17 cm long, 1–1.5 cm wide. Primary panicle branches ascending, 2–3 cm long. 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 lanceolate, curved, laterally compressed, 8–9.7 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, 0.2–0.3 mm long, 0.66 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.3–0.5 mm long, 0.1 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.8–3.2 mm long, chartaceous, 1(–3) -veined, without lateral veins or obscurely veined, acute. Lemma of upper sterile floret ovate, 3.4–4.2 mm long, chartaceous, acuminate. Fertile lemma lanceolate, 7.5–9 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex acute. Palea 1 length of lemma, 4 -veined. Palea keels contiguous above a sulcus.

Flower and Fruit. Lodicules 3, oblanceolate, membranous, veined, ciliate. Anthers 3, 4.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica, Panama.

Chusquea vulcanalis (Soderstrom & C. Calderon) L.G. Clark. *Ann. Missouri Bot. Gard.*, 74(2): 428 (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 Costa Rica. **Basionym or Replaced Name:** *Swallenochloa vulcanalis* Soderstr. & C.E. Caldersn *Brittonia* 30(3): 309, f. 5. (1978)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Pittier 14126*, 31 Dec 1900, Costa Rica: abrupte dominant la Playita, Volcan Irazz, 3350 m, flowers (US-821337; IT: ISC, US-577987).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (564, Fig 212 as *Swallenochloa*).

Derivation (Clifford & Bostock 2007): *L. vulcanus, volcana*; -alis, pertaining to. Growing on the slopes of volcanoes.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500–1000 cm long, 10–25 mm diam., woody, without nodal roots. Culm-internodes terete, thick-walled or solid. Culm-nodes glabrous. Lateral branches dendroid, intravaginal. Branch complement several, in a clump, with subequal branches, thinner than stem. Culm-sheaths present, glabrous, without auricles. Culm-sheath ligule 1 mm high. Culm-sheath blade triangular. Leaves 3–4 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 3–5 mm long. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.1–0.3 cm long. Leaf-blades deciduous at the ligule, lanceolate, 6–19 cm long, 11–23 mm wide, coriaceous, dark green. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, linear, dense, 9–19 cm long, 1–2 cm wide. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 mm long, scabrous.

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, 6.2–10 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, 0.6–1 mm long, 0.5 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 1.2–1.5 mm long, 0.2 length of adjacent fertile lemma, without keels, 0–1 -veined. Upper glume primary vein absent or obscure. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3.7–6.3 mm long, chartaceous, purple, 4–5 -veined, with unevenly spaced veins, scabrous, ciliolate on margins, acute, awned. Awn of lower sterile floret 0.5 mm long. Lemma of upper sterile floret ovate, 5–7.4 mm long, chartaceous, scabrous, ciliolate on margins, acute, awned. Awn of upper sterile floret 1 mm long. Fertile lemma ovate, 5.7–6.8 mm long, coriaceous, purple, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma margins ciliolate, hairy above. Lemma apex acute, mucronate. Palea 5.7–6.8 mm long, 4 -veined. Palea keels approximate. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules 3, obovate, membranous, veined, ciliate. Anthers 3, 3.6–4.5 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica, Panama.

Chusquea wilkesii Munro. *Trans. Linn. Soc.* 26: 63 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Wilkes Explor. Exped. s.n.*, 1838–1842, Brazil: (US-1021548 (fragm.)).

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

Derivation (Clifford & Bostock 2007): in honor of Chartres Wilkes (1798–1877) United States Naval Officer and explorer.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms scandent, woody. Culm-internodes terete, 17 cm long, distally hirsute. Lateral branches dendroid. Branch complement several (6–8), in a clump, thinner than stem. Culm-sheaths present. Leaf-sheaths hirsute. Leaf-sheath oral hairs setose.

Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 7–10 cm long, 8–12 mm wide. Leaf-blade venation indistinct, with 8 secondary veins. Leaf-blade surface scabrous, rough adaxially, pilose, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 5–8 cm long. Primary panicle branches reflexed. Panicle axis hispid. 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, 6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes both absent or obscure.

Florets. Basal sterile florets 2 or more, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 3 mm long, 0.5 length of fertile lemma, chartaceous, 1-keeled, ciliate on margins, acute, mucronate. Lemma of upper sterile floret ovate, 3 mm long, chartaceous, ciliate on margins, acute, mucronate. Fertile lemma ovate, 6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface pubescent, hairy between veins. Lemma apex acute, mucronate. Palea surface pubescent, hairy on back.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Chusquea windischii L.G. Clark. *Brittonia*, 44(4): 405 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *L. Clark, X. Londoço & W. de Oliveira 1046*, 25 Feb 1992, Brazil: Santa Catarina: Mun. Urubici: Morro da Igreja, Serra Geral, 1680 m, 28:07'S, 49:29'W, in bog with *Aulonemia ulei*, two plants seen with flowers, the rest vegetative, eaten by cattle (SP; IT: HBR, ISC, MBM, MO-4244170, SJRB, US).

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

Derivation (Clifford & Bostock 2007): In honor of Paulo Guenter(Guenter) Windisch (1948-) Brazilian botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Butt sheaths absent. Culms erect, 100 cm long, 10 mm diam., woody, without nodal roots or with root dots on the nodes. Culm-internodes terete, thick-walled, 6–8 cm long, distally pruinose. Culm-nodes swollen, with distinct supra-nodal ridge. Lateral branches dendroid, intravaginal, ascending. Bud complement 5–9. Branch complement several, in a horizontal line. Culm-sheaths present, deciduous, 6.4–9.2 cm long, antrorsely scabrous, glabrous on margins or hairy on margins, without auricles. Culm-sheath ligule 1–2 mm high, ciliolate. Culm-sheath blade triangular, demarcated but persistent, erect, 3.2–4.2 cm long, scabrid. Leaves 4–8 per branch. Leaf-sheaths tight, glabrous on surface or pubescent. Ligule an eciliate membrane, 1.5–2 mm long, glabrous on abaxial surface, obtuse. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05 cm long. Leaf-blades lanceolate, 3.6–5.9 cm long, 8–10 mm wide, coriaceous. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 1.5–2 cm long. Primary panicle branches appressed. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3.5 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 elliptic, subterete, 4.3–4.9 mm long, 1.1–1.2 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 0.1–0.2 mm long, 0.5–1 length of upper glume, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume orbicular, 0.2–0.3 mm long, 0.03–0.05 length of adjacent fertile lemma, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2.8–3.2 mm long, 0.66 length of fertile lemma, chartaceous, 3 -veined, acute, mucronate. Lemma of upper sterile floret ovate, 2.8–3.2 mm long, 1 length of lower sterile

floret, chartaceous, acute, mucronate. Fertile lemma ovate, 4.3–4.8 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 4.1–4.7 mm long, 1 length of lemma, 4 -veined. Palea surface pubescent, hairy on back.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, apex unappendaged.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Cinna arundinacea (Trin.) Hook., non L.(1753). *Fl. Bor. Am.* ii. 238 (1840).

Accepted by: R.J.Soreng et al., *Catalogue of 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): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (775), F.W.Gould, *The Grasses of Texas* (1975) (157, Fig. 79).

Derivation (Clifford & Bostock 2007): *L. arundo*, reed; -acea, like. Culm tall, thereby resembling a reed.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, culms solitary. Butt sheaths herbaceous, not bulbous or thickened and forming a bulb. Culms erect, 100–150 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 15–30 cm long, 4–10 mm wide. Leaf-blade surface scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open or contracted, elliptic, dense, nodding, 15–30 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, 5–6 mm long, falling entire. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.5 mm long.

Glumes. Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–4.5 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, 5–6 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 lanceolate, 5–6 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma surface granulose. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 0.5 mm long overall, not or scarcely exerted from spikelet. Palea 0.9 length of lemma, hyaline, 1 -veined, 1-keeled. Palea keels scaberulous. Rhachilla extension 0.1 mm long.

Flower and Fruit. Anthers 1, 1.2–1.7 mm long. Caryopsis with adherent pericarp. Endosperm liquid.

Distribution (TDWG). Continent. North America.

Country /Province /State. Eastern Canada, North-central USA, Northeast USA, South-central USA, Southeastern USA. Ontario, Quebec. Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, 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, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia.

Cinna bolanderi Scribn. *Proc. Acad. Nat. Sci. Phila.* 1884:290 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *H.N. Bolander 6090*, 1866, USA: California (US-323939; ILT: DS, GH, MO, NY, US-2891507). LT designated by Brandenburg et al., *Sida* 14: 590 (1991).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (775).

Derivation (Clifford & Bostock 2007): in honor of Henry Nicholas Bolander (1831–1897) United States botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms 8–200 cm long, 1.8–3 mm diam., 4–8 -noded. Ligule an eciliate membrane, 3.5–7 mm long. Leaf-blades 15–25 cm long, 2–19 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, dense or loose, 7.5–43 cm long, 3–18 cm wide. Primary panicle branches ascending or spreading, whorled at most nodes. Spikelets solitary. Fertile spikelets sessile.

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, (3.6–)4–5.5(–6.5) mm long, falling entire.

Glumes. Glumes similar, reaching apex of florets or exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, (3.2–)3.5–5.2(–6) mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, (3.6–)4–5.5(–6.3) mm long, 1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile lemma ovate, (2.7–)3.2–4.6 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma apex acute, mucronate or awned, 1 -awned. Principal lemma awn subapical, 0.2–1.5 mm long overall, not or scarcely exerted from spikelet. Palea 2.7–3.8 mm long, 2 -veined, 2-keeled. Palea keels approximate. Rhachilla extension 0.4–0.9 mm long.

Flower and Fruit. Anthers 2, 1.2–2.6 mm long. Caryopsis with adherent pericarp, oblong, 2–2.9 mm long. Endosperm liquid.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southwestern USA. California.

Cinna latifolia (Trev.) Griseb. *Ledeb. Fl. Ross.* 4: 435 (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), 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 Canada. **Basionym or Replaced Name:** *Agrostis latifolia* Trevir. ex Gvpp. *Beschr. Bot. Gaert. Breslau* 82. (1830)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *H. Dorp. s. n.*, [18]32, E seminibus in America arctica a Cl. viris Richardson & Drummond lectis ... (B; IT: LE (ex hb. Fischer)). label data from LE, 32 may or may not refer to the year this specimen was gathered, it might refer to the year it was sent to Fischer.

derivative of type, in cult.?: 1836, (LE-TRIN-1580.02). "in horto Berol. cult. dt. ill a Roemer 1836".

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (164, Fig 56), K.F.Best, et al, *Prairie Grasses* (1971) (95), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (775), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 508).

Derivation (Clifford & Bostock 2007): *L. latus*, broad; folium, leaf. Leaf-blades broad or relatively broad with respect to related species.

Classification. Subfamily Pooideae. Tribe: Poaeae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms 8–120 cm long, 1.8–3 mm diam., 7–9 -noded. Ligule an eciliate membrane, 1.3–3 mm long, obtuse. Leaf-blades 15–25 cm long, 8–15 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Peduncle antrorsely scabrous above. Panicle open, lanceolate or ovate, nodding, 15–40 cm long, 10–15 cm wide. Primary panicle branches 3–6 -nate, whorled at most nodes, 4–15 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, cuneate, 1–1.5 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, 3–3.5 mm long, falling entire.

Glumes. Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.2–3.75 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, 3.2–3.75 mm long, 1.25 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 ovate, 2.5–3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein scaberulous. Lemma apex acute, mucronate or awned, 1 -awned. Principal lemma awn subapical, 0.2–1

mm long overall, not or scarcely exerted from spikelet. Palea 0.9 length of lemma, 1 -veined, 1-keeled. Palea keels scaberulous. Rhachilla extension 0.33 length of fertile floret.

Flower and Fruit. Anthers 1(-2), 0.5-0.7 mm long. Caryopsis with adherent pericarp, oblong, 2 mm long. Endosperm liquid.

$2n = 28$ (3 refs TROPICOS).

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

Region. Northern Europe, Eastern Europe.

Country /Province /State. : Finland, Norway, Sweden. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia. Siberia, Russian far east, **Caucasus, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Khabarovsk, Magadan, Primorye, Sakhalin. Manchuria. Mongolia. Japan, Korea. Japan Hokkaido, or Honshu. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA.** Aleutian Is, Alaska, Northwest Territories, Yukon. Alberta, British Columbia, Manitoba, Saskatchewan. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. North Dakota, South Dakota. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. California, Nevada, Utah. New Mexico. Virginia.

TDWG4.

Cinna poiformis (Kunth) Scribn. & Merr. *Bull. Div. Agrostol., U.S.D.A.* 24: 21 (1901).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Mexico. **Basionym or Replaced Name:** *Deyeuxia poiformis* Kunth *Nov. Gen. Sp. (quarto ed.)* 1: 146-147. (1815) [1816].

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, Sep, Mexico: Michoacan: Volcan Jorullo (P).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (247, Fig 47 as *C. poaeformis*), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (144, Fig 44).

Illustrations (Journals): *Ruizia* (13:209, Fig 22a-c (1993) as *C. poaeformis*).

Derivation (Clifford & Bostock 2007): L. forma. Resembling *Poa*..

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 90-150 cm long, 3-6 mm diam. Culm-nodes purple. Lateral branches lacking. Ligule an eciliate membrane, 1.5-15 mm long, brown, lacerate. Leaf-blades 5-35 cm long, 5-15 mm wide.

Inflorescence. Inflorescence a panicle. Peduncle 10-20 cm long, glabrous. Panicle open, ovate, effuse, nodding, 15-45 cm long, with spikelets clustered towards branch tips. Primary panicle branches drooping, whorled at most nodes. Panicle branches capillary, flexuous, scaberulous. 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 elliptic, laterally compressed, 2.5-3.2 mm long, falling entire. Spikelet callus glabrous. Rhachilla internodes elongated below proximal fertile floret. Rhachilla elongation 0.2 mm long.

Glumes. Glumes similar, reaching apex of florets. Lower glume lanceolate, 2.5-3.2 mm long, 1 length of upper glume, membranous, purple, 1-keeled, 3 -veined. Lower glume primary vein scabrous. Lower glume surface scabrous, rough on veins. Lower glume apex acute. Upper glume lanceolate, 2.5-3.2 mm long, 1 length of adjacent fertile lemma, membranous, purple, 1-keeled, 3 -veined. Upper glume primary vein scabrous. Upper glume surface scabrous, rough on veins. Upper glume apex acute.

Florets. Fertile lemma ovate, 2.5-3.2 mm long, membranous, keeled, 3 -veined, 0-3 -veined. Lemma surface scaberulous, rough above. Lemma apex acute, muticous or awned, 1 -awned. Principal lemma awn subapical, 0.1-0.3 mm long overall, not or scarcely exerted from spikelet. Palea 0.9 length of lemma, 1 -veined, 1-keeled. Rhachilla extension 0.3 mm long.

Flower and Fruit. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Endosperm liquid.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Central Mexico, Northeast Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America.** Costa Rica, Guatemala, Panama. Venezuela. Bolivia, Colombia, Ecuador, Peru.

Distrito Federal, Mexico State, Morelos, Puebla, Tlaxcala. Hidalgo. Veracruz. Michoacan, Oaxaca. Chiapas, Yucatan.

Cladoraphis cyperoides (Thunb.) S.M. Phillips. *Kew Bull.*, 37(1): 159 (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 South Africa. **Basionym or Replaced Name:** *Poa cyperoides* Thunb. *Prodr. Pl. Cap.* 22 (1794)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Thunberg s.n.*, South Africa: Cape of Good Hope (UPS).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (107).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Cyperus* in the form of the inflorescence.

Classification. Subfamily Chloridoideae. Tribe: Eragrostideae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 30–60 cm long, woody. Leaves with blades commonly suppressed, transferring photosynthetic function to sheath and culm. Leaf-sheaths inflated. Ligule a fringe of hairs. Leaf-blades triangular or linear, flat or convolute, 0–15 cm long, 0–3 mm wide. Leaf-blade apex pungent.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, oblong or ovate, multilateral, 1–3 cm long, simple or secondarily branched. Central inflorescence axis 5–20 cm long, woody, tip spinose. Rhachis angular, terminating in a spikelet. Spikelet packing crowded. Spikelets ascending, 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, 5–7 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes obscured by lemmas.

Glumes. Glumes deciduous, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.8 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 ovate, 3–3.5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 1.5 mm long.

Distribution (TDWG). Continent. Africa, North America.

Country /Province /State. South tropical Africa, Southern Africa. Angola. Namibia, Northern Cape, Western Cape. Northwest USA. Oregon.

Cladoraphis spinosa (L.f.) S.M. Phillips. *Kew Bull.*, 37(1): 159 (1982).

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:** *Festuca spinosa* L. f. *Suppl. Pl.* 111 (1781)[1782]

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Baeck s.n.*, South Africa: Cape of Good Hope (LINN).

Recent Synonyms: *Eragrostis spinosa* (L.f.) Trin., *Mem. Acad. Petersb. Ser.* 6(1) 416 (1830).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (183, Fig.158, as *Eragrostis*), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (86, Fig 44).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): L. spina, thorn; -osa, abundance. Inflorescence branches terminating in spines.

Classification. Subfamily Chloridoideae. Tribe: Eragrostideae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 20–45 cm long, woody. Leaves with blades commonly suppressed, transferring photosynthetic function to sheath and culm. Leaf-sheaths inflated. Ligule a fringe of hairs. Leaf-blades triangular or linear, flat, 0–10 cm long, 0–7 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, deflexed or spreading, linear, unilateral, 0.5–4 cm long, simple or secondarily branched. Central inflorescence axis 5–35 cm long, woody, tip spinose. Rhachis flattened (woody), terminating in a barren extension, extension subulate (spinose). Spikelet packing lax. Spikelets deflexed, 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, 5–15 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes eventually visible between lemmas.

Glumes. Glumes deciduous, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.8 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 ovate, 3–3.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 2 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Namibia, Northern Cape, Western Cape.

Clausospicula extensa M. Lazarides. *Austral. Syst. Bot.*, 4(2): 399 (1991).

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: Northern Territory: Darwin and Gulf Distr.: South Alligator River, c. 26 km WSW of Mt. Evelyn, 13.40S 132.40E, 26 Feb 1973, *Adams & Lazarides 3113* (HT: CANB; IT: CANB).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Derivation (Clifford & Bostock 2007): L. widespread. Culms widely separated on the rhizome.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Annual. Culms 30–45 cm long, 5–7 -noded. Culm-internodes elliptical in section. Lateral branches sparse. Leaf-sheaths medianly thickened, pilose, with tubercle-based hairs, outer margin hairy. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 1.4–2.6 mm wide. Leaf-blade surface pilose, with tubercle-based hairs. Leaf-blade margins cartilaginous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle with branches tipped by a raceme, exerted or embraced at base by subtending leaf. Panicle open, bearing few spikelets. Primary panicle branches 1–3 in number, simple. Racemes bearing a triad of spikelets. Rhachis obsolete. Raceme-bases filiform, extended into an oblong appendage, with 4 mm long appendage, persistent. Spikelets in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 2 in the cluster. Pedicels present, filiform, flattened, glabrous.

Sterile Spikelets. Companion sterile spikelets represented by barren pedicels or rudimentary or well-developed, comprising 2 subequal glumes without lemmas, linear or lanceolate, 5–12 mm long, separately deciduous. Companion sterile spikelet glumes membranous, thinner on margins, 7 -veined, eciliate on margins or ciliate on margins.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, 10 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus cuneate, curved, 3–3.5 mm long, bearded, base pungent, attached obliquely, with linear scar. Spikelet callus hairs dark brown.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume obovate, coriaceous, much thinner above, dark brown, without keels, keel-less except near apex. Lower glume surface convex, rugose, rough at apex. Lower glume apex rostrate, muticous or awned, 1 -awned, awn 2–3 mm long. Upper glume oblong, 1 length of spikelet, coriaceous. Upper glume apex attenuate, awned, 1 -awned, awn 14–19 mm long.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 4.5–5 mm long, hyaline, 2 -veined, ciliate on margins, truncate or obtuse. Fertile lemma linear, hyaline, 3 -veined, 0–3 -veined. Lemma margins ciliate. Lemma apex attenuate, awned, 1 -awned. Principal lemma awn apical, geniculate, 85–105 mm long overall, with 45–60 mm long limb, with twisted column. Column of lemma awn 40–55 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Lodicules 2, oblong or cuneate, 0.4–0.6 mm long, membranous. Anthers 3, 0.5–1.5 mm long. Caryopsis with adherent pericarp, ellipsoid, 5.6 mm long, acute. Hilum punctiform.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Northern Territory.

TDWG4. Darwin & Gulf.

Cleistachne sorghoides Benth. *Hook. Ic. Pl. t.* 1379. (1882).

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 *C. stocksii*).

TYPE from Mozambique. **Basionym or Replaced Name:** *Cleistachne stocksii* Hook. f. *Fl. Brit. India* 7(21): 162. (1897)[1896]

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *J. Kirk s.n.*, Mozambique: Shubanga, on the Zambesi (K).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (290, Fig. 226), R.M.Phillip, F.T.E.A., *Gramineae* 3(1982):735, Fig. 170), G.V.Pope et al., *Flora Zambesiaca* 10 (4(2002):33, T. 13), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (468, Fig. 383), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (87, Fig. 45), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (302, Fig. 120).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling *Sorghum*.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe SACCHARINAE.

Habit, Vegetative Morphology. Annual. Culms erect, 60–250 cm long, with prop roots. Ligule an eciliate membrane. Leaf-blade base tapering to the midrib. Leaf-blades 20–90 cm long, 4–15 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, linear to lanceolate, 8–40 cm long. Primary panicle branches simple, bearing spikelets almost to the base. Panicle branches flexuous, pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 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, dorsally compressed, (3–)4–5(–6) mm long, falling entire. Spikelet callus pubescent, base obtuse, attached transversely.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma, shiny. Lower glume oblong, 1 length of spikelet, coriaceous, dark brown or black, without keels, 7–9 -veined. Lower glume surface pilose. Lower glume hairs white or yellow. Upper glume ovate, without keels. Upper glume surface pilose. Upper glume apex truncate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1 length of spikelet, hyaline, 2 -veined, ciliate on margins. Fertile lemma oblong, 2–3 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma margins ciliolate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, bigenulate, 15–35 mm long overall, with twisted column. Column of lemma awn glabrous. Palea hyaline, without keels.

Flower and Fruit. Lodicules 2, ciliate.

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

Country /Province /State. West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Malawi, Mozambique, Zambia, Zimbabwe. Mpumalanga. **Arabian Peninsula.** Oman. **Indian Subcontinent.** India.

TDWG4. Gujarat, Kerala, Madhya Pradesh, Orissa.

Cleistochloa sclerachne (F. M. Bailey) C. E. Hubbard. *Hook. Ic. Pl.* 33, sub t. 3209, p. 3 (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), J.F.Veldkamp, *Poaceae* ms (*Flora Malesiana*).

TYPE from Australia, Queensland. **Basionym or Replaced Name:** *Chionachne sclerachne* F.M. Bailey, *Queensland Dept. Agric. Bull.* 7(Bot. Bull. 2): 21 (1891). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Gulliver s.n.*, Apr 1886, Australia: Queensland: Cape York Peninsula, Lloyd Bay (BRI; IT: K (fragm. ex BRI)).

Illustrations (Journals): *Hooker's Icones Plantarum* (33, sub t. 3209, p. 3 (1933)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): Gk. skleros, hard; achne, scale. The glumes are indurated.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe NEURACHNINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 40–90 cm long, wiry, 8–14 -noded. Culm-nodes glabrous. Lateral branches sparse. Leaves cauline. Leaf-sheaths smooth, glabrous on surface or pilose, outer margin hairy. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades 4.5–12 cm long, 3–6 mm wide, stiff. Leaf-blade surface ribbed, smooth or scabrous, glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, paucilateral, 1–2.5 cm long, bearing few fertile spikelets. Rhachis angular (subtriquetrous), scabrous on surface. Spikelet packing adaxial, lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.4–1 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, dorsally compressed, subacute, 4.3–4.6 mm long, falling entire. Spikelet callus glabrous, base truncate.

Glumes. Glumes two, dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.2–0.8 mm long, 0.05 length of spikelet, hyaline, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate or acute. Upper glume elliptic or oblong, 1 length of spikelet, scarious, without keels, 5 -veined. Upper glume surface villous. Upper glume margins eciliate or ciliate. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic or oblong, 1 length of fertile lemma, membranous, 5–7 -veined, glabrous or villous, ciliate on margins, acute. Fertile lemma elliptic, dorsally compressed, 4.1–4.5 mm long, coriaceous, without keel. Lemma lateral veins obscure. Lemma surface granulose, with distinct germination flap. Lemma margins flat, exposing palea. Lemma apex acute. Palea coriaceous, without keels.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp. Disseminule comprising a spikelet. Cleistogenes present, in upper sheaths.

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

Country /Province /State. **Malesia, Papuasia.** New Guinea PNG. New Guinea. **Australia.** Queensland. **TDWG4.** North.

Cleistochloa subjuncea C. E. Hubbard. *Hook. Ic. Pl.* 33, t. 3209 (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, Queensland. **Basionym or Replaced Name:** *Panicum subjunceum* Domin, *Bibliotheca Botanica* 85: 314, f. 70 (1915). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Sandhgel der Dividing Range vstlich von Pentland, Feb 1910, *Domin s.n.*.

Recent Synonyms: *Panicum subjunceum* Domin, non Ekm.(1911), *Biblioth. Bot.* 85: 314 (1915).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (188), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (164).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3209 (1933)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, K.Domin, *Bibliotheca Botanica* 85 (1915) (313, Fig.70 as *Panicum subjunceum*).

Derivation (Clifford & Bostock 2007): L. sub, approaching. Culms resembling those of certain *Juncus* species.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe NEURACHNINAE.

Habit, Vegetative Morphology. Perennial. Basal innovations extravaginal. Culms geniculately ascending, 30–60 cm long, wiry. Culm-internodes distally glabrous or pilose, with tubercle-based hairs. Lateral branches suffrutescent. Leaves cauline. Leaf-sheaths as wide as blade at the collar, without keel, ribbed, glabrous on surface or pilose, with tubercle-based hairs. Leaf-sheath oral hairs lacking or bearded. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades deciduous at the ligule, flat or convolute, 1–5 cm long, 1–3 mm wide, stiff. Leaf-blade surface ribbed, pilose, with tubercle-based hairs. Leaf-blade apex acute, callose.

Inflorescence. Inflorescence composed of racemes. Peduncle antrorsely scabrous above. Racemes 1, single, paucilateral, 0.7–2.5 cm long, bearing few fertile spikelets, bearing 2–6 fertile spikelets on each. Rhachis angular (subtriquetrous), scabrous on surface. Spikelet packing adaxial, lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, semiterete, 0.3–0.4 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 elliptic, dorsally compressed, subacute, 3.5–4.5 mm long, falling entire. Spikelet callus glabrous, base truncate.

Glumes. Glumes one the lower absent or obscure, shorter than spikelet, thinner than fertile lemma. Upper glume oblong, 0.8 length of adjacent fertile lemma, chartaceous, without keels, 5 -veined. Upper glume surface glabrous. Upper glume apex truncate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of fertile lemma, membranous, 7 -veined, ribbed, glabrous, truncate. Fertile lemma elliptic, dorsally compressed, 3.5–4.5 mm long, coriaceous, pallid, without keel, 5–7 -veined, more than 3-veined. Lemma surface granulose, with distinct germination flap. Lemma margins flat, exposing palea, eciliate or ciliolate, hairy above. Lemma apex acute. Palea oblong, involute, 1 length of lemma, coriaceous, 2 -veined, without keels. Palea apex acute.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2.5 mm long. Stigmas 2. Caryopsis with adherent pericarp, ovoid, 2.8 mm long. Embryo 0.3 length of caryopsis. Hilum punctiform. Endosperm farinose. Disseminule comprising a spikelet.

Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland, New South Wales.

TDWG4. North, Central, South East, Inland. Tablelands, Western Slopes.

Cleistogenes caespitosa (Keng) Packer. *Bot. Notiser*, cxiii. 292 (1960).

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:** *Kengia caespitosa* (Keng) Packer, *Bot. Notiser*, 113: 292 (1960). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Hebei: dry hill-sides, Wofusi, 29 Sept. 1920, *N.H. Cowdry 1003* (HT: NAS; IT: US-1062951).

Recent Synonyms: *Kengia caespitosa* (Keng) Packer, *Bot. Notiser*, 113: 292 (1960).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 647).

Derivation (Clifford & Bostock 2007): *L. caespes*, grass that has been cut; -osa, abundance. Habit tufted.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Cataphylls evident. Culms erect, 30–40 cm long, 1 mm diam., 7–8 -noded. Culm-internodes similar in length. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths tight, mostly shorter than adjacent culm internode or longer than adjacent culm internode, smooth. Leaf-sheath oral hairs ciliate, 2–3 mm long. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades erect or ascending, involute, 2.5–10 cm long, 1.5–3.5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, unilateral, 0.8–2.5 cm long. Central inflorescence axis 4–6 cm long. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 1–3 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 lanceolate, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.6–1.8 mm long, pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet, gaping. Lower glume ovate, 1–1.5 mm long, 0.4 length of upper glume, hyaline, 1-keeled, 0–1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex obtuse or acute. Upper glume lanceolate, 2.5–3.5 mm long, 0.5 length of adjacent fertile lemma, hyaline, 1-keeled, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.8–5.3 mm long, 1.6 mm wide, membranous, keeled, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface asperulous. Lemma margins pubescent, hairy below. Lemma apex entire, truncate or obtuse, awned, 1 -awned. Principal lemma awn 0.4–0.8 mm long overall. Palea 1 length of lemma, 2 -veined. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 1.8–2 mm long. Caryopsis with adherent pericarp.

Cleistogenes present, in upper sheaths.

N = 28 (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

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

TDWG4. Gansu, Hebei, Shaanxi, Shandong, Shanxi. Henan.

Cleistogenes festucacea (Honda) Packer. *Bot. Notiser*, cxiii. 292 (1960).

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:** *Cleistogenes striata* Honda, *Rep. First Sc. Exped. Manchoukuo*, Sect. 4 (4) (Index Fl. Jehol.) 100 (1936). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Liaoning: Chaoyang Xian, Jinzhou, 9 Aug. 1933, *Nakai, Honda & Kitagawa s.n.* (HT: TI).

Recent Synonyms: *Kengia festucacea* (Honda) Packer, *Bot. Notiser*, 113: 292 (1960).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 646).

Derivation (Clifford & Bostock 2007): L. -acea, resembling. Resembling *Festuca* in some respect, usually the habit or inflorescence.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms erect or geniculately ascending, 25–40 cm long, 1 mm diam. Culm-internodes similar in length. Culm-nodes glabrous. Leaf-sheaths tight, longer than adjacent culm internode, smooth, glabrous on surface. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades erect, convolute, 1–6 cm long, 1–2.2 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, erect, unilateral, 1–4 cm long. Central inflorescence axis 4–7 cm long. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 lanceolate, laterally compressed, 6.5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.2–1.5 mm long, pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet, gaping. Lower glume lanceolate, 2–3 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex obtuse. Upper glume lanceolate, 3.5–4.5 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate, 5–6 mm long, 1.8 mm wide, membranous, mid-green or purple, keeled, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface asperulous. Lemma margins ciliate, hairy below. Lemma hairs 1 mm long. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 1.5–2.5 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels scabrous. Palea apex dentate, 2 -fid, awned, awns 0.4 mm long. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2–2.5 mm long. Caryopsis with adherent pericarp.

Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

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

TDWG4. Gansu, Hebei, Shandong, Shanxi.

Cleistogenes gatacrei (Stapf) T.A. Cope. *Kew Bull.*, 35(3): 701 (1980).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

Basionym or Replaced Name: *Diplachne gatacrei* Stapf *Essai d'une Nouvelle Agrostographie* 80, pl. 16, f. 9 (1812)

Recent Synonyms: *Kengia gatacrei* (Stapf) T.A. Cope, *Kew Bull.*, 35(3): 701 (1980).

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

Derivation (Clifford & Bostock 2007): in honor of William Forbes Gatacre (1843–1906) Scottish-born British army officer.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms erect, 25–50 cm long. Leaves basal and cauline. Ligule a ciliolate membrane. Leaf-blades spreading or reflexed, 1.2–3 cm long, 1.5–2.5 mm wide, glaucous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, effuse, 3–7 cm long. Primary panicle branches 2–4.5 cm long, bearing 3–4 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 10–13 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 lanceolate, laterally compressed, 10–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite, 3–6 mm long, pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, (1.7–)3–4 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 oblong, 3.5–5 mm long, 0.75–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, 4.5–5.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins eciliate. Lemma apex dentate, 2 -fid, mucronate or awned, 1 -awned. Principal lemma awn from a

sinus, 0–1 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Caryopsis with adherent pericarp.

Cleistogenes present, in upper sheaths.

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

Country /Province /State. Western Asia. Iran. **Indian Subcontinent.** India, Pakistan.

Cleistogenes hackelii (Honda) Packer. *Bot. Notiser*, cxiii. 291 (1960).

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) (as *Kengia*).

TYPE from Japan. **Basionym or Replaced Name:** *Diplachne hackelii* Honda *J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot.* 3(1): 112–113 (1930)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Japan: Hondo: Shirako, Musashi Prov., 1880, *Matsumura 4* (HT: TI; IT: US) 16 syntypes cited.

Recent Synonyms: *Kengia hackelii* (Honda) Packer, *Bot. Notiser*, 113: 291 (1960). *Cleistogenes chinensis* (Maxim.) Packer, *Bot. Notiser*, 113: 291 (1960).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (265, Fig 100 as *Kengia*), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 650).

Derivation (Clifford & Bostock 2007): in honor of Eduard Hackel (1850–1926) Bohemian-born Austrian botanist with special interest in the grasses.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms erect, 30–100 cm long, 0.5–1.2 mm diam., 6–9 -noded. Leaves basal and cauline. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades 3–15 cm long, 3–10 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 2–3, borne along a central axis, unilateral, 1.5–3.5 cm long. Central inflorescence axis 4–8 cm long. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 lanceolate, laterally compressed, 5–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 0.7–2 mm long, 0.5–0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 1.5–3 mm long, 0.33–0.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–6 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins ciliate, hairy below. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 2–9 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels scabrous. Palea apex entire or dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 1.5–2 mm long. Caryopsis with adherent pericarp, lanceolate.

Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China, Eastern Asia. China South Central, Inner Mongolia, Manchuria, China North-Central, China Southeast. Japan, Korea. Japan Honshu, or Shikoku, or Kyushu.

TDWG4. Gansu, Hebei, Shaanxi, Shandong, Shanxi. Anhui, Fujian, Henan, Jiangsu, Zhejiang. Guizhou, Hubei, Sichuan.

Cleistogenes hancei (Keng) Packer. *Bot. Notiser*, cxiii. 292 (1960).

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 China. **Basionym or Replaced Name:** *Diplachne sinensis* Hance, *J. Bot.* 8(88): 76–77 (1870)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Hebei: Beijing, "in collibus", Aug. 1865, S.W. Williams 12572 (HT: BM).

Recent Synonyms: *Kengia hancei* (Keng) Packer., *Bot. Notiser*, 113: 292 (1960).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 651).

Derivation (Clifford & Bostock 2007): in honor of Henry Fletcher Hance (1827–1886) English botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms erect, robust, 80–100 cm long, 2–2.5 mm diam. Culm-internodes similar in length. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths tight, longer than adjacent culm internode, smooth. Ligule a fringe of hairs, 0.6 mm long. Leaf-blades convolute, 5–15 cm long, 4–7 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, unilateral, 2–5 cm long. Central inflorescence axis 10–14 cm long. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 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 lanceolate, laterally compressed, 9–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.8–2 mm long, pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 4.8–5.3 mm long, 0.8 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 6–6.5 mm long, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, (3–)5–7 -veined. Upper glume surface scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 6.5–7.5 mm long, 2.2 mm wide, membranous, keeled, 5–7 -veined, more than 3-veined. Lemma surface asperulous. Lemma margins pubescent, hairy below. Lemma hairs 0.3 mm long. Lemma apex dentate, 2 -fid, with lobes 0.3–0.5 mm long, awned, 1 -awned. Principal lemma awn from a sinus, 1.4–2 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Palea apex dentate, 2 -fid, awned. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Caryopsis with adherent pericarp.

Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russian far east, **China.** Primorye. Inner Mongolia, Manchuria, China North-Central, China Southeast.

TDWG4. Hebei, Shaanxi, Shandong, Shanxi. Anhui, Fujian, Henan, Jiangsu, Jiangxi.

Cleistogenes kitagawae Honda. *Rep. First Sci. Exped. Manch. sect. 4:* 99 (1936).

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 China. **Basionym or Replaced Name:** *Cleistogenes kitagawae* Honda *Rep. First Sci. Exped. Manchoukuo* Sect. IV 4: 99 (1936)

. T: <Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: China: Liaoning: Lingyuan Xian, 13 Aug. 1933, Nakai, Honda & Kitagawa *s.n.* (HT: TI).

Recent Synonyms: *Kengia kitagawai* (Honda) Packer, *Bot. Notiser*, 113: 292 (1960).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 648).

Derivation (Clifford & Bostock 2007): in honor of Masao Kitagawa (1909-) Japanese botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms erect or geniculately ascending, 30–50 cm long, 1 mm diam., 10–12 -noded. Culm-internodes similar in length. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths tight, longer than adjacent culm internode, smooth, glabrous on surface. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades erect, involute, 2–6 cm long, 1.5–3 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes, exserted or embraced at base by subtending leaf. Racemes borne along a central axis, erect, unilateral, 3–5 cm long. Central inflorescence axis 5–8 cm long. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 lanceolate, laterally compressed, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.2–1.6 mm long, pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume linear or lanceolate, 3–4 mm long, 0.66 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface smooth. Lower glume apex acute. Upper glume linear or lanceolate, 4.5–5.5 mm long, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume surface smooth. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–6 mm long, 1.5–1.8 mm wide, membranous, keeled, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma margins ciliolate, hairy below. Lemma hairs 0.4 mm long. Lemma apex dentate, 2 -fid, with lobes 0.2–0.3 mm long, awned, 1 -awned. Principal lemma awn from a sinus,

1.2–2.5 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Caryopsis with adherent pericarp. Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, Russian far east, **Middle Asia, China, Mongolia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Tuva. Amur, Khabarovsk, Primorye. Kazakhstan. Manchuria, China North-Central. Mongolia.

TDWG4. Hebei.

Cleistogenes longiflora (Keng ex P. C. Keng & Liou) Packer. *Bot. Notiser*, cxiii. 293 (1960).

Regarded by K as a synonym (*C. festucacea*).

Basionym or Replaced Name: *Cleistogenes striata* Honda, *Rep. First Sc. Exped. Manchoukuo*, Sect. 4 (4) (Index Fl. Jehol.) 100 (1936). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Hebei: Laiyuan Xian, Baishi Shan, 810 m, 13 July 1934, *J.M. Liu 2823* (HT: NAS).

Recent Synonyms: *Kengia longiflora* (Keng ex P. C. Keng & Liou) Packer, *Bot. Notiser*, 113: 293 (1960).

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

Derivation (Clifford & Bostock 2007): *L. longus*, long; flos, flower. Having long spikelets.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 45 cm long, 0.5 mm diam. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs bearded, 3 mm long. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades 2–7.5 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, ascending or spreading, unilateral, 3.5–5.5 cm long, bearing few fertile spikelets, bearing 3–5 fertile spikelets on each. Central inflorescence axis 7–11 cm long. Rhachis scaberulous on margins. Spikelet packing lax. Raceme-bases pilose. 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, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2 mm long, scaberulous. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 2–4 mm long, 0.5–0.66 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, 4–6 mm long, 0.66–0.75 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 lanceolate, 6–7 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma midvein scabrous. Lemma margins pubescent. Lemma apex entire, awned, 1 -awned. Principal lemma awn 2 mm long overall. Palea 2 -veined. Palea keels scabrous, adorned above, with 0.66 of their length adorned. Palea apex with excurrent keel veins. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2.5 mm long. Caryopsis with adherent pericarp. Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

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

TDWG4. Hebei.

Cleistogenes mucronata (Keng ex P. C. Keng & Liou) Packer. *Bot. Notiser*, cxiii. 293 (1960).

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: *Cleistogenes gracilis* P. C. Keng, *Acta Bot. Sin.* 9: 69 (1960). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Gansu: without specific locality, *Z.B. Wang s.n.* (HT: NAS; IT: LE (fragm.)).

Recent Synonyms: *Kengia mucronata* (Keng ex P. C. Keng & Liou) Packer, *Bot. Notiser*, 113: 293 (1960). *Cleistogenes gracilis* (Keng ex P. C. Keng & Liou) Packer, *Bot. Notiser*, 113: 293 (1960).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 645).

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 Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 37–45 cm long, 0.5 mm diam. Culm-internodes smooth, distally glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs bearded, 4 mm long. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades involute, 1.1–6 cm long, 1–1.5 mm wide, stiff. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, erect or ascending, unilateral, 2–4 cm long, bearing few fertile spikelets. Central inflorescence axis 8–11 cm long. Rhachis scaberulous on margins. Spikelet packing lax. Raceme-bases pilose. 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, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long, scaberulous. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 3 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, 4 mm long, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma midvein scaberulous. Lemma lateral veins obscure. Lemma margins pubescent. Lemma apex entire, mucronate. Palea 2 -veined. Palea keels scabrous, adorned above, with 0.33 of their length adorned. Palea apex emarginate or truncate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2 mm long, yellow. Caryopsis with adherent pericarp.

Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. Inner Mongolia, China North-Central, Qinghai, China Southeast.

TDWG4. Gansu, Shaanxi, Shanxi. Henan.

Cleistogenes nedoluzhkoii Tzvelev. *Bot. Zhurn. (Moscow & Leningrad)* 87(7): 115 (2002).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Tzvelev N. 224*, Russia: Primorskje Prov.: Partizanskaja River (LE).

Recent Synonyms: *Kengia nedoluzhkoii* (Tzvelev) Veldkamp, *Reinwardtia* 12(2): 138 (2004).

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

Derivation (Clifford & Bostock 2007): In honor of Valeryi Aexeyevich Nedolushko (1953–2001) Russian plant ecologist and Botanical Gardens Administrator.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russia. Primorye.

Cleistogenes polyphylla Keng ex Keng f. & L. Liou. *Acta Bot. Sin.* 9(1): 69 (1960).

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: Hebei: Beidaihe, riverside, 20 Aug. 1951, *F.Z. Wang 122* (HT: NAS).

Recent Synonyms: *Kengia polyphylla* (Keng ex P. C. Keng & Liou) Packer, *Bot. Notiser*, 113: 293 (1960).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 649).

Derivation (Clifford & Bostock 2007): Gk. polys, several; phyllon, leaf. Culms many-leaved in comparison with related species.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 15–35 cm long, 1 mm diam. Culm-internodes smooth. Lateral branches lacking. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 0.5 mm long. Leaf-blades erect, flat or involute, 2–6.5 cm long, 2–4 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes, without bracts or bracteate at branch bases. Racemes borne along a central axis, unilateral, 2–4 cm long, bearing few fertile spikelets. Central inflorescence axis 4.5–6.5 cm long. Rhachis scabrous on margins. Spikelet packing lax. 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 lanceolate, laterally compressed, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate or oblong, 1.5–2(–4) mm long, 0.5 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume lateral veins absent or distinct. Lower glume apex truncate or acute. Upper glume lanceolate or oblong, 3–4(–5) mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 1–5 -veined. Upper glume lateral veins absent or distinct. Upper glume apex obtuse or acute.

Florets. Fertile lemma lanceolate, 4–5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy at base. Lemma margins pubescent. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 0.5–1.5 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2 mm long. Caryopsis with adherent pericarp. Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

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

TDWG4. Hebei, Shaanxi, Shandong, Shanxi. Henan.

Cleistogenes ramiflora Keng f. & C.P. Wang. *Bull. Bot. Res., Harbin* 6 (1): 175–176, pl. 1 (1986).

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: Nei Monggol: Daqing Shan, ad declivitatem, 29 Aug. 1960, C.P. Wang 69 (HT: NMAC).

Recent Synonyms: *Kengia ramiflora* (Keng & C.P.Wang) H.Yu & N.X.Zhao, *Ann. Bot. Fenn.* 42(1): 53 (2005).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 644).

Derivation (Clifford & Bostock 2007): *L. ramus*, branch; *flos*, flower.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 25–35 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Ligule a fringe of hairs. Leaf-blades flat or involute, 3–9 cm long, 2 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, unilateral, 2–4 cm long, bearing few fertile spikelets. Central inflorescence axis 5–12 cm long. Spikelet packing lax. 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 lanceolate, laterally compressed, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 2–4 mm long, 0.5–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4–5 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–5.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma apex entire, muticous or mucronate. Palea 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 3 mm long, purple. Caryopsis with adherent pericarp.

Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. Inner Mongolia.

TDWG4.

Cleistogenes serotina (L.) Packer. *Bot. Notiser*, cxiii. 291 (1960).

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) (& as *C. bulgarica*).

Basionym or Replaced Name: *Festuca serotina* L., *Sp. Pl.* ed. 2: 111 (1762) .

Recent Synonyms: *Kengia serotina* (L.) Packer, *Bot. Notiser*, 113: 291 (1960).

Illustrations (Books): G.Hegi, *Flora von Mitteleuropa* 1 (1909) (as *Diplachne*).

Derivation (Clifford & Bostock 2007): L. late. Flowering late in the season.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, culms solitary. Basal innovations extravaginal. Culms geniculately ascending, 30–60(–90) cm long, 1 mm diam., 10–16 -noded. Culm-internodes similar in length. Culm-nodes brown, glabrous. Leaf-sheaths tight, longer than adjacent culm internode, smooth or scaberulous. Ligule a fringe of hairs, 0.4 mm long. Leaf-blades spreading, flat or involute, 4–8 cm long, 3–5 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, spreading, unilateral, 1–4 cm long, bearing 6–8 fertile spikelets on each. Central inflorescence axis 4–8 cm long. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 1–4 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 lanceolate, laterally compressed, 8–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.2–1.5 mm long, pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 2.3–2.8 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume surface scabrous. Lower glume apex acute. Upper glume lanceolate, 3–4 mm long, 0.66 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume surface scabrous. Upper glume apex acute or acuminate.

Florets. Fertile lemma lanceolate, 5–6 mm long, membranous, mid-green or purple, keeled, 5 -veined, more than 3-veined. Lemma surface asperulous. Lemma margins ciliate, hairy below. Lemma hairs 0.5 mm long. Lemma apex dentate, 2 -fid, with lobes 0.1 mm long, mucronate or awned, 1 -awned. Principal lemma awn from a sinus, 0.5–1 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels scabrous. Palea surface pubescent, hairy on flanks. Palea apex dentate, 2 -fid, with excurrent keel veins. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2.5 mm long. Caryopsis with adherent pericarp. Cleistogenes present, in upper sheaths.

$2n = 40$ (1 ref TROPICOS).

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

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

Country /Province /State. : Austria, Czechoslovakia, Hungary, Switzerland. : France, Spain. : Albania, Bulgaria, Greece, Italy, Romania, Sicily, Turkey Europe, Yugoslavia. Krym, Central European Russia, East European Russia, South European Russia, Northwest European Russia. **Middle Asia, Caucasus, Western Asia, China.** Tadjhikistan. Manchuria, China North-Central, China Southeast.

TDWG4. Hebei, Shandong, Shanxi. Jiangsu.

Cleistogenes songorica (Roshev.) Packer. *Bot. Notiser*, cxiii. 293 (1960).

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).

Recent Synonyms: *Kengia songorica* (Roshev.) Packer, *Bot. Notiser*, 113: 293 (1960).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 642).

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Soongaria, a far eastern Province of Russia, now Sungaria.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms erect, 20–30 cm long, 1 mm diam., 4–8 -noded. Culm-internodes similar in length. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths tight, longer than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs ciliate, 2–3 mm long. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades 2–8 cm long, 1.5–2.5 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, erect or ascending, unilateral, 0.5–2.5 cm long, bearing few fertile spikelets. Central inflorescence axis 3–6 cm long. Spikelet packing lax. 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 lanceolate, laterally compressed, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.8–1.2 mm long, pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet, gaping. Lower glume lanceolate, 2.2–3 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, muticous or mucronate. Upper glume lanceolate, 3–3.8 mm long, 0.5–0.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume surface scabrous. Upper glume apex acute, muticous or mucronate.

Florets. Fertile lemma ovate, 3.3–4 mm long, membranous, keeled, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface asperulous. Lemma margins pubescent, hairy below. Lemma apex entire, obtuse or acute, mucronate, 1 -awned. Principal lemma awn 0.1–0.3 mm long overall. Palea 1 length of lemma, 2 -veined. Palea surface pilose, hairy on flanks. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2 mm long. Caryopsis with adherent pericarp. Cleistogenes present, in upper sheaths.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, **Middle Asia, China, Mongolia, Russia.** Altay, Irkutsk, Tuva, Kazakhstan, Kirgizistan, Turkmenistan, Uzbekistan. Inner Mongolia, China North-Central, Qinghai, China Southeast, Xinjiang. Mongolia.

TDWG4. Gansu, Shaanxi. Henan.

Cleistogenes squarrosa (Trin.) Packer. *Bot. Notiser*, cxiii. 292 (1960).

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

Basionym or Replaced Name: *Molinia squarrosa* Trin. ex Ledeb., *Fl. Alt.* 1: 105. (1829).

Recent Synonyms: *Kengia squarrosa* (Trin.) Packer, *Bot. Notiser*, 113: 292 (1960).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 643).

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, mat forming. Basal innovations extravaginal. Culms geniculately ascending, 15–25 cm long, 0.5–1 mm diam., 6–8 -noded. Culm-internodes unequal, the upper longer, 5–15 cm long. Culm-nodes glabrous. Lateral branches sparse. Leaf-sheaths loose, longer than adjacent culm internode, glabrous on surface. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades linear or lanceolate, 1–5 cm long, 0.5–1.5 mm wide. Leaf-blade surface scabrous. Leaf-blade margins scabrous, ciliate, hairy at base. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes single or borne along a central axis, unilateral, 0.5–1.2 cm long or 3–4 cm long (when single), bearing few fertile spikelets, bearing 1–2 fertile spikelets on each. Central inflorescence axis 3–4 cm long. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.5–1 mm long.

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, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–1.8 mm long, pubescent, hairy at tip. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 2–2.4 mm long, 0.6 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex obtuse or acute. Upper glume lanceolate, 3.5–4 mm long, 0.4 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume surface scabrous. Upper glume apex obtuse or acute.

Florets. Fertile lemma lanceolate, 5.2–6 mm long, 1.2–1.4 mm wide, membranous, keeled, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface asperulous. Lemma margins ciliate, hairy below. Lemma hairs 0.7–1 mm long. Lemma apex dentate, 2 -fid, with filiform lobes, with lobes 0.6 mm long, awned, 1 -awned. Principal lemma awn from a sinus, 3–4 mm long overall. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Palea apex dentate, 2 -fid, awned, awns 0.8 mm long. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 2.5 mm long. Caryopsis with adherent pericarp. Cleistogenes present, in upper sheaths.

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

Region. Eastern Europe.

Country /Province /State. Central European Russia, East European Russia, South European Russia, Northwest European Russia, Ukraine. Siberia, Russian far east, **Middle Asia, Caucasus, China, Mongolia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Tuva. Primorye. Kazakhstan. Inner Mongolia, Manchuria, China North-Central, Qinghai, Xinjiang. Mongolia.

TDWG4. Gansu, Hebei, Shaanxi, Shandong, Shanxi. Henan.

Coelachne africana Pilger. *R. E. Fries, Wiss. Ergebn. Schwed. Rhod.-Kongo-Exped.* 1911–12, 208 (1916).

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: ST: *Stolz 1221*, 24 Apr 1912, Tanzania (K, WAG).

ST: *Fries 1105*, Zambia (B).

ST: *Fries 1217*, Zambia (B).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (265, Fig. 197), R.M.Phill, F.T.E.A., *Gramineae* (2(1974):437, Fig.119), G.V.Pope et al., *Flora Zambesiaca* 10 (3(1989):196, T. 52), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (273, Fig. 100), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (284, Fig. 113).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Africa.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms prostrate, 5–20 cm long, rooting from lower nodes. Ligule a fringe of hairs. Leaf-blades lanceolate, 0.6–2 cm long, 1.5–4.5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate to ovate, 1.2–6 cm long, bearing many spikelets or few spikelets. Primary panicle branches spreading, simple, 1–2 cm long, bearing 2–5 fertile spikelets on each lower branch, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.6–0.8 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.8 length of upper glume, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume apex obtuse. Upper glume elliptic, 0.6–0.7 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex obtuse.

Florets. Fertile florets with the lowest dissimilar. Lowest fertile lemma ovate, 1.1 length of adjacent lemma, firmer than adjacent lemma. Fertile lemma elliptic, 1.5–2 mm long, membranous, without keel, 0–3 -veined, 0–3 -veined. Lemma surface pubescent. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea surface pubescent.

Flower and Fruit. Anthers 2, 0.5–0.9 mm long. Caryopsis with adherent pericarp, ovoid. Embryo 0.3 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Western Indian ocean. Rwanda, DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Malawi, Mozambique, Zambia, Zimbabwe. Madagascar.

Coelachne auquieri P. Ndabaneze. *Bull. Jard. Bot. Nation. Belg.*, 53: 285 (1983).

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

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

Derivation (Clifford & Bostock 2007): in honor of Paul Auquier (1939–1980) Belgian botanist.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual or perennial. Culms erect or geniculately ascending, 30–50 cm long, rooting from lower nodes. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades linear or lanceolate, 2.5–5.5 cm long, 2–4 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 10–20 cm long, 3–4 cm wide. Primary panicle branches ascending or spreading or reflexed, 2–4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 4–10 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, laterally compressed, 2–2.7 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, 1 mm long, 0.66 length of upper glume, 0.5 length of spikelet, membranous, without keels. Lower glume apex obtuse. Upper glume ovate, 1.5 mm long, 0.75 length of spikelet, membranous, without keels. Upper glume apex obtuse.

Florets. Fertile lemma elliptic or ovate, 2 mm long, membranous, without keel, 0–3 -veined. Lemma surface pubescent, hairy at base. Lemma apex acute. Palea 1.5 mm long, 0.75 length of lemma, 2 -veined. Palea surface pubescent, hairy on back or on margins, hairy at base.

Flower and Fruit. Anthers 2, 0.5–0.9 mm long. Caryopsis with adherent pericarp, ovoid, 0.5–1 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa. Rwanda.

Coelachne friesiorum C. E. Hubbard. *Kew Bull.* 1935, 307. (1935).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Fries 2407*, Kenya: Mt. Aberdare, near Sattima, in swamp (K).

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

Derivation (Clifford & Bostock 2007): in honor of Thore Christian Elias Fries (1886–1930) and Robert Elias Fries (1876–1966) Swedish botanists.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms prostrate, 2.5–5 cm long, rooting from lower nodes. Ligule a fringe of hairs. Leaf-blades lanceolate, 0.4–1 cm long, 0.5–3.5 mm wide.

Inflorescence. Inflorescence a panicle, comprising 3–15 fertile spikelets. Panicle contracted, linear, 0.6–3 cm long, bearing few spikelets. Primary panicle branches appressed, simple, 0.4–0.8 cm long, bearing 1–3 fertile spikelets on each lower branch, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.6–0.8 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.8 length of upper glume, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume apex obtuse. Upper glume elliptic, 0.6–0.7 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex obtuse.

Florets. Fertile florets with the lowest dissimilar. Lowest fertile lemma elliptic, 1.1 length of adjacent lemma, firmer than adjacent lemma. Fertile lemma elliptic, 2–2.2 mm long, membranous, without keel, 0–3 -veined, 0–3 -veined. Lemma surface pubescent. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea surface pubescent.

Flower and Fruit. Anthers 2, 1 mm long. Caryopsis with adherent pericarp, ovoid. Embryo 0.3 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa. Kenya.

Coelachne ghatika Naik. *Reinwardtia* 9 (4): 393, f. 1 (1980).

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: Western Ghats: Amboli hill station, 13 Sep 1971, *Naik 1300a* (HT: Herb. MU Aurangabad).

Illustrations (Journals): *Reinwardtia* (9: 394, fig.1 (1977)).

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms prostrate, 8–15 cm long, rooting from lower nodes. Culm-nodes pubescent. Leaf-sheaths 5–8 cm long, pilose. Ligule a fringe of hairs. Leaf-blade base broadly rounded. Leaf-blades linear, 6.3 cm long, 3–4 mm wide. Leaf-blade surface pilose, hairy adaxially. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, linear, effuse, 5–8 cm long. Primary panicle branches spreading, 0.5–1.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–2 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 elliptic, laterally compressed, 1–1.25 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, 0.5 mm long, 0.8 length of upper glume, 0.5–0.8 length of spikelet, membranous, without keels. Lower glume surface pubescent. Upper glume ovate, 1 mm long, 0.9 length of spikelet, membranous, without keels. Upper glume surface pubescent.

Florets. Fertile florets with the lowest dissimilar. Lowest fertile lemma bisexual, oblong, 1.1 mm long, hairy. Fertile lemma ovate, 1.25 mm long, membranous, without keel. Lemma surface pubescent.

Flower and Fruit. Anthers 2–3. Caryopsis with adherent pericarp, ovoid, 0.8 mm long.

Distribution (TDWG). Continent. Tropical Asia.
Country /Province /State. Indian Subcontinent. India.

Coelachne hackelii Merrill. *Philipp. Gov. Lab. Bur. Bull.* 29: 8 (1905).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Philippines: Baguio, Province of Benguet, Luzon, Mar 1904, forming dense floating mats on stagnant or slowly running waters, *A.D.E. Elmer* 5752 (HT: PNH).

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

Derivation (Clifford & Bostock 2007): in honor of Eduard Hackel (1850–1926) Bohemian-born Austrian botanist with special interest in the grasses.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual, mat forming. Culms prostrate, weak, 3–5 cm long, rooting from lower nodes. Culm-nodes bearded. Leaf-sheaths 1 cm long, mostly shorter than adjacent culm internode, glabrous on surface. Ligule absent. Leaf-blades lanceolate, 1–1.5 cm long, 2 mm wide. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, 1–1.5 cm long. Primary panicle branches appressed, 0.2–0.4 cm long, bearing 2–4 fertile spikelets on each lower branch, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 or ovate, laterally compressed, 2.5 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, 1–1.2 mm long, 0.5 length of spikelet, membranous, without keels. Lower glume surface puberulous, hairy at apex. Lower glume apex obtuse. Upper glume ovate, 1–1.2 mm long, 0.5 length of spikelet, membranous, without keels. Upper glume surface puberulous, hairy at apex. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 2–2.5 mm long, membranous, without keel. Lemma surface pubescent, hairy all along or below. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea surface glabrous.

Flower and Fruit. Caryopsis with adherent pericarp, 1 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Coelachne infirma Buse. *Miq. Pl. Jungh.* 350 (1854).

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: T: *F.W. Junghuhn s.n.*, Indonesia: Java, Jawa Tengah, Dieng (L).

IT: *F.W. Junghuhn 117a*, Indonesia: Java (L).

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

Derivation (Clifford & Bostock 2007): *L. lax*, weak. Culms decumbent.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 10–20 cm long. Ligule a fringe of hairs. Leaf-blades lanceolate, 1–3 cm long, 1–3 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, linear or oblong, 3–4 cm long, contracted about primary branches. Primary panicle branches spreading. Panicle branches stiff, straight. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 or ovate, laterally compressed, 2 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 1 mm long, 0.8 length of upper glume, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex obtuse. Upper glume oblong, 1.2 mm long, 0.66 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex obtuse.

Florets. Fertile florets female (upper), with the lowest dissimilar. Lowest fertile lemma bisexual, elliptic, 2 mm long, 1.3 length of adjacent lemma, firmer than adjacent lemma, glabrous. Fertile lemma elliptic, 1.5 mm long, chartaceous, without keel. Lemma surface pubescent. Lemma apex acute. Palea 1 length of lemma.

Flower and Fruit. Anthers 2. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Africa, Tropical Asia.

Country /Province /State. **Western Indian ocean.** Madagascar. **Indian Subcontinent, Malasia, Papuaia.** India, Sri Lanka. Java, Moluccas, Philippines, Sulawesi, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea.

Coelachne japonica Hack. *Bull. Herb. Boiss.* 7: 701 (1899).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (137, Fig 44).

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 Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual, mat forming. Culms decumbent, 5–20 cm long, 0.5–0.7 mm diam. Culm-nodes pubescent. Ligule absent. Leaf-blades lanceolate, 1–3 cm long, 2–6 mm wide, flaccid.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle open, ovate, 1.5–3 cm long, 1–2 cm wide. Primary panicle branches spreading, simple, bearing 1–3 fertile spikelets on each lower branch, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1–2 fertile florets, without 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 elliptic, laterally compressed, 2.2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.7–0.8 mm long, 0.6–0.7 length of upper glume, membranous, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 1–1.2 mm long, 0.4–0.6 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 3 -veined. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 2.2–2.5 mm long, membranous, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex obtuse. Palea 1 length of lemma, hyaline, 2 -veined.

Flower and Fruit. Anthers 2, 0.3 mm long. Caryopsis with adherent pericarp, ellipsoid, 1 mm long.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. **Eastern Asia.** Japan. Japan Honshu, or Kyushu.

Coelachne minuta Bor. *Journ. Bombay Nat. Hist. Soc.* 58: 317 (1961).

Accepted by: 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: IT: *H. Santapau* 22731, 14 Sep 1958, India: Bombay (US-3168190 (fragm.)).

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

Derivation (Clifford & Bostock 2007): L. very small. Smaller than usual in some respect.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual. Culms 5–8 cm long. Ligule a fringe of hairs. Leaf-blades lanceolate or oblong, 1–2 cm long, 3–5 mm wide. Leaf-blade surface scaberulous, rough on both sides, pilose, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 2–5 cm long, 1–2.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 ovate, laterally compressed, 1.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume elliptic or orbicular, 0.25 mm long, 0.5 length of upper glume, 0.1 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex truncate. Upper glume elliptic or orbicular, 0.5 mm long, 0.25 length of spikelet, membranous, without keels, 1–2 -veined. Upper glume apex obtuse.

Florets. Fertile florets female (upper), with the lowest dissimilar. Lowest fertile lemma bisexual, elliptic, 1.25 mm long, 1.75 length of adjacent lemma, firmer than adjacent lemma, hairy. Fertile lemma elliptic, 0.7 mm long, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex acute. Palea 1 length of lemma.

Flower and Fruit. Anthers 2, 0.5 mm long. Caryopsis with adherent pericarp, ellipsoid. Embryo 0.33 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Thailand.

TDWG4. Maharashtra.

Coelachne perpusilla (Nees ex Steud.) Thw. *Enum. Pl. Zeyl.* 373 (1864).

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 perpusillum* Arn. ex Steud. *Syn. Pl. Glumac.* 1: 96 (1854)

. 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), K.M.Matthew, *Flora Palni Hills* (1996) (800, Pl 800).

Derivation (Clifford & Bostock 2007): L. very small. Dwarf annual.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual, mat forming. Culms prostrate, weak, 8–30 cm long, rooting from lower nodes. Culm-nodes bearded. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 0.8–2.5 cm long, 1–3 mm wide. Leaf-blade surface glabrous or pubescent.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 1–6 cm long. Primary panicle branches spreading, simple, 0.6–1.2 cm long, bearing 1–3 fertile spikelets on each lower branch, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, 1–2.5 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, laterally compressed, 2.5–3 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, 1.2–1.5 mm long, 0.8 length of upper glume, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume apex obtuse. Upper glume ovate, 1.2–1.5 mm long, 0.5 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex obtuse.

Florets. Fertile florets female (upper), with the lowest dissimilar. Lowest fertile lemma bisexual, ovate, 1.1 length of adjacent lemma, firmer than adjacent lemma, hairy (below). Fertile lemma ovate, 2 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma lateral veins obscure. Lemma surface pubescent, hairy below. Lemma margins ciliolate. Lemma apex acute. Palea 1 length of lemma, 2 -veined.

Flower and Fruit. Anthers 1.2–1.3 mm long. Caryopsis with adherent pericarp, oblong or ovoid, 0.7–0.9 mm long. Embryo 0.33 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China, Malesia. India, Sri Lanka. Thailand, Vietnam. Philippines.

TDWG4. Kerala. Tamilnadu.

Coelachne pulchella R. Br. *Prod.* 187. (1810).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass.* Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3440 (1943)).

Images: D.Sharp & B.K.Simon, *AusGrass.* Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. pretty. Attractive in some respect, usually the inflorescence.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending or decumbent, slender, 5–15 cm long. Culm-nodes pubescent. Ligule a fringe of hairs or absent. Leaf-blades lanceolate, 0.8–2.5 cm long, 2–5 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, linear or oblong, 4–10 cm long. Primary panicle branches spreading, 0.5–1 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.5–1 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 or ovate, laterally compressed, 1.5–1.8 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 elliptic or orbicular, 1–1.2 mm long, 1 length of upper glume, 0.66 length of spikelet, membranous, without keels, 3–5 -veined. Lower glume apex obtuse. Upper glume orbicular, 1–1.3 mm long, 0.66 length of spikelet, membranous, without keels, 3–7 -veined. Upper glume apex obtuse.

Florets. Fertile florets female (upper), with the lowest dissimilar. Lowest fertile lemma bisexual, elliptic, 1.7 mm long, 1.7 length of adjacent lemma, firmer than adjacent lemma, glabrous or hairy. Fertile lemma elliptic or ovate, 1 mm long, chartaceous, without keel, 0 -veined, 0–3 -veined, without veins. Lemma margins ciliate, hairy below. Lemma apex obtuse. Palea 1 length of lemma. Palea surface puberulous.

Flower and Fruit. Anthers 2, 0.3–0.4 mm long. Caryopsis with adherent pericarp, ovoid, 0.6–0.8 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia, Australasia.

Country /Province /State. Indo-China. Myanmar. **Australia.** Northern Territory, Queensland.

TDWG4. Darwin & Gulf. North.

Coelachne simpliciuscula (Steud.) Munro ex Benth. *Journ. Linn. Soc.* 19: 93 (1881).

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. **Basionym or Replaced Name:** *Panicum simpliciusculum* Wight & Arn. ex Steud. *Syn. Pl. Glumac.* 1: 96 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sri Lanka:, *Hrbo. Wight 2044* (HT: ?).

Illustrations (Books): N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960), K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 831 & 832), H.J.Noltie, *The Grasses of Bhutan* (2000) (745, Fig. 47), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 783).

Derivation (Clifford & Bostock 2007): *L. simplicior*, simpler; -ula, diminutive.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual, mat forming. Culms prostrate, weak, 5–15 cm long, rooting from lower nodes. Culm-nodes bearded. Leaf-sheaths 1–1.5 cm long. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 1.5–2.5 cm long, 5 mm wide. Leaf-blade midrib indistinct. Leaf-blade surface glabrous or pubescent, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 5–10 cm long. Primary panicle branches 0.5–1.5 cm long, bearing 2–9 fertile spikelets on each lower branch, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.2–0.8 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 or ovate, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus 0.6 mm long, glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume orbicular, 1.2 mm long, 0.8 length of upper glume, 0.5 length of spikelet, membranous, without keels, 1–3 -veined. Lower glume apex obtuse. Upper glume orbicular, 1.5 mm long, 0.5 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex obtuse.

Florets. Fertile florets female (upper), with the lowest dissimilar. Lowest fertile lemma bisexual, ovate, 1.5 length of adjacent lemma, firmer than adjacent lemma, hairy (below), mucronate. Fertile lemma ovate, 1 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma lateral veins obscure. Lemma surface pubescent, hairy below. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea keels ciliate.

Flower and Fruit. Anthers 2, 0.6–1.1 mm long. Caryopsis with adherent pericarp, fusiform, dark brown. Embryo 0.33 length of caryopsis. Hilum punctiform.

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

Country /Province /State. Western Indian ocean. Madagascar. **China.** China South Central, China Southeast. **Indian Subcontinent, Indo-China, Malesia.** Assam, Eastern Himalaya, India, Nepal, Sri Lanka. Cambodia, Myanmar, Thailand, Vietnam. Malaya, Philippines.

TDWG4. Guangdong. Guizhou, Sichuan, Yunnan. Bhutan, Sikkim. Assam, Meghalaya, Nagaland. Andhra Pradesh, Bihar, Kerala, Karnataka. Madhya Pradesh, Maharashtra, Orissa, Tamilnadu, West Bengal.

Coelachne soerenseii Bor. *Dansk Bot. Arkiv*, 20: 149 (1962).

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

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

Derivation (Clifford & Bostock 2007): in honor of Thorvald Sxrensen (1902–1973) Danish forester.

Classification. Subfamily Micrairoideae. Tribe Isachneae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 5–10 cm long, rooting from lower nodes. Culm-nodes bearded. Ligule a fringe of hairs. Leaf-blades lanceolate, 1–2.5 cm long, 2–4 mm wide. Leaf-blade margins scaberulous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, linear or oblong, effuse, 5–15 cm long, 2–4 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 ovate, laterally compressed, 1–1.25 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma, gaping. Lower glume elliptic, 1 mm long, 1 length of upper glume, 0.8–1 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume elliptic, 1 mm long, 0.8–1 length of spikelet, membranous, without keels, 5 -veined. Upper glume apex acute.

Florets. Fertile florets female (upper), with the lowest dissimilar. Lowest fertile lemma bisexual, elliptic, 1–1.25 mm long, 1.5 length of adjacent lemma, firmer than adjacent lemma. Fertile lemma elliptic, 0.75 mm long, chartaceous, without keel. Lemma apex obtuse. Palea 1 length of lemma. Palea keels scaberulous.

Flower and Fruit. Anthers 2, 0.25 mm long. Caryopsis with adherent pericarp, ellipsoid, 0.5 mm long. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Thailand.

Coelachyum brevifolium Hochst. & Nees. *Linnaea* 16(2): 221 (1842).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Arabia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: W. Schimper 799, 30 Dec 1837, Saudi Arabia: Jeddah (K, US-945358).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (198, Fig. 121 as *C. oligobrachiatum*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (134, Fig. 55), L.Boulos, *Flora of Egypt* 4 (2005) (264, Pl. 78).

Derivation (Clifford & Bostock 2007): *L. brevis*, short; folium, leaf. Leaf-blades shorter than those of some other species in the genus or relative to the length of the culm.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Culms geniculately ascending or decumbent, 5–45 cm long. Ligule an eciliate membrane. Leaf-blades 2–6 cm long, 2–5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 3–5, digitate, unilateral, 1–5 cm long. Central inflorescence axis 0–3 cm long. Rhachis angular. Spikelet packing broadside to rhachis, irregular. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 ovate, laterally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, parallel to lemmas. Lower glume elliptic, 1.5–2 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex obtuse. Upper glume elliptic, 1.5–2 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex obtuse.

Florets. Fertile lemma orbicular, 1.5–2 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins prominent. Lemma surface glabrous or puberulous. Lemma apex obtuse, mucicous or mucronate. Palea orbicular, 0.9–1 length of lemma, 2 -veined. Palea keels smooth, eciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 0.5 mm long. Caryopsis with free soft pericarp, reniform, flattened, concavo-convex, 1 mm long, rugose.

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

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa. Algeria, Egypt. Mali, Mauritania, Nigeria. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. **Arabian Peninsula.** Gulf States, Oman, Saudi Arabia.

Coelachyrum lagopoides (N. L. Burm.) Senaratna. *Grasses Ceylon* (Perad. Man., No. 8) 79 (1956).

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: *Cynosurus lagopoides* Burm. f. *Fl. Indica* 29 (1768).

Recent Synonyms: *Coelachyropsis lagopoides* (Burm.f.) Bor, *Ann. Naturhist. Mus. Wien*, 75: 25 (1971).

Illustrations (Books): K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 833).

Derivation (Clifford & Bostock 2007): Gk. lagos, hare; pous, foot; -oides, resembling. The inflorescence resembles a hare's foot.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose, clumped loosely. Culms decumbent, 7–18 cm long, rooting from lower nodes. Lateral branches ample. Ligule a ciliolate membrane. Leaf-blade base broadly rounded or cordate. Leaf-blades linear or lanceolate, 1.2–5 cm long, 3–4 mm wide. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Racemes 2–8, digitate, closely spaced, in a head, oblong, unilateral, 0.4–0.6 cm long, bearing few fertile spikelets, bearing 2–9 fertile spikelets on each. Spikelet packing broadside to rachis, crowded, 2 -rowed. Spikelets 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 ovate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume ovate, 0.66 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume apex acuminate, mucronate. Upper glume ovate, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 3–7 -veined. Upper glume apex acuminate, mucronate.

Florets. Fertile lemma ovate, 2.5–3.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy below. Lemma margins ciliate, hairy below. Lemma hairs 0.5 mm long. Lemma apex cuspidate, mucronate. Palea 2 -veined. Palea keels smooth, ciliate, adorned below. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Caryopsis with free soft pericarp, ovoid, flattened, concavo-convex, 1.2 mm long, dark brown or red, rugose.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India, Sri Lanka.

Coelachyrum longiglume Napper. *Kirkia*, 3: 113 (1965).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Kenya.

Illustrations (Books): R.M.Phillips, F.T.E.A., *Gramineae* (2(1974):247, Fig.68), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (134, Fig 55), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (187, Fig 98).

Derivation (Clifford & Bostock 2007): L. longus, long; gluma, husk. Spikelets with long glumes and or lemmas.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Culms decumbent, 17–68 cm long. Ligule an eciliate membrane, 1 mm long. Leaf-blades 6–16 cm long, 2.5–4 mm wide. Leaf-blade surface smooth, glabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 6–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, scaberulous.

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, laterally compressed, 5.4–6.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, parallel to lemmas. Lower glume lanceolate or elliptic, 2.8–5 mm long, 0.7–0.9 length of upper glume, membranous, without keels, 3 -veined. Lower glume lateral veins ribbed. Lower glume apex acute. Upper glume elliptic or oblong, 3.6–5.7 mm long, 1.2–1.3 length

of adjacent fertile lemma, membranous, without keels, 3–4 -veined. Upper glume lateral veins ribbed. Upper glume apex acute.

Florets. Fertile lemma ovate, 3–4.3 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins thickened, ribbed, close to margins. Lemma surface asperulous. Lemma apex truncate or obtuse, mucicous or mucronate. Palea 0.9–1 length of lemma, 2 -veined. Palea keels scaberulous, eciliate. Palea surface asperulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Caryopsis with free soft pericarp, oblong, flattened, concavo-convex, 1.75–2 mm long, rugose (obscurely) or granular. Embryo 0.6–0.7 length of caryopsis.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa. Somalia. Kenya.

Coelachyrum piercei (Benth.) Bor. *Kew Bull.* 1952, 226 (1952).

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 Pakistan. **Basionym or Replaced Name:** *Eragrostis piercei* Benth. *Icon. Pl.* 4: 1370 (1881)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *E. Pierce s.n.*, Pakistan: coast of Beluchistan (K).

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

Derivation (Clifford & Bostock 2007): in honor of Edwin Pierce (fl. 1880s) who collected in Baluchistan.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons absent or present. Culms decumbent, 20–45 cm long. Ligule an eciliate membrane. Leaf-blades 3–9 cm long, 2.2–4 mm wide, glaucous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 3–7, borne along a central axis, erect, unilateral, 3–10 cm long. Central inflorescence axis 2–10 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular, 1–2 -rowed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 1–3 mm long.

Fertile Spikelets. Spikelets comprising 7–14 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 ovate, laterally compressed, 5–6.5 mm long, 3–4 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 2.2–3 mm long, 0.7–0.9 length of upper glume, herbaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume elliptic, 3–3.5 mm long, 0.9–1.1 length of adjacent fertile lemma, herbaceous, without keels, 3 -veined. Upper glume apex obtuse, mucronate.

Florets. Fertile florets imbricate to tip. Fertile lemma elliptic, 2.7–3 mm long, herbaceous, keeled, lightly keeled, keeled above, 3 -veined, 0–3 -veined. Lemma surface glabrous. Lemma apex truncate or obtuse, mucronate. Palea 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Caryopsis with free soft pericarp, ellipsoid, flattened, concavo-convex, 1 mm long, rugose.

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

Country /Province /State. Northeast tropical Africa. Somalia. Western Asia, Arabian Peninsula. Iran. Gulf States, Oman, Saudi Arabia. Indian Subcontinent. Pakistan.

Coelachyrum poiflorum Chiov. *Ann. Ist. Bot. Roma*, 7: 75 (1897).

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: HT: *Riva 303 (150)*, Ogaden, Taju in Haud (FI).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (134, Fig 55).

Derivation (Clifford & Bostock 2007): *L. flos*, flower. Spikelets with hairy lemmas resembling those of *Poa*.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons present. Culms 30–50 cm long. Ligule an eciliate membrane. Leaf-blades 2–6 cm long, 1–2 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 3–5, borne along a central axis, unilateral, 1–2 cm long. Central inflorescence axis 1–2 cm long. Rhachis angular. Spikelet packing broadside to rhachis, regular, 2-rowed. Spikelets solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 6–16 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, 2.5–5.6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, parallel to lemmas. Lower glume ovate, 1.5–2 mm long, 0.75–0.9 length of upper glume, membranous, without keels, 1-veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 2–2.3 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 3-veined. Upper glume apex obtuse, mucronate or awned, 1-awned, awn 0.1–0.3 mm long.

Florets. Fertile lemma ovate, 2.1–2.3 mm long, membranous, without keel, 3-veined, 0–3-veined. Lemma midvein ciliate, hairy below. Lemma margins ciliate. Lemma apex truncate or obtuse, mucronate. Palea 2-veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Caryopsis with free soft pericarp, orbicular, flattened, concavo-convex, 1 mm long, rugose.

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

Country /Province /State. Northeast tropical Africa. Djibouti, Ethiopia (inc. Eritrea), Somalia. Arabian Peninsula. Oman, Saudi Arabia.

Coelachyrum yemenicum (Schweinf.) S.M. Phillips. *Kew Bull.*, 37(1): 159 (1982).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Yemen & Eritrea. **Basionym or Replaced Name:** *Eragrostis yemenica* Schweinf. *Bull. Herb. Boissier* 2(App. 2): 41 (1894). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Schweinfurth 1332*, Yemen: below Ussil (?). LT designated by ?; cited (as type) by Ali Chaudahry, *Grass. Saudi Arabia* 274 (1989).

ST: *Schweinfurth 1272*, 1891, Eritrea: below Geleb (?).

Recent Synonyms: *Cypholepis yemenica* (Schweinf.) Chiov., *Ann. Ist. Bot. Roma*, 8: 357 (1908).

Illustrations (Books): R.M.Phillips, F.T.E.A., *Gramineae* (as *Cypholepis*), G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999):155 t. 45), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (123, Fig.94, as *Cypholepis*), G.E.Gibbs Russell et al., *Grasses of Southern Africa* (1990) (87, Fig 46), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (187, Fig 99).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 30–100 cm long. Ligule an eciliate membrane, 0.5–1 mm long, lacerate, truncate. Leaf-blades 7–32 cm long, 2.5–5.5 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 2–8, borne along a central axis, erect, unilateral, 2–6 cm long. Central inflorescence axis 3.5–19 cm long. Rhachis subterete. Spikelet packing broadside to rhachis, regular, 2-rowed. Spikelets ascending, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 7–12 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, laterally compressed, 5–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite, clavate, obscured by lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate or elliptic, 2.1–4 mm long, 0.9–1 length of upper glume, membranous, without keels or 1-keeled, 1–4-veined. Lower glume apex obtuse or acute. Upper glume elliptic or oblong, 2.1–4 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, without keels or 1-keeled, 1–4-veined. Upper glume apex obtuse or acute.

Florets. Fertile florets imbricate to tip. Fertile lemma ovate, 2.5–4.7 mm long, membranous, keeled, lightly keeled, keeled above, 3-veined or 5-veined (rarely), 0–3-veined or more than 3-veined. Lemma lateral veins obscure. Lemma surface pubescent, hairy below, with clavate hairs. Lemma apex obtuse or acute. Palea ovate, 0.5–0.7 length of lemma, 2-veined. Palea keels ciliate. Palea surface glabrous or pubescent (below), with turgid hairs. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Caryopsis with free soft pericarp, ellipsoid, flattened, concavo-convex, 1.2–1.4 mm long, smooth. Embryo 0.5 length of caryopsis.

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

Country /Province /State. Northeast tropical Africa, East tropical Africa, Southern Africa. Eritrea, Ethiopia (inc. Eritrea), Somalia. Kenya, Tanzania. Namibia, Botswana, Limpopo, North-West, Northern Cape. Arabian Peninsula. Oman, Saudi Arabia, Yemen.

Coix aquatica Roxb. *Hort. Beng.* 66; *Fl. Ind.* 3: 571 (1832).

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:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India: Bengal: floating in margins of lakes, *Roxburgh* (HT: ?) unknown to Hooker & officers of Calcutta Bot. Gardens.

Recent Synonyms: *Coix lingulata* Hack., *Oest. Bot. Zeitschr.* 41: 5 (1891).

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

Derivation (Clifford & Bostock 2007): L. aqua, water; -ica, belonging to. Growing in or close to water.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ROTBOELLINAE.

Habit, Vegetative Morphology. Annual. Culms rambling, 60–150 cm long, spongy. Culm-nodes glabrous. Leaves cauline. Ligule an eciliate membrane, 1 mm long. Leaf-blade base cordate. Leaf-blades linear or lanceolate, 8–45 cm long, 8–25 mm wide, glandular. Leaf-blade surface pilose, hairy adaxially, with tubercle-based hairs. Leaf-blade margins ciliate. Leaf-blade apex acuminate. Monoecious, with a male and a female inflorescence subtended by the same spatheole.

Inflorescence. Synflorescence compound, paniculate, prophyllate below lateral spikelets (female inflorescence).

Inflorescence composed of racemes, axillary, deciduous as a whole, subtended by a spatheole, exerted (male) or enclosed (female). Spatheole ovate (and beaked), 10–11 cm long, indurate. Peduncle straight, 3–7 cm long, glabrous, widened at apex, disarticulating, disarticulating below uppermost sheaths. 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. Male spikelets sessile or pedicelled, 2–3 in a cluster. Pedicels present, linear, 1 length of fertile spikelet.

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 ovate, dorsally compressed, 8–9 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, reaching apex of florets, similar to fertile lemma in texture. Lower glume lanceolate or oblong, 8–9 mm long, 1 length of spikelet, chartaceous, without keels. Lower glume surface flat. Lower glume apex cuspidate. Upper glume oblong, hyaline, 1-keeled. Upper glume primary vein grooved on either side. Upper glume apex cuspidate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate or oblong, 1 length of spikelet, membranous, 5 -veined, acuminate. Fertile florets female. Fertile lemma lanceolate or oblong, 7.5–8.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface with 2 longitudinal grooves. Lemma apex acuminate. Palea hyaline, 2 -veined, without keels.

Flower and Fruit. Lodicules absent (female) or 2 (male), cuneate, fleshy. Anthers 3, 6–6.5 mm long. Stigmas 2, papillose. Styles connate below. Caryopsis with adherent pericarp. Dissemisule comprising a inflorescence.

Male inflorescence unlike female, a single raceme. Male spikelets distinct from female, 2 flowered, elliptic, 11–12 mm long (4–6 mm wide). Male spikelet glumes 2, winged, muticous. Male spikelet lemma muticous.

$N = 5$ (1 ref TROPICOS), or 20 (2 refs TROPICOS). $2n = 10$ (5 refs TROPICOS), or 40 (1 ref TROPICOS).

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

Country /Province /State. Western Asia, China. Afghanistan. China South Central, China Southeast. Indian Subcontinent, Indo-China, Malesia, Papuasias. Assam, Bangladesh, Eastern Himalaya, India, Sri Lanka. Myanmar, Thailand, Vietnam. Malaya. New Guinea PNG, or West Papua (Irian Jaya). New Guinea.

TDWG4. Guangdong, Guangxi. Yunnan. Bhutan, Sikkim. Andhra Pradesh, Bihar, Kerala, Karnataka. Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamilnadu, Uttah Pradesh, West Bengal.

Coix gasteenii B.K. Simon. *Austrobaileya*, 3(1): 1 (1989).

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: J.R. Clarkson & B.K. Simon 7215, 13 May 1987, Australia: Queensland: Cook Dist.: Lakefield National Park, 15:18'S, 144:36'E, Cabbage Tree Creek, 19 km E of Old Laura on road to Cooktown 70 m. (BRI; IT: DNA, K, L, MBA, MEL, MO, NSW, PERTH, PRE, QRS, SP, US-3189885, US-3189886).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Austrobaileya* (1:2, Fig.1 (1989)).

Derivation (Clifford & Bostock 2007): in honor of Wrixon James Gasteen (1922-) Australian agriculturalist and naturalist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ROTTBHELLINAE.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 100–180 cm long. Leaves cauline. Ligule an eciliate membrane, 0.3 mm long. Leaf-blades 9–150 cm long, 10–23 mm wide. Leaf-blade surface papillose. Monoecious, with a male and a female inflorescence subtended by the same spatheole.

Inflorescence. Synflorescence compound, paniculate.

Inflorescence composed of racemes, axillary, deciduous as a whole, subtended by a spatheole, exerted (male) or enclosed (female). Spatheole ovate, 0.5–0.7 cm long, indurate. Peduncle straight, widened at apex, disarticulating, disarticulating below uppermost sheaths. 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. Male spikelets sessile and pedicelled, 3 in a cluster. Pedicels present, linear, 1 length of fertile spikelet.

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, dorsally compressed, 7–9 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, reaching apex of florets, similar to fertile lemma in texture. Lower glume ovate, 7–9 mm long, 1 length of spikelet, membranous, firmer above, without keels. Lower glume apex acute. Upper glume ovate, membranous, firmer above, with hyaline margins, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 8–9 mm long, 1 length of spikelet, membranous, firmer above, acute. Fertile florets female. Fertile lemma lanceolate, 6–7 mm long, membranous, firmer above, keeled. Lemma apex acute. Palea hyaline, 2 -veined, without keels.

Flower and Fruit. Anthers 3. Stigmas 2, terminally exerted, papillose. Styles connate below. Caryopsis with adherent pericarp, 4–5 mm long. Disseminule comprising a inflorescence.

Male inflorescence unlike female, a single raceme (1.4–1.8cm, exerted). Male spikelets distinct from female, 2 flowered, ovate, 6–7 mm long. Male spikelet glumes 2, wingless, muticous. Male spikelet lemma 9 -veined, muticous.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

TDWG4. North.

Coix lacryma-jobi Linn. *Sp. Pl.* 972 (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).

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: India (LINN-1098.1). LT designated by Clayton & Renvoize, *Fl. Trop. E. Afr. Gramineae* (3): 857 (1982). ST: *van Royen s.n.*, (L).

Illustrations (Books): G.Hegi, *Flora von Mitteleuropa* 1 (1909), H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (316, Fig. 253), R.M.Phill, F.T.E.A., *Gramineae* (3)(1982):858, Fig. 205), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (525, Fig 419), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (89, Fig. 48), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (191, Fig. 67), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (556 Pl. 214), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (630), C-C Hsu, *Taiwan Grasses* (1975), K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 834 & 835), H.J.Noltie, *The Grasses of Bhutan* (2000) (835, Fig. 64), H.B.Gilliland, *Grasses of Malaya* (1971) (305, Fig. 66 as var. *lacryma-jobi*), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (41, Fig. 30), E.E.Henty, *A Manual of the*

Grasses of New Guinea (1969) (54, Pl. 16), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (188), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (168), 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) (1518, Pl. 223), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (702), R.McVaugh, *Flora Nova-Galiciana Vol.14 Gramineae* (1983), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (424, Fig. 373), S.A.Rennoize, *Gramineas de Bolivia* (1998) (621, Fig. 148), S.A.Rennoize, *The Grasses of Bahia*, 1984 (264, Fig. 99), J.A.Steyermark et al, *Flora of the Venezuelan Guayana Vol. 8* (2004) (77, Fig. 49), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (559, Fig. 204), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1312, Fig. 259 & 1318, Fig. 261), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (149, Fig 46), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (148, Fig. 23), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (103, Fig. 190), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 902 as *Coix lacryma-jobi* var. *lacryma-jobi* & *C. lacryma-jobi* var. *ma-yuen* & *C. lacryma-jobi* var. *puellarum*), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:35(1980)).

Illustrations (Journals): *Ruizia* (13:457, Fig 62j-k (1993)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): *L. lacryma*, tear-drop; *jobi*, of Job a Biblical character who experienced much suffering. The bead-like bract surrounding the base of each inflorescence unit resembles a tear-drop.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ROTTBOELLIINAE.

Habit, Vegetative Morphology. Annual. Culms 90–250 cm long. Leaves cauline. Ligule an eciliate membrane. Leaf-blade base cordate. Leaf-blades linear or lanceolate, 10–50 cm long, 25–50 mm wide. Monoecious, with a male and a female inflorescence subtended by the same spatheole.

Inflorescence. Synflorescence compound, paniculate, prophyllate below lateral spikelets (female inflorescence).

Inflorescence composed of racemes, axillary, deciduous as a whole, subtended by a spatheole, exerted (male) or enclosed (female). Spatheole ovate or globose, 0.8–1.1 cm long, indurate. Peduncle nodding, widened at apex, disarticulating, disarticulating below uppermost sheaths. 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. Male spikelets 2 in a cluster. Pedicels present, linear, 1 length of fertile spikelet.

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, dorsally compressed, 7–9 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, reaching apex of florets, similar to fertile lemma in texture. Lower glume orbicular, 7–9 mm long, 1 length of spikelet, membranous, firmer above, without keels. Lower glume apex cuspidate. Upper glume ovate, membranous, firmer above, with hyaline margins, 1-keeled, 11 -veined. Upper glume primary vein grooved on either side. Upper glume apex cuspidate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, firmer above, 7 -veined, cuspidate. Fertile florets female. Fertile lemma ovate, 6–7.6 mm long, membranous, firmer above, keeled, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface with 2 longitudinal grooves. Lemma apex rostrate. Palea hyaline, 2 -veined, without keels.

Flower and Fruit. Lodicules absent (female) or 2 (male), cuneate, fleshy. Anthers 3. Stigmas 2, terminally exerted, papillose. Styles connate below. Caryopsis with adherent pericarp, orbicular. Embryo 1 length of caryopsis. Disseminule comprising a inflorescence.

Male inflorescence unlike female, a single raceme (1.5–3 cm, exerted). Male spikelets distinct from female, 2 flowered, 8–10 mm long. Male spikelet glumes 2, wingless, muticous. Male spikelet lemma 3–5 -veined, muticous.

$N = 10$ (2 refs TROPICOS). $2n = 10$ (1 ref TROPICOS), or 16 (1 ref TROPICOS), or 20 (7 refs TROPICOS).

Distribution (TDWG). **Continent.** Europe, Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America, South America.

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

Country /Province /State. : GB Aliens (Ryves et al). : France, Spain. : Italy, 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.** Egypt. Canary Is, Cape Verde. Ghana, Guinea, Ivory Coast, Mali, Nigeria, Sierre Leone. Cameroon, Annobon, Principe & Sao Tome, DRC. Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Angola. Mpumalanga, Kwazulu-Natal,

Eastern Cape. St Helena. Mauritius, Madagascar (*), Reunion, Rodrigues, Seychelles. **Middle Asia, Western Asia, Arabian Peninsula, China, Eastern Asia.** Turkmenistan. Iran, Iraq. China South Central, Hainan, Manchuria, China North-Central, China Southeast. Japan, Nansei-Shoto, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China, Malesia, Papuaia.** Assam, Bangladesh, Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka, West Himalaya. Andaman Is, Laos, Myanmar, Thailand, Vietnam. Borneo, Java, Lesser Sunda Is, Malaya, Singapore, Moluccas, Philippines, Sulawesi, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is (*). **Australia.** Western Australia (*), Queensland (*), New South Wales (*). **Southwestern Pacific, South-central Pacific, Northwestern Pacific, North-central Pacific.** Fiji (*), Niue (*), New Caledonia (*), Samoa (*), Tonga (*), Vanuatu (*). Cook Is (*), Easter Is (*), Marquesas (*), Pitcairn Is (*), Society Is (*), Tubuai Is (*). Caroline Is (*), Marianas (*). Hawaii (*). **North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Iowa. Pennsylvania. California. New Mexico, Texas. Louisiana. 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, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Galapagos, Peru. Brazil West Central, Brazil Northeast, Brazil North, Brazil Southeast, Brazil South. Paraguay, Uruguay.

TDWG4. Hebei, Shaanxi, Shandong, Shanxi. Anhui, Fujian, Guangdong, Guangxi, Henan, Hunan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Assam, Manipur, Meghalaya, Nagaland, Tripura. Andhra Pradesh, Bihar, Daman, Goa, Kerala, Karnataka. Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamilnadu, Uttah Pradesh, West Bengal. Himachal Pradesh. South-West. North. Coast. Tucuman. Buenos Aires, Misiones. Distrito Federal, Mexico State. Coahuila, Neuvo Leon. Veracruz. Jalisco, Oaxaca. Chiapas, Tabasco, Yucatan.

Coix puellarum Balansa. *Morot, Journ. de Bot.* 4: 77 (1890).

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>: *vide* TROPICOS and Kew Synonymy Database: Vietnam: Tonkin,.

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

Derivation (Clifford & Bostock 2007): *L. puella*, girl. Of little girls who in East Asia make necklaces from the cupules.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ROTTBOLLINAE.

Habit, Vegetative Morphology. Annual. Culms 90–250 cm long. Leaves cauline. Ligule an eciliate membrane. Leaf-blade base cordate. Leaf-blades linear or lanceolate, 10–50 cm long, 10–50 mm wide. Monoecious, with a male and a female inflorescence subtended by the same spatheole.

Inflorescence. Synflorescence compound, paniculate, prophyllate below lateral spikelets (female inflorescence).

Inflorescence composed of racemes, axillary, deciduous as a whole, subtended by a spatheole, exerted (male) or enclosed (female). Spatheole globose, 0.4–0.5 cm long, indurate. Peduncle nodding, widened at apex, disarticulating, disarticulating below uppermost sheaths. 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. Male spikelets sessile, 2 in a cluster. Pedicels present, linear, 1 length of fertile spikelet.

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, dorsally compressed, 4–5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes dissimilar, reaching apex of florets, similar to fertile lemma in texture. Lower glume orbicular, 4–5 mm long, 1 length of spikelet, membranous, firmer above, without keels. Lower glume apex cuspidate. Upper glume ovate, membranous, firmer above, with hyaline margins, 1-keeled. Upper glume apex cuspidate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret ovate, 1 length of spikelet, membranous, firmer above, cuspidate. Fertile florets female. Fertile lemma ovate, 4–5 mm long, membranous, firmer above, keeled. Lemma apex rostrate. Palea hyaline, 2 -veined, without keels.

Flower and Fruit. Lodicules absent (female) or 2 (male), cuneate, fleshy. Anthers 3. Stigmas 2, terminally exerted, papillose. Styles connate below. Caryopsis with adherent pericarp, orbicular. Disseminule comprising an inflorescence.

Male inflorescence unlike female, a single raceme (0.2–1 cm). Male spikelets distinct from female, 2 flowered, 4–5 mm long. Male spikelet glumes 2, winged, muticous. Male spikelet lemma muticous.

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

Country /Province /State. China. China South Central. **Indo-China.** Vietnam.

TDWG4. Yunnan.

Colantheria burchellii (Munro) McClure. *Smithsonian Contrib. Bot.*, 9: 79 (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:** *Arthrostylidium burchellii* Munro *Trans. Linn. Soc. London* 26(1): 43 (1868)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Burchell 1434*, Brazil: Corcovado Mts.

ST: *Burchell 3696*, Brazil: Serra de Cubatao.

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

Derivation (Clifford & Bostock 2007): in honor of William John Burchell (1781–1863), English traveller and plant collector in southern Africa and Brazil.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 200–300 cm long, woody. Culm-internodes terete, thin-walled, 22 cm long, antrorsely scabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement several, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous or pubescent. Leaf-blades linear or lanceolate, 2.5–5(–7) cm long, 6 mm wide, glaucous. Leaf-blade venation indistinct. Leaf-blade surface scabrous, rough adaxially, pubescent, moderately hairy or densely hairy, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 2.5–5 cm long. Primary panicle branches spreading, indistinct the panicle almost racemose. Spikelets deflexed, solitary. Fertile spikelets pedicelled. Pedicels present, 1–6 mm long, puberulous.

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 oblong, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong or ovate, 2–2.5 mm long, 0.5 length of upper glume, chartaceous, without keels. Lower glume surface hirsute. Lower glume apex acute. Upper glume oblong or ovate, 4 mm long, 0.66 length of adjacent fertile lemma, chartaceous, without keels. Upper glume surface hirsute. Upper glume apex acute.

Florets. Fertile lemma ovate, 6–7 mm long, keeled, 5–7 -veined, more than 3-veined. Palea 2 -veined. Palea keels contiguous above a sulcus. Palea apex ciliate.

Flower and Fruit. Lodicules 3, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Amazonas, Acre, Rondonia.

Colantheria cingulata (McClure & L. B. Smith) McClure. *Smithsonian Contrib. Bot.*, 9: 79 (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:** *Aulonemia cingulata* McClure & L.B. Sm. *Fl. Il. Catarin.* 50–52, t. 9, f. m-u. (1967)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Reitz & R. Klein 9679*, 14 May 1960, Brazil: Santa Catarina: Sombrio, Garapuvu, Vista Alegre, orla da mata, 30 m (US-2380712; IT: US-2380714, US-2380713, US-2909111).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (112, Fig. 25), E.J.Judziewicz et al, *American Bamboos* (1999) (173, Fig. 82).

Illustrations (Journals): *Smithsonian Contributions to Botany* (9: 78, Fig. 32 (1973)).

Derivation (Clifford & Bostock 2007): *L. cingulum*, girdle; -ata, possessing. Culm with a conspicuous scar left by the deciduous leaf-base.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 800–1000 cm long, 15–21 mm diam., woody. Culm-internodes terete, thin-walled. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement several, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, pilose, without auricles, setose on shoulders. Culm-sheath blade linear or lanceolate, erect, acuminate. Leaf-sheath oral hairs setose, pale. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 5–13 cm long, 8–17 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 5–9 cm long. Primary panicle branches spreading. Panicle branches pilose, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 0–1 basal sterile florets, 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, 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 oblong, 4–5 mm long, 0.6–1 length of upper glume, chartaceous, without keels, 5 -veined. Lower glume surface pubescent. Lower glume apex acute. Upper glume oblong, 5–6 mm long, 0.5–0.7 length of adjacent fertile lemma, chartaceous, without keels, 5 -veined. Upper glume surface pubescent. Upper glume apex acute.

Florets. Basal sterile florets absent or 1, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma, 5–6 mm long. Fertile lemma elliptic, 7–9 mm long, purple, keeled, 5–7 -veined, more than 3-veined. Lemma apex obtuse. Palea 0.9 length of lemma, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, ovate, membranous, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG), Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South.

TDWG4. Minas Gerais, Rio de Janeiro, Espirito Santo, Catarina, Rio Grande do Sul.

Colantheia distans (Trinius) McClure. *Smithsonian Contrib. Bot.*, 9: 79 (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 distans* Trin. *Mem. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 3,1(6): 621 (1835)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *L. Riedel s.n.*, 1824, Brazil (US-2808840, US-2808839).

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

Derivation (Clifford & Bostock 2007): *L. disto*, be apart. Spikelets widely separated in inflorescence.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Branch complement several, in a horizontal line, with subequal branches, thinner than stem. Culm-sheaths present. Leaf-sheaths striately veined, glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, 2–4 mm long. Ligule a ciliolate membrane, 0.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 2.5–6.5 cm long, 4–6 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade venation with 24–30 secondary veins. Leaf-blade surface smooth or scaberulous, rough abaxially, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Racemes single, 3–4 cm long, bearing 3–4 fertile spikelets on each. Spikelet packing distant. Spikelets 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 linear, laterally compressed, 16–24 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–4 mm long, eventually visible between lemmas, glabrous.

Glumes. Glumes both absent or obscure.

Florets. Fertile lemma lanceolate, 10–13 mm long, chartaceous, purple, 7 -veined, more than 3-veined. Lemma apex acuminate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous, veined, ciliate. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil West Central.

Colantheria intermedia (McClure & L.B. Smith) McClure. *Smithsonian Contrib. Bot.*, 9: 79 (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:** *Aulonemia intermedia* McClure & L.B. Sm. *Fl. Il. Catarin.* 52–55, t. 9, f. v-e. (1967)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Klein 4612*, 25 Feb 1964, Brazil: Santa Catarina: Rio do Sul, Serra do mata, 550 matador, m (US-2434526; IT: US-2534528, US-2434525).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (112, Fig. 25).

Derivation (Clifford & Bostock 2007): *L. intermedia*. Having affinities with but distinct from other species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 500 cm long, woody. Culm-internodes terete, thick-walled, 12.5 cm long, striate, papillose, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement several, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose. Ligule absent. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole pubescent. Leaf-blades lanceolate, 5–10 cm long, 10–15 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 5–9 cm long. Primary panicle branches spreading. Panicle branches pilose, with prominent pulvini. 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 linear, laterally compressed, 40–80 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes clavate, curved, 4 mm long, eventually visible between lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 3 mm long, 0.75 length of upper glume, chartaceous, 1-keeled, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume surface pubescent. Lower glume apex obtuse or acute. Upper glume oblong, 4 mm long, 0.66 length of adjacent fertile lemma, chartaceous, 1-keeled, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface pubescent. Upper glume apex obtuse or acute.

Florets. Fertile lemma elliptic, 6–7 mm long, red, keeled, 5 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 6 -veined. Palea keels ciliolate, adorned above. Palea apex dentate, 2 -fid, with excurrent keel veins. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, ciliate. Anthers 3, red. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast, Brazil South. Catarina, Rio Grande do Sul.

Colantheria lanciflora (McClure & L.B. Smith) McClure. *Smithsonian Contrib. Bot.*, 9: 79 (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:** *Aulonemia lanciflora* McClure & L.B. Sm. *Fl. Il. Catarin.* 47–50, t. 9, f. d-l. (1967)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Estado de Santa Catarina: Bom Retiro, mato, 1600 m, 15 Dec 1948, *Reitz 2346* (HT: US).

Recent Synonyms: *Chusquea effusa* S.A. Renvoize, *Kew Bull.*, 42(4): 924 (1987).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (112, Fig. 25).

Derivation (Clifford & Bostock 2007): *L. lanceus*, lance; *flos*, flower. Spikelets lanceolate in outline.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 180 cm long, woody. Culm-internodes terete, thin-walled, 10 cm long, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement several, in a horizontal line or in a clump, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaf-sheaths scaberulous, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane or absent. Collar with external ligule. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole glabrous or pubescent. Leaf-blades lanceolate, 4–8.5 cm long, 5–9 mm wide. Leaf-blade venation with 8 secondary veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 4–8 cm long. Primary panicle branches appressed or ascending. Panicle branches glabrous, with insignificant pulvini. 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 lanceolate, laterally compressed, 9–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes narrow, 2–2.5 mm long, obscured by lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 3 mm long, 0.75 length of upper glume, chartaceous, red, 1-keeled, 3 -veined. Lower glume surface glabrous. Lower glume apex acute, mucronate. Upper glume oblong, 4.5 mm long, 1 length of adjacent fertile lemma, chartaceous, red, 1-keeled, 3 -veined. Upper glume surface glabrous. Upper glume apex acute, mucronate.

Florets. Fertile lemma elliptic, 4–5 mm long, red, keeled, more than 3-veined. Lemma apex obtuse, muticous or mucronate. Palea hyaline, 2 -veined. Palea keels ciliate. Palea apex entire, obtuse or acute. 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. Brazil. Brazil Southeast, Brazil South.

TDWG4. Sao Paulo Parana, Catarina, Rio Grande do Sul.

Colantheria macrostachya (Nees) McClure. *Smithsonian Contrib. Bot.*, 9: 79 (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 macrostachya* Nees *Linnaea* 9(4): 481 (1834). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, no date, Brazil (B; IT: US-2809017, US-557550).

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

Derivation (Clifford & Bostock 2007): Gk. makros, large; stachys, ear of corn. Inflorescence large.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 100–400 cm long, woody. Culm-internodes terete, thin-walled. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid. Bud complement 1. Branch complement several, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle, without auricles, setose on shoulders. Leaf-sheath oral hairs ciliate, erect, 1.5 mm long, pale. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 6–7.5 cm long, 6–7 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate. Primary panicle branches 15–20 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 9–10 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, 110–115 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 6–8 mm long, chartaceous, without keels. Lower glume apex acute. Upper glume oblong, 8–9 mm long, chartaceous, without keels. Upper glume apex acute.

Florets. Fertile lemma elliptic, 17–20 mm long, more than 3-veined. Lemma apex acute. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil Southeast. Argentina Northeast.

Misiones.

Colantheria rhizantha (Hackel) McClure. *Smithsonian Contrib. Bot.*, 9: 79 (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 rhizantha* Hack. *Repert. Spec. Nov. Regni Veg.* 7(149–151): 323 (1909)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *C. Jurgens* 314, 1906, Brazil: Rio Grande do Sul (W; IT: US-865389 (fragm. ex W)).

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

Derivation (Clifford & Bostock 2007): Gk. rhiza, a root; anthos, flower. Flowering culms discrete and arising directly from the rhizome.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms decumbent (below) or erect, 50–300 cm long, 2 mm diam., woody, rooting from lower nodes. Culm-internodes terete, thin-walled, distally glabrous. Lateral branches dendroid. Branch complement several, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present. Leaves 3–6 per branch. Leaf-sheaths mostly shorter than adjacent culm internode, puberulous, outer margin hairy. Leaf-sheath oral hairs setose, 15–20 mm long. Ligule a ciliate membrane, 0.5 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 1 cm long. Leaf-blades lanceolate, 5–8 cm long, 5–9 mm wide, mid-green and glaucous, discolorous with last colour beneath. Leaf-blade midrib indistinct. Leaf-blade venation with 6 secondary veins, without cross veins. Leaf-blade surface scaberulous, pilose, sparsely hairy, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle open, ovate, 3–4 cm long, 3–4 cm wide, bearing few spikelets. Primary panicle branches spreading. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–8 mm long, puberulous.

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, laterally compressed, 20–40 mm long, 1 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 6 mm long, eventually visible between lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 4 mm long, 0.75 length of upper glume, chartaceous, without keels, 3 -veined. Lower glume apex obtuse. Upper glume oblong, 5 mm long, 0.6 length of adjacent fertile lemma, chartaceous, without keels, 5 -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, oblong, 6 mm long, 7 -veined, obtuse. Fertile lemma oblong, 7–8 mm long, chartaceous, 7 -veined, more than 3-veined. Lemma lateral veins prominent, transversely connected at apex. Lemma apex obtuse. Palea oblong, 1 length of lemma, 4 -veined. Palea keels scaberulous. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

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

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast, Brazil Southeast.

TDWG4. Catarina, Rio Grande do Sul. Misiones.

Coleantaenia anceps (Michx.) Soreng. *J.Bot.Rec.Inst. Texas* 4 (2) 691 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from USA. **Basionym or Replaced Name:** *Panicum anceps* Michx., *Fl. Bor.-Amer.* 1: 48 (1803). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *A. Michaux s.n.*, USA: in herbosis humidis Carolina, Virginiae, Georgiae (P-MICHX; IT: US-80457 (fragm. & photo ex P-MICHX)).

Recent Synonyms: *Sorengia anceps* (Michx.) Zuloaga & Morrone, *Taxon* 59: 1541 (2010).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (479 as subsp. *anceps* & *rhizomatum*), F.W.Gould, *The Grasses of Texas* (1975) (465, Fig. 248).

Derivation (Clifford & Bostock 2007): L. two-edged. Culms laterally compressed.

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

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated, scaly. Butt sheaths glabrous or pilose. Basal innovations flabellate. Culms 30–100 cm long. Culm-nodes pallid or purple. Leaf-sheaths keeled. Ligule an eciliate membrane, 0.2–0.4 mm long. Collar glabrous or pilose. Leaf-blades flat or conduplicate, 4–8 mm wide. Leaf-blade surface smooth or scabrous, glabrous or pubescent or hispid.

Inflorescence. Inflorescence a panicle. Panicle open or contracted, ovate, 15–40 cm long, contracted about secondary branches. Primary panicle branches 4–15 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 ovate, tilted on the pedicel, dorsally compressed, 2.8–3.5 mm long, falling entire.

Glumes. Glumes dissimilar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume ovate, 0.33–0.5 length of spikelet, membranous, without keels, 5 -veined. Lower glume primary vein scaberulous. 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, barren, 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, 2–2.5 mm long, indurate, pallid, shiny, without keel, more than 3-veined. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

Distribution (TDWG). Continent. North America.

Country /Province /State. North-central USA, Northeast USA, South-central USA, Southeastern USA. Illinois, Kansas, Missouri, Oklahoma. Indiana, Ohio, New Jersey, Pennsylvania, West Virginia. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia.

Coleantaenia caricoides (Nees ex Trin.) Soreng. *J.Bot.Rec.Inst. Texas* 4 (2) 691 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Brazil. **Basionym or Replaced Name:** *Panicum caricoides* Nees ex Trin., *Gram. Pan.*: 149 (1826). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Nees ab Esenb. s.n.*, Brazil (LE-TRIN-0619.01). HT: *K.F.P. von Martius s.n.*, no date, Brazil: Para (M; IT: LE, US-80557 (fragm.)).

Recent Synonyms: *Panicum stenodoides* F.T.Hubbard, *Proc.Amer. Acad. Arts* 49 (8): 497 (1913). *Sorengia caricoides* (Nees ex Trin.) Zuloaga & Morrone, *Taxon* 59: 1542 (2010).

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (264, Fig. 222), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (190, Fig. 131).

Illustrations (Journals): *Taxon* (59, 1543, Fig.3 (2010)).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Culms thin and much branched resembling *Carex*.

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

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, slender, 45–90 cm long, wiry. Culm-internodes distally glabrous. Leaf-sheaths wider than blade at the collar, smooth. Ligule an eciliate membrane, 0.2 mm long, lacerate. Leaf-blades erect, involute, 1–5 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle, terminal and axillary, embraced at base by subtending leaf. Panicle open, linear, 1–1.5 cm long. Primary panicle branches indistinct the panicle almost racemose. Spikelets solitary. Fertile spikelets pedicelled. 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 elliptic, dorsally compressed, compressed slightly, 1.5–1.8 mm long, 0.8 mm wide, falling entire.

Glumes. Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels. Lower glume apex acute. Upper glume elliptic, 1 length of spikelet, membranous, without keels, 7 -veined. Upper glume lateral veins prominent. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret similar to upper glume, elliptic, 1 length of spikelet, membranous, 5 -veined, prominently veined, acute. Fertile lemma elliptic, dorsally compressed, 1.4–1.5 mm long, 0.6 mm wide, indurate, without keel. Lemma margins involute. Lemma apex acute. Palea involute, indurate.

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, Honduras, Nicaragua, Panama. Cuba, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia. Brazil North.

Amazonas, Acre, Rondonia, Mato Grosso. Chiapas.

Coleantaenia longifolia (Bosc ex Nees) Soreng. *J.Bot.Rec.Inst. Texas* 4 (2) 691 (2010).

More checking of status required.

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from USA. **Basionym or Replaced Name:** *Panicum longifolium* Torr, *Fl. N. Middle United States* 1:149 (1824). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: USA, New Jersey, Oct 1817, J.Goldy s.n. (holo: NY, fragment US - 80744).

Recent Synonyms: *Panicum abscissum* Swallen, *Journ. Wash. Acad. Sc.* . 215. (1940). *Panicum agrostoides* Salzm. ex Steud., in syn.,.

Sorengia longifolia (Bosc ex Nees) Zuloaga & Morrone, *Taxon* 59: 1542 (2010).

Panicum combsii Scribn. & Ball, *U.S. Dept. Agric. Bull. Agrost.*24: 42. (1901).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (479 as subspecies *rigidulum* & *combsii* & *elongatum* & *abscissum* & *pubescens*), F.W.Gould, *The Grasses of Texas* (1975) (467, Fig. 249).

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

Derivation (Clifford & Bostock 2007): *L. rigidus*, stiff; -ula, diminutive. Plant with stiffly erect inflorescence branches or leaf-blades.

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

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Eastern Canada, Northeast USA, Southwestern USA, South-central USA, Southeastern USA. Quebec. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. California. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. **Mesoamerica, Caribbean.** Belize. Bahamas, Cayman Is, Cuba, Haiti, Jamaica, Leeward Is, Puerto Rico.

Coleantaenia petersonii (Hitchc. & Ekman) Soreng. *J.Bot.Rec.Inst. Texas* 4 (2) 692 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Cuba. **Basionym or Replaced Name:** *Panicum petersonii* Hitchc. & Ekman, *Man. Grasses W. Ind.* 243: 263, f. 220 (1936). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: E.L. Ekman 18085, 16 Nov 1923, Cuba: Pinar del Río, Mendoza (US-1296166; IT: MO (as no. 1035), NY).

Recent Synonyms: *Sorengia petersonii* (Hitchc. & Ekman) Zuloaga & Morrone, *Taxon* 59: 1544 (2010).

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (263, Fig. 220).

Derivation (Clifford & Bostock 2007): in honor of F.J. Peterson (fl. 1923) resident of Cuba.

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

Habit, Vegetative Morphology. Perennial. Butt sheaths coriaceous. Culms erect, 200 cm long, firm. Culm-internodes distally glabrous. Culm-nodes flush with internodes. Lateral branches sparse. Leaves without demarcation between sheath and blade. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane. Leaf-blades erect, 40–100 cm long, 1–3 mm wide, coriaceous, stiff. Leaf-blade midrib widened. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle open, ovate, dense, 15–25 cm long. Primary panicle branches ascending, closely spaced, bearing spikelets almost to the base. Panicle axis scabrous. 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, obtuse, 2.3 mm long, falling entire.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 3–5 -veined. Lower glume apex acute. Upper glume elliptic, 0.9 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, elliptic, 1 length of spikelet, membranous, 5 -veined, acute. Palea of lower sterile floret scabrous, adorned on keels. Fertile lemma elliptic, dorsally compressed, 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. Caribbean. Cuba.

Coleantaenia prionitis (Nees) Soreng. *J.Bot.Rec.Inst. Texas* 4 (2) 692 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Brazil, Uruguay. **Basionym or Replaced Name:** *Panicum prionitis* Nees, *Fl. Bras. Enum. Pl.*: 162 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: K.F.P. von Martius s.n., Jul, Brazil: Minas Gerais: habitat in udis ad fossas districtus Adamantum prope Tejuco et Villa do Principe

(B; IST: BAA (fragm.), US-80930 (fragm. ex M)). ST: *F. Sellow s.n.*, Uruguay: Montevideo: Montevideo (B; IST: BAA-1940 (fragm. ex B)).

Recent Synonyms: *Sorengia prionitis* (Nees) Zuloaga & Morrone, *Taxon* 59: 1544 (2010).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (623, Fig. 135 as *Panicum*), A. Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (290, Fig. 112 as *Panicum prionitis*), F.O. Zuloaga et al, *Flora del Paraguay* 23 (1994) (288, Fig. 83 as *Panicum*), B. Rosengurt, *Gramineas Uruguayas I* (1970) (338, Fig. 143 as ssp. *gynerioides*).

Derivation (Clifford & Bostock 2007): Gk. prion, saw; -itis, similar to. The leaf-blades are rigid and the margins furnished with short hairs.

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

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms robust, 100–200 cm long, 3–10 mm diam. Culm-internodes channelled, 19–33 cm long. Ligule a fringe of hairs, 0.6–0.8 mm long. Leaf-blades 100–150 cm long, 4–17 mm wide, stiff. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, equilateral, 40–70 cm long. Primary panicle branches profusely divided. Spikelets solitary. Fertile spikelets pedicelled. 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 ovate, dorsally compressed, 2–2.5 mm long, 1–1.2 mm wide, falling entire.

Glumes. Glumes reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 1.2–1.8 mm long, 0.33–0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume primary vein scaberulous. 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, 3 -veined, acute. Fertile lemma lanceolate, dorsally compressed, 1.7 mm long, 0.7 mm wide, indurate, pallid, shiny, without keel. Lemma margins involute. Palea involute, indurate.

Flower and Fruit. Caryopsis with adherent pericarp, oblong, 1.1 mm long. Embryo 0.5 length of caryopsis. Hilum punctiform.

Distribution (TDWG), Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil West Central, Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay.

TDWG4. 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.

Coleantaenia stenodes (Griseb.) Soreng. *J. Bot. Rec. Inst. Texas* 4 (2) 692 (2010).

Accepted by: R.J. Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Cuba & Jamaica. **Basionym or Replaced Name:** *Panicum stenodes* Griseb., *Fl. Brit. W. Ind.*: 547 (1864). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *C. Wright* 792, 17 May, Cuba (US-81132 (fragm. ex GOET & photo)). ST: *Purdie s.n.*, Dec 1828, Jamaica: in savannahs, Manchester (K; IST: US (fragm. ex K & photo)).

Recent Synonyms: *Sorengia stenodes* (Griseb.) Zuloaga & Morrone, *Taxon* 59: 1544 (2010).

Illustrations (Books): F.W. Gould, *The Grasses of Texas* (1975) (as *P. hians*), A.S. Hitchcock, *Manual of the Grasses of the West Indies* (1936) (265, Fig. 224 as *Panicum stenoides*), S.A. Renvoize, *The Grasses of Bahia*, 1984 (132, Fig. 46 as *Panicum hians*), J.A. Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (190, Fig. 132 as *Panicum stenoides*), W. Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (379, Fig. 139), F.O. Zuloaga et al, *Flora del Paraguay* 23 (1994) (as *P. hians*), E. Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (411, Fig. 73).

Derivation (Clifford & Bostock 2007): Gk. stenos, narrow. Culms slender and wiry.

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

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 15–40 cm long, 0.5–1 mm diam., wiry. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface or pubescent. Ligule an eciliate membrane, 0.1–0.2 mm long. Leaf-blades flat or involute, 1–8 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous or pilose, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle contracted, linear, 0.5–1 cm long, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose. 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 obovate, dorsally compressed, 1.5–2.1 mm long, falling entire.

Glumes. Glumes dissimilar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.9–1.2 mm long, 0.66 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex obtuse. Upper glume ovate, 1.4–1.8 mm long, 1 length of spikelet, membranous, without keels, 5(–9) -veined. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, ovate, 1.3–1.8 mm long, 1 length of spikelet, membranous, 5–7 -veined, obtuse. Palea of lower sterile floret 0.33–0.5 length of lemma. Fertile lemma ovate, dorsally compressed, 1.2–1.7 mm long, indurate, shiny, without keel. Lemma margins involute. Palea involute, indurate.

Flower and Fruit. Anthers 2–3, 0.4–0.6 mm long, purple. Caryopsis with adherent pericarp, ellipsoid, 0.8 mm long, purple.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. **Mexico.** Southeast Mexico. **Mesoamerica, Caribbean, Northern South America, Western South America, Brazil.** Costa Rica, Guatemala, Honduras, Nicaragua. Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, Trinidad-Tobago, Venezuelan and Netherlands Antilles. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

TDWG4. Roraima, Amazonas, Acre, Rondonia, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Chiapas.

Coleantaenia tenera (Beyr. ex Trin.) Soreng. *J.Bot.Rec.Inst. Texas* 4 (2) 692 (2010).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from USA. **Basionym or Replaced Name:** *Panicum tenerum* Beyr. ex Trin. , *Mem. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 3, 1(2–3): 341 (1834). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H.C. Beyrich* 62, 1833, USA: Georgia: in paludosis nemorum (LE-TRIN-0978.01; IT: US-81395 (fragm. ex LE & photo)).

Recent Synonyms: *Sorengia tenera* (Beyr. ex Trin.) Zuloaga & Morrone, *Taxon* 59: 1544 (2010).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (483), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (264, Fig. 221).

Derivation (Clifford & Bostock 2007): L. thin. Culms slender.

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

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock evident. Culms erect, slender, 40–100 cm long, wiry. Culm-nodes glabrous. Leaf-sheaths without keel, glabrous on surface or pubescent. Ligule a fringe of hairs. Leaf-blades flat or involute, 4–18 cm long, 1.5–3 mm wide. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Inflorescence a panicle, terminal and axillary. Panicle contracted, linear, 4–8 cm long, contracted about primary branches. Primary panicle branches appressed, simple. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, bearing a few hairs, hairy at tip.

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, acute, 2.2–2.8 mm long, falling entire.

Glumes. Glumes dissimilar, 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, 7 -veined. 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, membranous, 5 -veined, acute. Fertile lemma elliptic, dorsally compressed, 1.8–2 mm long, indurate, shiny, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. **South-central USA, Southeastern USA, Mexico.** Texas. Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina. Southeast Mexico. **Mesoamerica, Caribbean.** Belize, Guatemala, Honduras, Nicaragua. Bahamas, Cuba, Dominican Republic, Puerto Rico.

Quintana Roo.

Coleantaenia Genus Griseb. *Abh. Königl. Ges. Wiss. Göttingen* 24 (1): 308 (1879).

Coleanthus subtilis (Tratt.) Seid. *Roem. & Schult. Syst.* 2: 276 (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), 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. **Basionym or Replaced Name:** *Schmidtia subtilis* Tratt. *Fl. Osterr. Kaiserth.* 1: 12 (1816)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bohemia.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (619), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 457).

Derivation (Clifford & Bostock 2007): L. fine. Leaf-blades linear.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 2–5 cm long. Leaf-sheaths inflated. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades 1–2 cm long, 0.5–1.5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle glomerate (umbel-like). Primary panicle branches whorled at most nodes. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 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 ovate, laterally compressed, 0.5 mm long, falling entire.

Glumes. Glumes both absent or obscure.

Florets. Fertile lemma ovate, 0.5 mm long, hyaline, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma midvein scabrous. Lemma apex acute, awned, 1 -awned. Principal lemma awn 0.5 mm long overall. Palea 1 length of lemma, hyaline, 2 -veined. Palea keels scabrous. Palea apex with excurrent keel veins.

Flower and Fruit. Lodicules absent. Anthers 2, 0.3 mm long. Caryopsis with adherent pericarp, ellipsoid, laterally compressed, exposed between gaping lemma and palea at maturity, 1 mm long. Embryo 0.25 length of caryopsis. Hilum elliptic.

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

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

Country /Province /State. : Norway. : Austria, Czechoslovakia, Germany. : France. : Italy. Central European Russia, Northwest European Russia. Siberia, Russian far east, **China.** Khabarovsk, Primorye. Manchuria, China Southeast. **Western Canada, Northwest USA.** British Columbia. Oregon, Washington.

TDWG4. Jiangxi.

Colpodium afghanicum Bor. *K. H. Rechinger, Fl. Iran., Lief.* 70, 57 (1970).

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

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths villous, persistent and investing base of culm, with compacted dead sheaths. Culms erect, 30–60 cm long. Ligule an eciliate membrane. Leaf-blades 1–6 cm long, 1 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 2–4 cm long, 0.5–1 cm wide, bearing few spikelets. Primary panicle branches ascending, 0.5–1 cm long, bearing 1–2 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3–5 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 cuneate, laterally compressed, 6–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume oblong, 4 mm long, 0.7–0.8 length of upper glume, membranous, much thinner above, much thinner on margins, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 5 mm long, 0.8 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex acute.

Florets. Fertile lemma oblong, 6 mm long, membranous, much thinner above, purple, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface asperulous. Lemma apex erose, obtuse. Palea keels scaberulous, eciliate.

Flower and Fruit. Anthers 3, 4 mm long. Hilum elliptic.

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

Country /Province /State. **Western Asia.** Afghanistan.

Colpodium altaicum Trin. *Ledeb. Fl. Alt.* 1: 100 (1829).

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) (as *Paracolpodium*).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia: Altai Mt., in latere boreali montis crucis alpinum Ulbensium, 1826, *C. Ledebour* (HT: LE; IT: LE).

Recent Synonyms: *Paracolpodium altaicum* (Trin.) Tsvelev, *Bot. Zhurn.*, 1: 1320 (1965).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 433).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms erect or geniculately ascending, 8–28 cm long. Ligule an eciliate membrane, 1.2–3 mm long. Leaf-blades flat or conduplicate, 2–12 cm long, 1–2 mm wide. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 2–7.5 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 cuneate, laterally compressed, 3–4.2 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume elliptic, 2.5–3 mm long, 0.9 length of upper glume, membranous, much thinner above, much thinner on margins, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate or elliptic, 2.7–3.5 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma elliptic or oblong, 3–4.2 mm long, membranous, much thinner above, yellow, keeled, keeled below. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 2–3 mm long, purple. Hilum elliptic.

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

Country /Province /State. Siberia, **Middle Asia, Western Asia, China, Mongolia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Tuva. Kazakhstan. Iran. Xinjiang. Mongolia. **Indian Subcontinent.** Pakistan, West Himalaya.

TDWG4.

Colpodium araraticum (Lipsky) Woronow. *Grossheim, Fl. Kavkaza*, 1: 112 (1928).

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

Basionym or Replaced Name: *Catabrosa araratica* Lipsky *Trudy Imp. S.-Peterburgsk. Bot. Sada* 13(2): 358 (1894).

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

Derivation (Clifford & Bostock 2007): *L. -ica*, belonging to. From Mt. Ararat on the border of Turkey and former Soviet Union.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Butt sheaths persistent and investing base of culm, with reticulate dead sheaths. Culms erect, 20–55 cm long. Ligule an eciliate membrane, 3–5 mm long, acute. Leaf-blades 4–11 cm long, 1–3 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, interrupted, 4–11 cm long, 0.5–1.5 cm wide. Primary panicle branches 0.2–0.6 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 2(–3) 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 cuneate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume oblong, 4.5 mm long, 0.75–1 length of upper glume, membranous, much thinner above, much thinner on margins, purple, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 4.5–6 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex acute.

Florets. Fertile lemma elliptic, 4–6 mm long, membranous, much thinner above, purple or yellow, tipped with last colour, keeled, 5 -veined, more than 3-veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy below. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 3.3–4.5 mm long, yellow or purple. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus, Western Asia. Transcaucasus. Sinai.

TDWG4.

Colpodium baltistanicum Dickoré. *Stapfia* 39: 114 (1995).

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

TYPE from Pakistan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Karakorum, Biafo Gl., Baintha, NW-exponierte Felsrasen, 4500 m, 23 Jul 1962, *H. Hartmann* 218 (HT: K; IT: Z).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Rhizomes absent. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect, 5–20 cm long. Culm-internodes smooth. Ligule an eciliate membrane. Leaf-blades conduplicate. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 1.5–4 cm long, 0.5–0.8 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 0–1 basal sterile florets, 1–2 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile, or one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 4–5 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 elliptic, 2–3 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, yellow, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Upper glume elliptic or ovate, 2–3 mm long, 0.5–0.66 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 1 -veined. Upper glume lateral veins absent.

Florets. Basal sterile florets absent or 1. Lemma of lower sterile floret similar to fertile lemma. Fertile lemma elliptic, 3.5–4.5 mm long, membranous, much thinner above, yellow, keeled, keeled below, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy below (to middle), hairy on veins. Lemma apex acute. Palea keels ciliolate, adorned below, with 0.75 of their length adorned.

Flower and Fruit. Anthers 3, 2–3 mm long. Hilum elliptic.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Pakistan.

Colpodium chionogeiton (Pilger) Tzvelev. *Bot.Journ., URSS*, 1: 1319 (1965).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Agrostis chionogeiton* Pilg. *Notizbl. Bot. Gart. Berlin-Dahlem* 9(87): 510 (1926)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Fries & Fries 1400a*, 5 Feb 1922, Kenia occidentalis, regio alpina superior, in aqua nivali (S; IT: K, S-G248, UPS).

Illustrations (Books): R.M.Pollhill, F.T.E.A., *Gramineae* (1(1970):50, Fig.18).

Derivation (Clifford & Bostock 2007): Gk. chion, snow; geiton, neighbour. Growing close to the snow line.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 4–30 cm long. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades flat or conduplicate, 2–12 cm long, 1–4 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 1–8 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 elliptic, laterally compressed, 4–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, exceeding apex of florets, similar to fertile lemma in texture, gaping. Lower glume elliptic, 1 length of upper glume, membranous, much thinner above, 1-keeled, keeled below, 3 -veined. Lower glume lateral veins all falling short of apex. Lower glume apex obtuse. Upper glume elliptic, 1.1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 3 -veined. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 3.5–4.5 mm long, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy below, with clavate hairs. Lemma apex erose, obtuse. Palea keels smooth.

Flower and Fruit. Anthers 1.2–1.3 mm long. Hilum elliptic.

$2n = 8$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa. Kenya, Tanzania.

Colpodium colchicum (Alboff) Woronow. *Grossheim, Fl. Kavkaza*, 1: 111 (1928).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Catabrosa colchica* Alboff *Trudy Tiflissk. Bot. Sada* 1: 259 (1895)

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

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Colchis, in Classical times the name for the Region south of the Caucasus and east of the Black Sea.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms 15–70 cm long. Ligule an eciliate membrane, 3–7 mm long, erose, obtuse or acute. Leaf-blades 2–5 cm long, 2–6 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, nodding, 2–10 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 cuneate, laterally compressed, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, reaching apex of florets, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 3–4.5 mm long, 0.75–0.9 length of upper glume, membranous, much thinner above, much thinner on margins, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume lanceolate, 4.2–5 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse or acute.

Florets. Fertile lemma oblong or obovate, 4.5–5.5 mm long, membranous, much thinner above, keeled. Lemma lateral veins less than two thirds length of lemma. Lemma surface pilose, hairy below, hairy on veins. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 3 mm long, purple. Hilum elliptic.

$2n = 28$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus, Western Asia. North Caucasus, Transcaucasus. Turkey.

TDWG4.

Colpodium (Hyalopoa) czirahicum (Sh.A. Guseinov) FORSAN. (2006).

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

TYPE from Russia. **Basionym or Replaced Name:** *Hyalopoa czirahica* Sh.A. Guseinov, *Bot. Zhurn.*, 73(12): 1743 (1988). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Daghستان, Czirah: Gussejnov (LE holo).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms geniculately ascending, 60–80 cm long. Leaf-sheaths tubular for much of their length. Ligule an eciliate membrane, 5(–7) mm long, acute. Leaf-blades flat or conduplicate, 5(–7) mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, dense, nodding, 15–17 cm long, 5–8 cm wide. Primary panicle branches 2–3 -nate, 10–12 cm long. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 2–4 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 cuneate, laterally compressed, 6.5–9.5 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 lanceolate or ovate, 5 mm long, 0.75–0.8 length of upper glume, membranous. Lower glume apex acute. Upper glume lanceolate or ovate, 6 mm long, 1 length of adjacent fertile lemma, membranous. Upper glume lateral veins all falling short of apex. Upper glume apex acute.

Florets. Fertile lemma ovate, 6 mm long, membranous, much thinner above, mid-green and purple, tipped with last colour, keeled, 5 -veined, more than 3-veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy below, hairy on back and on veins. Lemma apex obtuse. Palea keels smooth, ciliolate.

Flower and Fruit. Anthers 3, 3 mm long, yellow.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. North Caucasus.

Colpodium fibrosum Trautv. *Act. Hort. Petrop.* 2: 486 (1873).

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) (as *Catabrosella*).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Radde [636]*, [Turkey: Agri], in monte Ararat majore (Buyuk Agri Da.), ad lacum Kupgol (LE).

Illustrations (Books): N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 5), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (67, Pl. 22).

Derivation (Clifford & Bostock 2007): L. fibra, fibre; -osa, abundance. Leaf-sheaths disintegrating at length into copious fibres.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 7–30 cm long. Leaves mostly basal. Ligule an eciliate membrane, 4–5 mm long. Leaf-blades 4–6 cm long, 1.5–3.5 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, dense, 3–7 cm long, 1–2 cm wide. Primary panicle branches spreading, 0.2–1.4 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 cuneate, laterally compressed, 4–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume elliptic, 2.5–4 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, purple, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 2.5–4 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 3–4.5 mm long, membranous, much thinner above, purple or light brown, tipped with last colour, keeled. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy below, hairy on veins. Lemma apex erose, truncate. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 2.5–3 mm long, brown. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus, Western Asia. North Caucasus. Turkey.

TDWG4.

Colpodium gillettii Bor. *Notes Roy. Bot. Gard. Edinb.* 25: 64 (1963).

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

Illustrations (Books): N.L.Bor, *Gramineae in Flora of Iraq* (1968) (65, Pl. 21).

Derivation (Clifford & Bostock 2007): in honor of Jan Bevington Gillett (1911-) English-born East African and Iraqi botanist.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 15–35 cm long. Ligule an eciliate membrane, 4–5 mm long. Leaf-blades 3–7 cm long, 12 mm wide, flaccid. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 4–9 cm long, 0.5–0.8 cm wide, bearing few spikelets. Primary panicle branches ascending, 0.1–0.8 cm long, bearing 2–3 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 cuneate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume linear, 3–4 mm long, 0.8 length of upper glume, membranous, much thinner above, much thinner on margins, pallid, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.5–5 mm long, 0.75 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, pallid, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex truncate.

Florets. Fertile lemma elliptic, 5–6.3 mm long, membranous, much thinner above, purple or pallid, tipped with last colour, keeled. Lemma lateral veins less than two thirds length of lemma. Lemma surface glabrous. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 3–4 mm long, brown. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Iraq.

Colpodium hedbergii (Melderis) Tzvelev. *Bot. Journ., URSS* 1: 1319 (1965).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Kenya. **Basionym or Replaced Name:** *Keniochloa hedbergii* Melderis *Svensk Bot. Tidskr.* 50(4): 542, f. 1, 1–2, 2 (1956)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Hedberg 908*, Kenya: Elgon, in the crater (UPS; IT: EA, K, S).

Illustrations (Books): G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (90, Fig 49), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (16, Fig 8).

Derivation (Clifford & Bostock 2007): in honor of Karl Olov Hedberg (1923-) Swedish 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, 12–25 cm long. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades flat, 3–6.5 cm long, 1–2.5 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 4–11 cm long. 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, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, exceeding apex of florets, similar to fertile lemma in texture, gaping. Lower glume elliptic, 1 length of upper glume, membranous, much thinner above, 1-keeled, keeled below, (1–)3 -veined. Lower glume lateral veins all falling short of apex. Lower glume apex obtuse. Upper glume elliptic, 1.1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 3 -veined. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 2.4–3 mm long, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, with clavate hairs. Lemma apex erose, obtuse. Palea keels smooth.

Flower and Fruit. Hilum elliptic.

$2n = 8$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa, Southern Africa. Ethiopia (inc. Eritrea). Kenya.

Colpodium himalaicum (Hook. f.) Bor. *Grasses Burma, Ceyl., Ind. & Pakist.* 529 (1960).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

Basionym or Replaced Name: *Phippsia himalaica* Hook. f. *Fl. Brit. India* 7(22): 240 (1897)[1896]

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Strachey & Winterbottom*, Kumaon, Barji-Khang Pass, 14,500 ft.

ST: *Duthie*, Garwhal, on the Duder Glacier, 13–14000 ft.

Recent Synonyms: *Catabrosella himalaica* (Hook. f.) Tsvelev, *Novit. Syst. Pl. Vasc., Acad. Sci. URSS*, 1966, 32 (1966).

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, caespitose. Butt sheaths thickened and forming a bulb, persistent and investing base of culm, with fibrous dead sheaths. Culms erect or geniculately ascending, 5–30 cm long. Ligule an eciliate membrane, 1.5–3 mm long. Leaf-blades conduplicate, 1–10 cm long, 1–2 mm wide. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 2.5–4 cm long, 0.2–0.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1–2 fertile florets, without 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 cuneate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume elliptic, 1.1–1.7 mm long, 0.66 length of upper glume, membranous, much thinner above, much thinner on margins, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume elliptic or ovate, 1.6–2.4 mm long, 0.66 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 2.5–4 mm long, membranous, much thinner above, purple or light brown, keeled, keeled below, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy on veins. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 1.5–3 mm long. Hilum elliptic.

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

Country /Province /State. Western Asia. Afghanistan. **Indian Subcontinent.** Pakistan, West Himalaya.

TDWG4. Jammu Kashmir.

Colpodium (Hyalopoa) hracizianum (Gabrieljan & Tzvelev) FORSAN.

TYPE from Armenia. **Basionym or Replaced Name:** *Hyalopoa hraciziana* Gabrieljan & Tzvelev, *Bot. Zhurn. (Moscow & Leningrad)* 91(7): 1088 (2006). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Armenia, Zangezur, Mt. Uchtasar: Stepanyan (ERE holo).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect or geniculately ascending, 40–80 cm long. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades 2–6 mm wide, glaucous. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 5–9 cm long, 2–2.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes smooth.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 4.8–5.5 mm long, 1 length of upper glume, membranous, much thinner above, 1–3 -veined. Lower glume

lateral veins absent or distinct, all falling short of apex. Lower glume apex erose, obtuse. Upper glume ovate, 4.8–5.5 mm long, 0.9 length of adjacent fertile lemma, membranous, 1–3 -veined. Upper glume lateral veins absent or distinct. Upper glume apex erose, obtuse.

Florets. Fertile lemma elliptic, 5.5–6.2 mm long, much thinner on margins, keeled. Lemma surface pubescent, hairy below, hairy on veins. Lemma apex acute. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 3–4 mm long, purple. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. Transcaucasus.

Colpodium humile (Bieb.) Griseb. *Ledeb. Fl. Ross.* 4: 384 (1852).

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) (as *Catabrosella humilis*), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (as *Catabrosella humilis*).

TYPE from Asia. **Basionym or Replaced Name:** *Aira humilis* M. Bieb. *Fl. Taur.-Caucas.* 1: 57 (1808)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Asia Minor: in Caucasi monte Beschtau,.

Recent Synonyms: *Catabrosella humilis* (M. Bieb.) Tzvelev, *Bot. Journ., USSR*, 1: 1320 (1965).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 432).

Derivation (Clifford & Bostock 2007): L. low growing. Short-statured in comparison with related species often prostrate.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths thickened and forming a bulb, persistent and investing base of culm, with compacted dead sheaths. Culms erect, 7–30 cm long. Ligule an eciliate membrane. Leaf-blades 2–5 cm long, 1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 3–7.5 cm long, 2–5 cm wide. Primary panicle branches spreading, 1–3 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1–2 fertile florets, without 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 cuneate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume elliptic, 1.5–2 mm long, 0.7–0.8 length of upper glume, membranous, much thinner above, much thinner on margins, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic or obovate, 2–2.5 mm long, 0.8–1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex acute.

Florets. Fertile lemma oblong, 2.5 mm long, membranous, much thinner above, keeled, 5 -veined, more than 3-veined. Lemma midvein ciliate. Lemma lateral veins less than two thirds length of lemma. Lemma surface pilose, hairy on veins. Lemma apex erose, truncate. Palea keels smooth, ciliolate.

Flower and Fruit. Anthers 3. Hilum elliptic.

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

Region. Eastern Europe.

Country /Province /State. East European Russia, South European Russia. Siberia, **Middle Asia, Caucasus, Western Asia, China, Russia.** Kazakhstan, Kirgizistan, Tadjikistan, Uzbekistan. Afghanistan, Iran. Xinjiang.

TDWG4.

Colpodium lakium Woronow. *Acta Inst. Bot. Acad. Sc. URSS, Ser. 1 Fasc.* 1, 214 (1933).

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

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: A. Poretsky 780, 8 Sep 1927, [Caucasus]: Dagestan: Dist. Lakskij: Rv. Nekkurchaj (LE; IT: LE). Orig. label: Dagestan, Lakskij okrug, r. Nekkurchaj, v 2 v. vyshe vpadeniya v Kazy-Komukhskoe Kojso, syraya luzhajka ...

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

Derivation (Clifford & Bostock 2007): from the Lakssii Region of Daghestan, former Soviet Union.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 50–55 cm long. Culm-internodes smooth, distally glabrous. Leaf-sheaths tubular for much of their length, with 0.33–0.75 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long, acute. Leaf-blades conduplicate, 1–4 mm wide, glaucous. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, nodding, 10–20 cm long, 9–10 cm wide. Primary panicle branches 2-nate, 4–8 cm long. Panicle branches capillary, flexuous, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 2–4 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 cuneate, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes glabrous. Floret callus pilose.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 4 mm long, 0.75 length of upper glume, membranous, much thinner above, purple, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 5 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, purple, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 4.5–5 mm long, membranous, much thinner above, purple or yellow, tipped with last colour, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy below, hairy on veins. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3. Hilum elliptic, 0.33 length of caryopsis.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus, Western Asia. North Caucasus.

TDWG4.

Colpodium lanatiflorum (Roshev.) Tzvelev. *Fl. Arct. URSS, Fasc. 2*, 172 (1964).

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) (as *Catabrosella lanatiflora*).

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

Derivation (Clifford & Bostock 2007): *L. lana*, wool; -ata, possessing. flos, flower. Lemma invested with cottony hairs.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect or geniculately ascending, 20–30 cm long. Ligule an eciliate membrane, lacerate. Leaf-blades flat or conduplicate, 2–12 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 4–8 cm long, 2–4 cm wide. 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 oblong, laterally compressed, 5–7 mm long, 3–4 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus woolly.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 0.6–0.8 length of upper glume, membranous, much thinner above, 1-keeled, keeled below, 3 -veined. Lower glume lateral veins all falling short of apex. Lower glume apex obtuse. Upper glume ovate, 1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 3 -veined. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 3.5–5 mm long, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins obscure, less than two thirds length of lemma. Lemma surface pubescent, hairy below, hairy on veins. Lemma apex erose, obtuse, mucicous or mucronate (0.2–0.5mm). Palea keels smooth, eciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia. Buryatiya, Chita.

TDWG4.

Colpodium leucolepis Nevski. *Bull. Soc. Nat. Mosc. n. s.* 43: 224 (1934).

Regarded by K as a synonym (*C. altaicum*).

Accepted by: S-L Chen et al, *Flora of China* 22 (Poaceae) (2006).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tajikistan: Pamir, Fontes fl. Aksu (Murgab). In declivitate NW faucium Beik. In herbosis, 18 July 1901, *Th. Alexeenko 2120* (HT: LE).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 433).

Derivation (Clifford & Bostock 2007): Gk *leukos*, white; *lepis*, scale. Spikelets greenish-white.

Classification. Subfamily Pooideae. Tribe: Poeae.

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

Country /Province /State. Middle Asia, Western Asia, China. Kazakhstan, Kirgizistan, Tadzhikistan. Afghanistan. Xinjiang. **Indian Subcontinent.** Pakistan.

TDWG4.

Colpodium nutans (Stapf) Bor. *Rech.f., Fl. Iran* 70:54 (1970).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

Basionym or Replaced Name: *Catabrosa nutans* Stapf *Fl. Brit. India* 7(22): 312 (1897)[1896].

Recent Synonyms: *Hyalopoa nutans* (Stapf) Alexeev T.A.Cope, *Fl. Pakistan*, 143: 423 (1982).

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

Derivation (Clifford & Bostock 2007): L. *nuto*, nod. Inflorescence branches slender, bending under the weight of the spikelets.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect or geniculately ascending, (12–)20–80 cm long. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades 4–15 cm long, 2–7 mm wide. Leaf-blade apex obtuse or acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, nodding, 6–15 cm long, 3–5 cm wide. Panicle branches flexuous, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 cuneate, laterally compressed, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, dissimilar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume oblong, 1.8–3.2 mm long, 0.8–0.9 length of upper glume, membranous, much thinner above, purple, 1-keeled, keeled below, 1–3 -veined. Lower glume lateral veins all falling short of apex. Lower glume apex acute. Upper glume cuneate, 2.2–3.5 mm long, 0.6–0.75 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3 -veined. Upper glume apex erose, obtuse.

Florets. Fertile lemma cuneate, 3.5–4.7 mm long, purple, keeled, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma lateral veins prominent, less than two thirds length of lemma. Lemma surface pilose. Lemma apex erose, obtuse. Palea 1.2 length of lemma. Palea keels smooth, eciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 2.5–3 mm long. Hilum elliptic.

Distribution (TDWG), Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Pakistan, West Himalaya.

TDWG4. Himachal Pradesh, Jammu Kashmir.

Colpodium oreades (Peter) E.B. Alekseev. *Novosti Sist. Vyssh. Rast.*, 17: 8 (1980).

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:** *Agrostis oreades* Peter *Repert. Spec. Nov. Regni Veg. Beih.* 40(Anhang 1): 87, t. f. 2 (1930)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Peter 41928*, Tanzania: Kilimanjaro, Peter's Hut to Mawenzi saddle (B).

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

Derivation (Clifford & Bostock 2007): Gk. *oreias*, belonging to mountains. Mountain species.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 4–30 cm long. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades flat or conduplicate, 2–12 cm long, 1–4 mm wide. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 1–8 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 elliptic, laterally compressed, 4–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, exceeding apex of florets, similar to fertile lemma in texture, gaping. Lower glume elliptic, 1 length of upper glume, membranous, much thinner above, 1-keeled, keeled below, 3 -veined. Lower glume lateral veins all falling short of apex. Lower glume apex obtuse. Upper glume elliptic, 1.1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, 1-keeled, keeled below, 3 -veined. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 3.5–4.5 mm long, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface glabrous. Lemma apex erose, obtuse. Palea keels smooth.

Flower and Fruit. Anthers 0.6–0.8 mm long. Hilum elliptic.

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa. Tanzania.

Colpodium parviflorum Bolss. & Buhse. *Diagn. Ser.* 2, 4: 133 (1859).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Buhse*, [1847], [Iran]: in Persia monte Sahend, [2745 m] (G).

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

Derivation (Clifford & Bostock 2007): *L. parvus*, small; flos, flower. Spikelets small or with few florets.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths thickened and forming a bulb, persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 12–50 cm long. Culm-nodes purple. Ligule an eciliate membrane, 1.5–4 mm long, acuminate. Leaf-blades conduplicate, 2–8 cm long, 0.5–2.5 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate or pyramidal, 6–11 cm long, 4–8 cm wide. Primary panicle branches spreading, 3–5 -nate, whorled at most nodes. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 cuneate, laterally compressed, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume ovate, 1–1.6 mm long, 0.66–0.9 length of upper glume, membranous, much thinner above, much thinner on margins, purple, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex erose, obtuse. Upper glume ovate, 1.5–1.8 mm long, 0.75 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex erose, obtuse.

Florets. Fertile lemma oblong, 2–2.5 mm long, membranous, much thinner above, purple, keeled, 5 -veined, more than 3-veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy below, hairy on veins. Lemma apex erose, truncate or obtuse. Palea keels smooth, ciliolate.

Flower and Fruit. Anthers 3, 1.2–1.6 mm long. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Middle Asia, Caucasus, Western Asia. Kazakhstan, Tadzhikistan. Afghanistan, Iran.

Colpodium ponticum (Bal.) Woronov. *Fom. & Voron., Opred. Rast. Kavk. Krim.* 1:126 (1909).

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

Basionym or Replaced Name: *Catabrosa pontica* Balansa *Bull. Soc. Bot. France* 21: 15 (1874)

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. Rhizomes short. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 20–40 cm long. Ligule an eciliate membrane. Leaf-blades conduplicate, 5–12 cm long, 1–2.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, 4–10 cm long, 2.5–6 cm wide. Primary panicle branches 2-nate. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3–4 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 cuneate, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus woolly.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume lanceolate or oblong, 4–4.5 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, purple, 1-keeled, keeled below, 1-veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate or oblong, 4.5–5.2 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3-veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 4.2–4.6 mm long, membranous, much thinner above, purple, keeled, 3-veined, 0–3-veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface pubescent, hairy below, hairy on veins. Lemma apex erose, obtuse. Palea 0.75 length of lemma. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 2.1–2.2 mm long. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus, Western Asia. North Caucasus. Turkey.

TDWG4.

Colpodium tibeticum Bor. *Kew Bull.* 1953, 270 (1953).

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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Xizang: Tulung La, Monyul, 5500 m, 13 June 1935, *F. Kingdon-Ward 11688* (HT: BM).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (575, Fig. 21).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms erect, 10–20 cm long, 2–3-noded. Culm-nodes glabrous. Leaf-sheaths keeled, glabrous on surface. Ligule an eciliate membrane, 4–6 mm long, acute. Leaf-blades erect, flat or conduplicate, 4–7 cm long, 2–4 mm wide. Leaf-blade surface glabrous. Leaf-blade margins smooth.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or pyramidal, 3–7 cm long, 1–3 cm wide. Primary panicle branches reflexed, 2-nate, 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 cuneate, laterally compressed, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, exceeding apex of florets, similar to fertile lemma in texture, gaping. Lower glume oblong, 5–6 mm long, 1 length of upper glume, much thinner above, much thinner on margins, purple, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 5–6 mm long, 1.2–1.5 length of adjacent fertile lemma, membranous, with hyaline margins, purple, 1-keeled, 1-veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 4 mm long, hyaline, purple, keeled, 3-veined, 0–3-veined. Lemma lateral veins prominent, less than two thirds length of lemma. Lemma surface pilose, hairy below, hairy on veins. Lemma hairs white or yellow. Lemma apex erose, obtuse. Palea 1.2 length of lemma. Palea keels ciliate.

Flower and Fruit. Lodicules 2, 1 mm long, membranous. Anthers 3, 2.75–3 mm long. Hilum elliptic.

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

Country /Province /State. China. Tibet. Indian Subcontinent. Eastern Himalaya, Nepal. Bhutan.

Colpodium variegatum (Boiss.) Boiss. ex Griseb. *Ledeb. Fl. Ross.* 4: 384, in textu. (1852).

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) (as *Catabrosella variegata*).

TYPE from Turkey. **Basionym or Replaced Name:** *Catabrosa variegata* Boiss. *Diagn. Pl. Orient., ser. 1*, 1(5): 1 (1844)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Boissier*, Jul 1842, [Turkey: Bursa], in humidiusculis regionis alpinae Olympi Bthihni (Ulu Da.) (G; IT: K, LE).

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

Derivation (Clifford & Bostock 2007): *L. variegatio*, diversify. Spikelets, leaf-blades or stems variable in color.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 11–33 cm long. Ligule an eciliate membrane, 1–3 mm long, truncate or obtuse. Leaf-blades 3–5 cm long, 0.5–3 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate or pyramidal, 3.5–8 cm long, 0.5–6 cm wide. Primary panicle branches spreading or reflexed, 1–3 cm long, elongating after flowering. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 2(–3) 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 cuneate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 2–2.5 mm long, 0.8 length of upper glume, membranous, much thinner above, much thinner on margins, purple, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 2.5–3 mm long, membranous, much thinner above, purple or yellow, tipped with last colour, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface glabrous or pubescent. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 2–3.3 mm long, yellow or purple. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus, Western Asia. Iran, Turkey.

TDWG4.

Colpodium versicolor (Stev.) Schmalh. *Fl. Sredn. Yuzh. Ross.* 2:638 (1897).

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: *Agrostis versicolor* Steven *Mem. Soc. Nat. Moscou* 3: 252 (1812). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: In summis alpihus Schahdagh et Tufandagh Cauc. orient., *Steven s.n.* (HT: H; IT: K, LE).

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

Derivation (Clifford & Bostock 2007): *L. variously colored*. Spikelets variously colored as with glumes being green in the lower third, purple in the middle and brown in the upper third.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths light brown, persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 9–25 cm long. Ligule an eciliate membrane, 1–2 mm long, acute. Leaf-blades filiform or linear, 3–5 cm long, 0.5–1 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 2.5–8 cm long, 1.5–6 cm wide. Primary panicle branches 2–3 -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 cuneate, laterally compressed, 2.5–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, reaching apex of florets, similar to fertile lemma in texture, gaping. Lower glume elliptic, 2–3 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, purple, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex

acute. Upper glume elliptic, 2–3 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate or oblong, 1.8–3 mm long, membranous, much thinner above, mid-green or yellow, tipped with last colour, keeled, lightly keeled, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface puberulous, hairy below. Lemma apex erose, obtuse. Palea keels smooth, ciliolate.

Flower and Fruit. Anthers 3, 1.5–2 mm long, purple. Hilum elliptic.

$2n = 4$ (3 refs TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus, Western Asia. Iran, Iraq.

TDWG4.

Colpodium violaceum (Boiss.) Griseb. *Ledeb. Fl. Ross.* 4: 384 (1853).

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

TYPE from Iran. **Basionym or Replaced Name:** *Catabrosa violacea* Boiss. *Diagn. Pl. Orient., ser. 1, 7:* 126 (1846)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ILT: *K.G.T. Kotschy 738 A. 753*, 29 Jul 1842, Iran: In locis humidis prope fontem Dscheschme-Pias in M. Kuh-Daena (MO-2113415, US-1127143). LT designated by N.L. Bor in K.H. Rechinger, *Fl. Iran.* 70: 58 (1970).

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

Derivation (Clifford & Bostock 2007): L. violet. Spikelets, stigmas or anthers violet-colored.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons present. Culms erect, 7–15 cm long. Ligule an eciliate membrane. Leaf-blades conduplicate, 2–4 cm long, 0.5–1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 2–4 cm long, 1–3 cm wide. Primary panicle branches spreading, 2–3 -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 cuneate, laterally compressed, 3–3.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume elliptic, 2.75–3 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, purple, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 2.75–3 mm long, 0.75–0.8 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 3.5 mm long, membranous, much thinner above, purple, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma surface glabrous. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3. Hilum elliptic.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Iran, Iraq.

Colpodium wallichii (Stapf) Bor. *Kew Bull.* 1953, 270 (1953).

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: *Catabrosa wallichii* Stapf *Fl. Brit. India* 7(22): 312 (1897)[1896].

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *N. Wallich 8907*, (US-1127232).

ST: *J.D. Hooker*, Sikkim: Kankola Pass, 14–15,000 ft.

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (575, Fig. 21).

Derivation (Clifford & Bostock 2007): in honor of Nathaniel Wallich (1786–1854) Danish-born physician and sometime superintendent Calcutta Botanic Gardens.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 10–35 cm long. Ligule an eciliate membrane. Leaf-blades 2–6 cm long, 1–2 mm wide. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 3–7 cm long, bearing few spikelets. Primary panicle branches indistinct the panicle almost racemose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 3–9 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 cuneate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, reaching apex of florets, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 3–4 mm long, 1 length of upper glume, membranous, much thinner above, much thinner on margins, purple, 1-keeled, keeled below, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 3–4 mm long, 1 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, purple, 1-keeled, keeled below, 3 -veined. Upper glume lateral veins all falling short of apex. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 3–4 mm long, membranous, much thinner above, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins less than two thirds length of lemma. Lemma apex erose, obtuse. Palea keels smooth, eciliate.

Flower and Fruit. Anthers 3, 2 mm long, purple. Hilum elliptic.

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

Country /Province /State. China. Tibet. **Indian Subcontinent.** Eastern Himalaya, Nepal.

TDWG4. Bhutan, Sikkim.

Connorochloa tenuis (Buchanan) Barkworth, S.W.L. Jacobs, & H.Q. Zhang. *Breeding Science* 59: 685 (2009).

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:** *Agropyron scabrum* var. *tenuis* Buchanan, *Indig. Grass. N. Zeal.* t. 57b, Add. & Corr. 11 (1880)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Buchanan's folio*, New Zealand: without locality data (WELT-59620).

Recent Synonyms: *Elymus tenuis* (Buch.) A. Löve & H.E. Connor, *New Zealand J. Bot.*, 20(2): 183 (1982).

Illustrations (Books): C.A. Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (196, Pl 58).

Derivation (Clifford & Bostock 2007): L. thin. Culms, leaf-blades or pedicels, slender.

Classification. Subfamily Pooideae. Tribe: Triticeae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Basal innovations extravaginal. Culms decumbent, weak, 50–100 cm long. Ligule an eciliate membrane, truncate. Collar glabrous. Leaf-blades flat or conduplicate, 15–30 cm long, 1–2 mm wide, flaccid. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, bilateral, 10–15 cm long, bearing 6–10 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 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, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long, sparsely hairy. Floret callus bearded.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 7–10 mm long, 1 length of upper glume, coriaceous, without keels, 3–5 -veined. Lower glume apex setaceously acuminate. Upper glume lanceolate, 7–10 mm long, coriaceous, without keels, 3–5 -veined. Upper glume apex setaceously acuminate.

Florets. Fertile lemma lanceolate, 9–11 mm long, coriaceous, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface scaberrulous, rough above. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 30–40 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, 2–3 mm long, yellow. Stigmas 2. Caryopsis with adherent pericarp.

2n = 56 (1 ref TROPICOS).

Distribution (TDWG). Continent. Australasia.

Country /Province /State. New Zealand. New Zealand North I, New Zealand South I.

Cornucopiae alopecuroides Linn. *Mant.* 1: 28 (1767).

Accepted by: 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: LT: *Arduino* 52, (LINN-76.4). LT designated by Scholz in Cafferty et al., *Taxon* 49(2): 249 (2000).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 291).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Alopecurus*, usually in respect of the inflorescence.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending or decumbent, 6–20 cm long. Ligule an eciliate membrane. Leaf-blades 4–12 cm long, 1–3 mm wide.

Inflorescence. Inflorescence a panicle, terminal and axillary, deciduous as a whole, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Peduncle straight (inflated), expanded into a conical flask at apex (5–6mm long, entire or crenate), disarticulating, disarticulating above uppermost sheath, base blunt. Panicle capitate, ovate or globose, 0.8–2 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 oblong, laterally compressed, 6–7.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes connate along margins below (to the middle), similar, exceeding apex of florets, shiny. Lower glume oblong, 6–7 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume surface pubescent, hairy on veins. Lower glume apex acute, mucronate. Upper glume oblong, 6–7 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume surface pubescent, hairy on veins. Upper glume apex acute, mucronate.

Florets. Fertile lemma ovate, 5–6 mm long, membranous, shiny, keeled, 5 -veined, more than 3-veined. Lemma margins connate below. Lemma apex truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1 way up back of lemma, geniculate, 12–15 mm long overall, clearly exerted from spikelet, with twisted column. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 3. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Lebanon-Syria, Palestine, Israel & Jordan.

Cornucopiae cucullatum Linn. *Sp. Pl.* 54 (1753).

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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: (LINN-76.1). LT designated by Cope, *Regnum Veg.* 127: 38 (1993).

ST: *van Royen s.n.*, (L).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 290), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (303, Pl. 109).

Derivation (Clifford & Bostock 2007): sheathing leaves hood-like.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect or decumbent, 8–47 cm long, 2–5 -noded. Leaf-sheaths inflated. Ligule an eciliate membrane, 0.7–3 mm long, obtuse. Leaf-blades 0.6–12 cm long, 1–6 mm wide. Leaf-blade surface smooth or scabrous, rough adaxially, glabrous or pilose, hairy adaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, terminal and axillary, deciduous as a whole, subtended by an inflated leaf-sheath. Peduncle nodding, expanded into a conical flask at apex (2.5–5.5mm long, dentate), disarticulating, disarticulating above uppermost sheath, base pungent. Panicle capitate, obovate, 0.5–1.2 cm long, 0.2–0.9 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, 6–7.5 mm long, falling entire, deciduous with accessory branch structures.

Glumes. Glumes connate along margins below, similar, reaching apex of florets. Lower glume elliptic, 3.5–5.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume primary vein ciliate. Lower glume apex truncate. Upper glume elliptic, 3.5–5.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein ciliate. Upper glume apex truncate.

Florets. Fertile lemma ovate, 3.5–5.5 mm long, membranous, keeled, 5 -veined, more than 3-veined. Lemma margins connate below. Lemma apex truncate, mucous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.5 way up back of lemma, 0–1.5 mm long overall. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 3, 4–6 mm long. Ovary glabrous. Caryopsis with adherent pericarp, obovoid, laterally compressed, 2–2.6 mm long. Embryo 0.33 length of caryopsis. Hilum punctiform.

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

Region. Northern Europe (*), Southeastern Europe.

Country /Province /State. : GB Aliens (Ryves et al.) : Italy, Crete, Sicily. **Western Asia.** Iraq.

Cortaderia araucana Stapf. *Gard. Chron.* 2: 396 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Capt. King s.n.*, no date, Chile: Chiloe, male (K, US-865662 (fragm. ex K)).

ST: *R.A. Philippi s.n.*, no date, Chile: Valdivia, female (K; IST: US-865663 (fragm.)). Contains infl. fragments.

LT: *W. Lechler 613*, Chile: Prov. Valdivia, female (K; ILT: K, US-865661 (fragm. ex K)). LT designated by Connor & Edgar, *Taxon* 23: 596 (1974).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (140, Fig. 31 as var. *fuenzalidae*), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (27, Fig. 8 as var. *fuenzalidae*).

Derivation (Clifford & Bostock 2007): in honor of the Araucana, a Chilean tribe.

Classification. Subfamily Danthonioideae. Tribe: Danthoniaceae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 100–150 cm long. Leaf-sheaths longer than adjacent culm internode, glabrous on surface or pilose, outer margin hairy. Ligule a fringe of hairs, 2–3 mm long. Leaf-blades 30–80 cm long, 3–10 mm wide, stiff. Leaf-blade margins scabrous. Leaf-blade apex attenuate. Gynodioecious ("male", in this context, indicating the bisexual state) or dioecious (by loss of viability in bisexual plants).

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle open, oblong, dense, 20–25 cm long. Panicle branches scabrous, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Male 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, 20–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, bearded.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, shiny. Lower glume linear, 12.5–17 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex entire or dentate, 2 -fid, acuminate. Upper glume linear, 13–20 mm long, 0.75 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex entire or dentate, 2 -fid, acuminate.

Florets. Fertile florets female. Fertile lemma lanceolate, 16–25 mm long, hyaline, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface villous. Lemma hairs 6–8 mm long. Lemma apex awned, 1 -awned. Principal lemma awn 3–10 mm long overall. Palea 5–8 mm long, 0.33 length of lemma, hyaline, 2 -veined. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.5 mm long, fleshy, ciliate. Anthers 3, 1–3 mm long. Staminodes present, 1–3 mm long. Caryopsis with adherent pericarp, 2–2.5 mm long.

Male inflorescence nominally bisexual similar to female, a panicle. Male spikelets distinct from female (less hairy), hairy (hairs 3–4mm).

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 Araucania, Maule, O'Higgins, Santado, Valparaiso, Chiloe, Aisen, Magallanes. Coquimbo, Valparaiso, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos, Aisen.

Cortaderia atacamensis (Phil.) Pilger. *Engl. Jahrb.* 7: 374 (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 Chile. **Basionym or Replaced Name:** *Gynerium atacamense* Phil. *Linnaea* 33(3–4): 289 (1864)

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R.A. Philippi s.n.*, Chile: San Pedro de Atacama (SGO-63853).

LT: *Philippi s.n.*, Chile: Atacama (B). LT designated by Conert, *Syst. Anat. Arundineae* 90 (1960).

OM?: *F. Philippi s.n.*, Feb 1885, Chile: Atacama (US-556455 (fragm. ex SGO-PHIL-337 & photo)).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Provincia de Atacana, Chile.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, robust, 200–300 cm long, 2.5–3.5 mm diam. Culm-nodes brown, glabrous. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades 50–60 cm long, 5–7 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface scabrous. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Peduncle 50 cm long. Panicle open, oblong, dense, 40–50 cm long, 10–14 cm wide. Primary panicle branches appressed, 15–20 cm long. Panicle axis scabrous, pilose. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 mm long, scabrous.

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 lanceolate, laterally compressed, 11–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1–1.5 mm long. Floret callus evident, 0.5 mm long, pilose.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 7–8 mm long, 0.8 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume margins ciliolate. Lower glume apex entire or dentate, 2 -fid, acuminate. Upper glume lanceolate, 8.5–9.5 mm long, 1 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume margins ciliolate. Upper glume apex entire or dentate, 2 -fid, acuminate.

Florets. Fertile florets female. Fertile lemma lanceolate, 8.5–9.5 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, plumose, hairy below. Lemma margins ciliolate. Lemma hairs 4.5–5.5 mm long. Lemma apex attenuate. Palea 3.5–4 mm long, 0.3–0.4 length of lemma, hyaline, 2 -veined. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Palea apex truncate or obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, ciliate. Anthers 3. Staminodes present, 0.2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia. Chile North, Chile Central.

TDWG4. Jujuy, La Rioja. Tarapaca, Antofagasta, Atacama. Coquimbo.

Cortaderia bifida Pilger. *Engl. Jahrb.* 7: 374 (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).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A. Weberbauer 1328*, Jul 1902, Peru: in itinere ab Sandia ad Chunchumayo inter Tambo Yuncacoya et Ramospata, solo lapidoso ad rivulum, 2000–2400 m (B; IT: US-81785).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (151, Fig 47), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 21, Fig. 3 (1997)).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (97: 341, Fig.10 (2010)).

Derivation (Clifford & Bostock 2007): L. bis, twice; findo, divide. With structures such as panicle branches regularly bifurcating.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 100–300 cm long, 2–3 mm diam. Culm-nodes glabrous or pubescent. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades 20–100 cm long, 5–10 mm wide. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, lanceolate, 30–40 cm long, 8–10 cm wide. Primary panicle branches 10–20 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–4 mm long, scabrous.

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 cuneate, laterally compressed, 7–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pilose. Floret callus hairs 1.5–2 mm long.

Glumes. Glumes similar, reaching apex of florets, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 7–8 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume margins ciliolate. Lower glume apex entire or dentate, 2 -fid, acute. Upper glume lanceolate, 8–14 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume margins ciliolate. Upper glume apex entire or dentate, 2 -fid, acute.

Florets. Fertile florets female. Fertile lemma lanceolate, 6–7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, plumose, hairy below. Lemma margins ciliate. Lemma hairs 4–6 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 1.5–2 mm long, acuminate, awned, 1 -awned. Principal lemma awn 6.5–7.8 mm long overall. Palea lanceolate, 4.5–5 mm long, 0.66 length of lemma, 2 -veined. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Palea apex emarginate or truncate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Northern South America, Western South America. Costa Rica, Panama. Bolivia, Colombia, Ecuador, Peru.

Cortaderia boliviensis M. Lyle. *Novon*, 6(1): 72 (1996).

Accepted by: 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: Bolivia: Cochabamba: Charaktergras der Andenwiesen ber Tablas, feuchte Stellen, 3400 m, Mai 1911, *Herzog 2194* (HT: L; IT: L, S, US, W).

Illustrations (Journals): *Novon* (6:75, Fig.1 (1996)).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Bolivia.

Classification. Subfamily Danthonioideae. Tribe: Danthoniae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 30–150 cm long. Lateral branches lacking. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades persistent or deciduous with part of sheath attached, flat or involute, (25–)60–90 cm long, 2.5–6 mm wide. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 10–25(–35) cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 2–3(–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, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.3–1.5 mm long, bearded. Floret callus hairs 2 mm long.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 7–11 mm long, 1 length of upper glume, membranous, without keels, 1(–3) -veined. Lower glume lateral veins absent or obscure. Lower glume apex acute. Upper glume lanceolate, 7–11 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 1(–3) -veined. Upper glume lateral veins absent or obscure. Upper glume apex acute.

Florets. Fertile florets female. Fertile lemma ovate, 7–10 mm long, membranous, without keel, 5–7 -veined, more than 3-veined. Lemma surface pilose, hairy at base. Lemma apex lobed, 2 -fid, with lobes 3–4 mm long, awned, 1 -awned. Principal lemma awn from a sinus, 8–10 mm long overall. Palea 5–6 mm long. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Staminodes present, 0.2–0.3 mm long. Caryopsis with adherent pericarp.

Male inflorescence bisexual, similar to female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia.

Cortaderia columbiana (Pilg.) Pilger. *Bot. Jahrb.* 37:374 (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 Colombia. **Basionym or Replaced Name:** *Gynerium columbianum* Pilg. *Bot. Jahrb. Syst.* 27(1–2): 31 (1899)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Moritz 1558 & 1559 intermixt, hermaphrodite plant*, Colombia [Venezuela]: Mirida (B; ILT: US-81968). LT designated by Conner & Edgar, *Taxon*: 23: 597, 598 (1974).

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

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Colombia.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 70–100 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades convolute, 15–30 cm long, 2–4 mm wide, coriaceous, stiff. Leaf-blade margins scabrous. Leaf-blade apex acute, pungent. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, 12–20 cm long. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, bearing a few hairs, hairy at tip.

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, 9–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

Glumes. Glumes similar, shorter than spikelet or reaching apex of florets, similar to fertile lemma in texture, gaping. Lower glume linear, 7–9 mm long, 0.8 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Upper glume subulate, 8–11 mm long, 1.6 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent.

Florets. Fertile florets female. Fertile lemma linear or lanceolate, 5–7 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface plumose, hairy below. Lemma hairs 4–5 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 1–2 mm long, attenuate, awned, 1 -awned. Principal lemma awn 6–10 mm long overall. Palea lanceolate, 4–5 mm long, 0.66 length of lemma, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, glabrous. Anthers 3. Staminodes present, 2 mm long. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia.

Cortaderia egmontiana (Roem. & Schult.) M.Lyle ex Connor. *Darwiniana* 49: 90 (2011).

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

TYPE from Falkland Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *F. Sellow*, 1829, [Falkland Is.]: Malouines (LE-TRIN-2251.01).

LT: *J.S.C.D. d'Urville s.n.*, 20 Nov-18 Dec 1822, Falkland Islands [Islas Malvinas]: East Falkland, Port Louis (P (central panicle); ILT: B, MO-04626640, MO-2114176 (central panicle), US-78863 (fragm.)). LT designated by Connor & Edgar, *Taxon* 23: 600 (1974).

Recent Synonyms: *Arundo pilosa* d'Urv. *Mem. Soc. Linn. Paris* 4: 603 (1826). *Cortaderia pilosa* (Urv.) Hack. ex P. Dusen, *Ergebn. Schwed. Exped. Magell.* 3, 5: 222 (1899).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (27, Fig 6).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (97: 343, Fig.11 (2010)).

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 Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 20–90 cm long. Culm-nodes glabrous. Leaf-sheath oral hairs ciliate. Ligule a fringe of hairs, 0.5–2 mm long. Leaf-blades conduplicate or convolute, 10–50 cm long, 3–5 mm wide, stiff. Leaf-blade surface scabrous, rough abaxially. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state) or dioecious (by loss of viability in bisexual plants).

Inflorescence. Inflorescence a panicle. Peduncle 7–28 cm long. Panicle open, elliptic, dense, 3–10 cm long. Primary panicle branches 1.5–6 cm long. Panicle branches bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled. Pedicels present, 1–3 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 lanceolate, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, pilose. Floret callus hairs 0.5–2 mm long.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, shiny. Lower glume linear, 11–14 mm long, 1 length of upper glume, hyaline, purple, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume linear, 11–14 mm long, 3 length of adjacent fertile lemma, hyaline, purple, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate.

Florets. Fertile florets female. Fertile lemma lanceolate, 4–5 mm long, hyaline, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, villous, hairy below. Lemma hairs 4 mm long. Lemma apex attenuate, awned, 1 -awned. Principal lemma awn 5–8 mm long overall. Palea 4–6 mm long, 1 length of lemma, hyaline, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.5 mm long, fleshy, ciliate. Anthers 3, 2.5–3 mm long. Stamines present. Caryopsis with adherent pericarp, 2–2.5 mm long. Hilum elliptic.

Male inflorescence nominally bisexual similar to female, a panicle. Male spikelets distinct from female (less hairy).

Distribution (TDWG). Continent. South America, Antarctica.

Country /Province /State. Southern South America. Argentina South, Chile Central, Chile South. **Subantarctic islands.** Falkland Is (Malvinas).

TDWG4. Chubut, Neuquén, Río Negro, Santa Cruz, Tierra del Fuego. Rest of Chile- Biobio, La Araucania, Maule, O'Higgins, Santado, Valpariso, Chiloe, Aisen, Magellanes. Santiago, Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes.

Cortaderia hapalotricha (Pilger) Conert. *Syst. & Anat. Arundin.* 102 (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 Colombia. **Basionym or Replaced Name:** *Danthonia hapalotricha* Pilg. *Bot. Jahrb. Syst.* 25(5): 715 (1898)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *M.A. Stbel 111*, Jun 1868, Colombia: Cundinamarca: crescit in paramo inter Usmi et Pasca (B; IT: BAA-841 (fragm. ex B), US-A0865617 (fragm.)).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (151, Fig 47), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 21, Fig. 3 (1997)).

Derivation (Clifford & Bostock 2007): Gk. hapaloos, soft; thrix, hair. Rhachilla densely pubescent.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 100–150 cm long, 1–2 mm diam. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 2 mm long. Leaf-blades convolute, 8–50 cm long, 1–3 mm wide. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, lanceolate, 8–12 cm long, 4–6 cm wide. Primary panicle branches 6–8 cm long. Panicle axis pilose. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long, ciliate.

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 cuneate, laterally compressed, 16–19 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pilose. Floret callus hairs 2–2.5 mm long.

Glumes. Glumes similar, shorter than spikelet or reaching apex of florets, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 13–14 mm long, 0.8 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume linear, 16–18 mm long, 1.5–1.8 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume apex dentate, 2 -fid.

Florets. Fertile florets female. Fertile lemma lanceolate, 9–12 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface plumose, hairy below. Lemma margins ciliate. Lemma hairs 5–6 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 2–4 mm long, acuminate, awned, 1 -awned. Principal lemma awn 9–11 mm long overall. Palea lanceolate, 4.5–5 mm long, 0.66 length of

lemma, 2 -veined. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Palea apex emarginate or truncate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Northern South America, Western South America. Costa Rica, Panama. Venezuela. Bolivia, Colombia, Ecuador, Peru.

Cortaderia hieronymi (Kuntze) N.P.Barker & H.P.Linder. *Annals Mo.Bot. Gard.*.

Accepted by: R.J.Soreng et al., *Catalogue of New World 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. **Basionym or Replaced Name:** *Triraphis hieronymi* Kuntze, *Revis. Gen. Pl.* 3(3): 373 (1898)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Hieronymus s.n.*, 6 Nov 1881, Argentina: Córdoba (B). LT designated (as holotypus) by Conert, *Syst. Anat. Arundineae* 128 (1961). IT: *G. Hieronymus* 36, Jun 1881, Argentina: Cordoba / Jujuy (US-865616 (fragm. ex W)). IST: *Hieronymus s.n.*, 6 Jun 1881, Argentina: Córdoba: Dpto. Capital: Córdoba, prope urbem (CORD).

Recent Synonyms: *Lamprothyrsus hieronymi* (Kuntze) Pilger, *Engl. Jabrb.7. Beibl.* 85, 58 (1906).

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (127, Fig. 26 as *Lamprothyrsus*), T.R.Soderstrom, K.W.Hilu, C.S.Campbell & M.E.Barkworth (245, Fig 22.3).

Derivation (Clifford & Bostock 2007): in honor of George Hans Emmo Wolfgang Hieronymus (1846–1921) German botanist, sometime resident of Argentina.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect, 50–100 cm long, 3–5 -noded. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades involute, 10–60 cm long, 3–5 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or lanceolate, 15–30 cm long, 4–8 cm wide. Primary panicle branches 5–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 linear, laterally compressed, 8–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.5 mm long. Floret callus elongated, 0.7–1 mm long, bearded, with longer hairs below. Floret callus hairs 0.4 length of lemma.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, shiny. Lower glume linear or lanceolate, 5–7 mm long, 1–1.1 length of upper glume, hyaline, without keels, 0–1 -veined. Lower glume lateral veins absent. Lower glume apex entire or dentate, 2 -fid, attenuate. Upper glume linear or lanceolate, 5–7 mm long, 1 length of adjacent fertile lemma, 0.6 length of spikelet, hyaline, without keels, 0–1 -veined. Upper glume primary vein absent or distinct. Upper glume lateral veins absent. Upper glume apex entire or dentate, 2 -fid, attenuate.

Florets. Fertile florets female. Fertile lemma ovate, 5–5.5 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma surface villous. Lemma hairs 1.5–2 mm long. Lemma apex lobed, 2 -fid, with linear lobes, incised 0.5–0.6 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, curved, flat below, 16–40 mm long overall, without a column or with a straight or slightly twisted column. Lateral lemma awns present, arising on apex of lobes, 10–25 mm long, shorter than principal. Palea lanceolate, 0.5 length of lemma, hyaline, 2 -veined. Palea keels villous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, ciliate.

Male inflorescence bisexual similar to female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest.

TDWG4. Catamarca, Jujuy, La Rioja, Mendoza, Salta, Santiago del Estero, Tucuman. Cordoba.

Cortaderia jubata (Lem.) Stapf. *Bot. Mag. t.* 7607. (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), 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 Ecuador. **Basionym or Replaced Name:** *Gynerium jubatum* Lemoine, *Rev. Hort.* 50: 449 (1878). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Roezl s.n.*, Ecuador: Chimborazo, "sent by Lemoine of Nancy and collected at Chimborazo by the botanical collector Roezl" ex Herb. Munro (K (ex hb. Munro)). LT designated by Connor & Edgar, *Taxon* 23: 598 (1974).

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) (189), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (300), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 21, Fig. 3 (1997)).

Illustrations (Journals): *Ruizia* (13:220, Fig 24e (1993)).

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. jubum*, mane; -ata, possessing. The inflorescence or awn resembles a fox tail.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 200–250 cm long, 3–6 mm diam. Culm-internodes distally glabrous. Culm-nodes brown, glabrous. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, antrorsely scabrous, glabrous on surface or puberulous. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades 40–90 cm long, 4–12 mm wide, coriaceous, stiff. Leaf-blade midrib prominent beneath. Leaf-blade margins ciliate. Leaf-blade apex attenuate. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, ovate, dense, 30–60 cm long, 10–15 cm wide. Primary panicle branches 20–30 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–8 mm long, scabrous.

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, 12–15 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 1–1.5 mm long, pilose.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, shiny, gaping. Lower glume lanceolate, 8–9 mm long, 0.9 length of upper glume, hyaline, light brown, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume margins ciliolate. Lower glume apex entire or dentate, 2 -fid, acute. Upper glume lanceolate, 8.5–10 mm long, 1 length of adjacent fertile lemma, hyaline, light brown, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume margins ciliate. Upper glume apex entire or dentate, 2 -fid, acute.

Florets. Fertile florets female. Fertile lemma linear or lanceolate, 9–11 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma midvein extending to apex. Lemma lateral veins less than two thirds length of lemma. Lemma surface scaberulous, villous, hairy below. Lemma hairs white, 7–8 mm long. Lemma apex acuminate. Palea lanceolate, 3.2–4 mm long, 0.33 length of lemma, hyaline, 2 -veined. Palea keels scabrous. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, ciliate.

Male inflorescence bisexual similar to female, a panicle. Male spikelets distinct from female, glabrous.

Distribution (TDWG). Continent. Africa, Australasia (*), Pacific, North America, South America.

Country /Province /State. Southern Africa (*). Gauteng, Free State, Western Cape. **Australia, New Zealand.** Victoria (*), Tasmania (*). New Zealand North I, New Zealand South I. **North-central Pacific.** Hawaii (*). **Northwest USA, Southwestern USA.** Oregon, Washington. California. **Western South America, Southern South America.** Bolivia, Ecuador, Peru. Argentina Northwest, Chile South.

TDWG4. Coast. Catamarca, Jujuy, La Rioja, Tucuman.

Cortaderia modesta (Doell) Hackel ex Dusen. *Arkiv Bot. Stockh.* 9, No. 5, 4 (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 Brazil. **Basionym or Replaced Name:** *Gynerium modestum* Dvll *Fl. Bras.* 2(3): 240 (1880). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Glaziou 4352*, Brazil: Rio de Janeiro: Serra dos Orgcos (W-10406; ILT: K (2 sheets), NY-312309). LT designated by Connor & Edgar, *Taxon* 23: 600 (1974).

Illustrations (Books): T.R.Soderstrom, K.W.Hilu, C.S.Campbell & M.E.Barkworth (224, Fig 2.2).

Derivation (Clifford & Bostock 2007): *L. moderate*. Culms of average height.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms 100–250 cm long, 1.5–2 mm diam. Culm-nodes brown, glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades 20–80 cm long, 6–12 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, lanceolate, 20–30 cm long, 3–5 cm wide. Primary panicle branches 3–5 cm long. Panicle axis pubescent. Panicle branches scabrous, bearded in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–3 mm long, ciliate.

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 cuneate, laterally compressed, 10–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, bearded. Floret callus hairs 2.5–3 mm long.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 9–12 mm long, 1 length of upper glume, membranous, without keels, 1–3 -veined. Lower glume lateral veins absent or obscure. Lower glume surface asperulous. Lower glume margins ciliolate. Lower glume apex obtuse or acute. Upper glume lanceolate, 9–12 mm long, 1.5–1.7 length of adjacent fertile lemma, membranous, without keels, 1–3 -veined. Upper glume lateral veins absent or obscure. Upper glume surface asperulous. Upper glume margins ciliolate. Upper glume apex obtuse or acute.

Florets. Fertile florets female. Fertile lemma ovate, 6–7 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface scaberulous, plumose, hairy below. Lemma margins ciliate. Lemma hairs 2–2.5 mm long. Lemma apex entire or dentate, 3 -fid, acuminate, muticous. Palea lanceolate, 6–7 mm long, 2 length of lemma, 2 -veined. Palea keels ciliolate. Palea surface pilose, hairy on back or on flanks. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3, 3 mm long. Staminodes present, 2 mm long. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo.

Cortaderia nitida (Kunth) Pilger. *Engl. Jahrb.* 7: 374 (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 Colombia. **Basionym or Replaced Name:** *Arundo nitida* Kunth *Nov. Gen. Sp. (quarto ed.)* 1: 149 (1815)[1816]

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F.W.H.A. von Humboldt & A.J.A. Bonpland 2177 & 3218*, Dec, Colombia: inter Guachucal et Tuqueres (P; IT: B, BM, US-78862 (fragm. ex P)).

Illustrations (Books): G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 21, Fig. 3 (1997)).

Derivation (Clifford & Bostock 2007): L. niteo, shine; Spikelets or lemmas shiny.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 100–200 cm long, 2–3 mm diam. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades 20–40 cm long, 3–6 mm wide. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Peduncle 40 cm long. Panicle open, ovate, 20–30 cm long, 10–12 cm wide. Primary panicle branches 10–20 cm long. Panicle axis scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–8 mm long, scabrous, bearing a few hairs, hairy at tip.

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, 11–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.3–1.5 mm long, pilose. Floret callus hairs 2.5–3 mm long.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume linear, 10–13 mm long, 1 length of upper glume, membranous, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume margins ciliolate. Upper glume linear, 10–13 mm long, 1.4–1.6 length of adjacent fertile lemma, membranous, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume margins ciliolate.

Florets. Fertile florets female. Fertile lemma lanceolate, 7–8 mm long, membranous, without keel, 3–5(–7)-veined, 0–3 -veined or more than 3-veined. Lemma surface scaberulous, plumose, hairy below. Lemma margins ciliate. Lemma hairs 5–6 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 0.5–1 mm long, acuminate, awned, 1 -awned. Principal lemma awn 5–6 mm long overall. Palea lanceolate, 5.5–6 mm long, 0.66 length of lemma, 2 -veined. Palea keels ciliolate. Palea surface pilose, hairy on flanks. Palea apex truncate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America and Western South America. Venezuela. Colombia, Ecuador, Peru.

Cortaderia nitida x C. sericantha

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

Illustrations (Journals): *Ruizia* (13:220, Fig 24f-g (1993)).

Derivation (Clifford & Bostock 2007): Gk. serikos, silken; anthos, flower. Glumes and lemmas long, hairy.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Ecuador.

Cortaderia peruviana Hitchcock. *Annals Mo.Bot. Gard.*

Accepted by: R.J.Soreng et al., *Catalogue of New World 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: *Macbride & Featherstone 1205*, 16–22 June 1922, Peru: Yunahuanca, on a shrubby slope, at about 3000 m (F-517715 (photo, F-050163)).

Recent Synonyms: *Lamprothyrsus peruvianus* Hitchcock, *Proc. Biol. Soc. Wash.* 6:195 (1923).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (Fig. 54), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 30, Fig. 5 (1997)).

Illustrations (Journals): *Ruizia* (13:227, Fig 25g-h (1993)).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Peru.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Basal innovations flabellate. Culm erect, 100–130 cm long. Culm-nodes glabrous. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths longer than adjacent culm internode. Ligule a fringe of hairs, 1.5–2 mm long. Leaf-blades involute, 40–60 cm long, 4–7 mm wide, coriaceous, stiff. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 20–40 cm long, 6–10 cm wide. Primary panicle branches appressed, 2 -nate, 5–12 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, 1.5–5 mm long, scabrous.

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, 9–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.2 mm long. Floret callus elongated, 1–1.2 mm long, bearded, with longer hairs below. Floret callus hairs 1–1.5 mm long, 0.2 length of lemma.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma, shiny. Lower glume lanceolate, 8–10 mm long, 0.8–0.9 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 9–12 mm long, 1.2 length of adjacent fertile lemma, 1 length of spikelet, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate.

Florets. Fertile florets female. Fertile lemma lanceolate, 7–9.5 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma surface villous, hairy below. Lemma hairs 3 mm long. Lemma apex lobed, 2 -fid, with linear lobes or lanceolate lobes, with lobes 2–2.5 mm long, incised 0.25 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, curved, spreading, flat below, 20–25 mm long overall. Lateral lemma awns present, arising on apex of lobes, 10–15 mm long, shorter than principal. Palea 4.5–5 mm long, 0.5–0.6 length of lemma, hyaline, 2 -veined. Palea keels ciliolate. Palea surface pilose, hairy on back or on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, ciliate.

Male inflorescence bisexual similar to female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Bolivia, Ecuador, Peru.

Cortaderia planifolia Swallen. *Contrib. U. S. Nat. Herb.* 29: 253 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *J. Cuatrecasas 18057*, 12 Oct 1944, Colombia: Valle del Cauca: Los Farallones, extremo N, verteinta NW, entre Alto del Buey y Quebrado de los Ramos, Cordillera Occidental, 3450–3350 m (US-1854213).

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

Derivation (Clifford & Bostock 2007): *L. planus*, flat; folium, leaf. Leaf-blades flat.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 25–40 cm long. Lateral branches lacking. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades 5–12 cm long, 3–6 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade apex pungent. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong or ovate, 5–7 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, 23–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, bearded.

Glumes. Glumes similar, exceeding apex of florets, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 23–25 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 23–25 mm long, 1.5–1.6 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Fertile florets female. Fertile lemma ovate, 14–16 mm long, membranous, without keel, more than 3-veined. Lemma surface villous. Lemma apex lobed, 2 -fid, with filiform lobes, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, 13–15 mm long overall. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Caryopsis with adherent pericarp.

Male inflorescence bisexual, similar to female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Peru.

Cortaderia pungens Swallen. *Contrib. U. S. Nat. Herb.* 29: 251 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E.P. Killip & A.C. Smith 17467*, 17 Jan 1927, Colombia: Santander: paramo de Santurban, near Vetas, 3950–4160 m (US-1353059; IT: K, MO-996365).

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

Derivation (Clifford & Bostock 2007): *L. pungo*, prick. Leaf-blades sharp-pointed.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 30–50 cm long, 1 mm diam. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades convolute, 10–25 cm long, 2–3 mm wide. Leaf-blade surface pilose, hairy adaxially or on both sides. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle contracted, elliptic, 4–10 cm long, 2–3 cm wide. Primary panicle branches 5 cm long. Panicle axis pilose. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long, ciliate.

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, 14–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, bearded. Floret callus hairs 2–3 mm long.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 12–15 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 12–15 mm long, 2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile florets female. Fertile lemma ovate, 6–8 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface plumose, hairy below. Lemma margins ciliate. Lemma hairs 5–6 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 1.2–1.8 mm long, acuminate, awned, 3 -awned. Principal lemma awn geniculate, 7–10 mm long overall, with a straight or slightly twisted column. Lateral lemma awns present, arising on inner edge of lobes, 1.5–2.5 mm long. Palea lanceolate, 5.5–6.5 mm long, 0.66 length of lemma, 2 -veined. Palea keels ciliate. Palea surface pilose, hairy on back or on flanks. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Staminodes present, 1.5 mm long. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Peru.

Cortaderia roraimensis (N.E.Brown) Pilger. *Notizbl. Bot. Gart. Berlin*, 6: 112 (1914).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Arundo roraimensis* N.E. Br. *Trans. Linn. Soc. London, Bot.* 6(1): 74 (1901)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F.V. McConnell & J.J. Quelch 673*, 1898, Guyana: Mount Roraima (K; IT: US-78867 (fragm. ex K), US-1039475).

Illustrations (Books): J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (79, Fig. 50), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (150, Fig 24).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Mt. Roraima, Guyana.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect or geniculately ascending, 60–120 cm long, 1–1.5 mm diam., 3–5 -noded. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 2–2.5 mm long. Leaf-blades convolute, 40–50 cm long, 3–4 mm wide. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 12–15 cm long, 6 cm wide. Primary panicle branches 3–6 cm long. Panicle axis pilose. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 6–10 mm long, ciliate.

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 cuneate, laterally compressed, 9–11 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long, pilose. Floret callus hairs 1.5–2 mm long.

Glumes. Glumes similar, shorter than spikelet or reaching apex of florets, similar to fertile lemma in texture, gaping. Lower glume linear, 9–9.5 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume margins ciliate. Lower glume apex entire or dentate, 2 -fid, obtuse. Upper glume linear, 9–9.5 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume margins ciliate. Upper glume apex dentate, 2 -fid, obtuse.

Florets. Fertile florets female. Fertile lemma lanceolate, 7–8 mm long, membranous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface scaberulous, plumose, hairy below. Lemma margins ciliate. Lemma hairs 3–4 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 0.5–1 mm long, acuminate, awned, 1 -awned. Principal lemma awn 7–11 mm long overall. Palea lanceolate, 5–5.5 mm long, 0.66 length of lemma, 2 -veined. Palea keels ciliate. Palea surface pilose, hairy on flanks. Palea apex emarginate or truncate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America, Brazil. Guyana, Venezuela. Colombia. Brazil North. Roraima.

Cortaderia rudiuscula Stapf. *Gard. Chron.* 2: 396 (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 Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *P.G. Lorentz & G. Hieronymus* 78, no date, Argentina: Salta: Nevada de Castillo, female (K, US-865666 (fragm. ex K)).

ST: *P.G. Lorentz & G. Hieronymus* 732, no date, Argentina: Tucuman: Sierra de Aconquija, 8000 ft, male (B (2 sheets), K, US-865665 (fragm. ex K)).

LT: *Ball s.n.*, Chile: Santa Rosa de los Andes, female (K). LT by Connor & Edgar, *Taxon* 23: 601 (1974); implied by Acevedo, *Bol. Mus. Nac. Hist. Nat. Chile* 27: 220 (1959).

ST: *Philippi s.n.*, Chile: Santiago, female (SGO).

Illustrations (Books): M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (27, Fig. 7).

Derivation (Clifford & Bostock 2007): *L. rudius*, wilder; -ula, diminutive.

Classification. Subfamily Danthoioideae. Tribe: Danthoieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 50–250 cm long. Leaf-sheaths outer margin hairy. Ligule a fringe of hairs, 0.5–2 mm long. Leaf-blades 100–185 cm long, 5–10 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state) or dioecious (by loss of viability in bisexual plants).

Inflorescence. Inflorescence a panicle. Panicle open, oblong, dense, 15–70 cm long. Primary panicle branches 20–35 cm long. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled. Pedicels present, filiform, scabrous.

Fertile Spikelets. Spikelets comprising 2–5(–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, 10–16 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, pilose.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, shiny. Lower glume lanceolate, 7–12 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex entire or dentate, 2 -fid, attenuate. Upper glume lanceolate, 9–13 mm long, 1 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex entire or dentate, 2 -fid, attenuate.

Florets. Fertile florets female. Fertile lemma lanceolate, 9–12 mm long, hyaline, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface villous. Lemma hairs 5–8 mm long. Lemma apex dentate, 2 -fid, acuminate, mucicous or mucronate or awned, 1 -awned. Principal lemma awn from a sinus, 0–2 mm long overall. Palea 3.5–4.5 mm long, 0.33–0.5 length of lemma, hyaline, 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.5 mm long, fleshy, ciliate. Anthers 3, 3 mm long. Staminodes present, 1–1.2 mm long. Caryopsis with adherent pericarp, 2.5 mm long.

Male inflorescence nominally bisexual similar to female, a panicle. Male spikelets distinct from female (less hairy), hairy (hairs 2–3mm).

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina South, Argentina Northwest, Chile North, Chile Central.

TDWG4. Jujuy, Mendoza, San Juan. Cordoba. Chubut. Tarapaca, Antofagasta, Atacama, Coquimbo, Rest of Chile- Biobio, La Auracania, Maule, O'Higgins, Santado, Valparaiso. Antofagasta. Coquimbo, Valparaiso, Santiago, Maule, La Auracania.

Cortaderia selloana (Schult.) Aschers. & Graebn. *Mittel-Eur. Fl.* 2: 325 (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), 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), N.Tsvelev, *Grasses of the Soviet Union* (1983), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from Brazil. **Basionym or Replaced Name:** *Arundo selloana* Schult. & Schult. f. *Mantissa* 3(Add. 1): 605 (1827). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Brasilia, *F. Sellow* 316 (HT: B).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (231, Fig. 205), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (91, Fig. 50), K.M.Matthew, *Flora Palni Hills* (1996) (801, Pl 801), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (298, Fig.

235), 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) (189), 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), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (328, Fig. 75), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (48, Fig. 10), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (48, Fig. 10), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (31, Fig. 9), B.Rosengurt, *Gramineas Uruguayas I* (1970) (220, Fig. 90), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 630).

Illustrations (Journals): *Darwiniana* (33: 49, Fig.1,50, Fig.2 (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*;, R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Friedrich Sellow (1789–1831) German botanist.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms 100–300 cm long. Ligule a fringe of hairs, 3–5 mm long. Leaf-blades 60–200 cm long, 3–12 mm wide, coriaceous, stiff. Leaf-blade margins scabrous. Dioecious (by loss of viability in bisexual plants) or gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle open, ovate, dense, 25–100 cm long. Spikelets solitary. Fertile spikelets pedicelled. Male 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 lanceolate, laterally compressed, 12–18 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, pilose.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture, shiny. Lower glume lanceolate, 8–14 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 8–14 mm long, 0.7 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate.

Florets. Fertile florets female. Fertile lemma lanceolate, 9–18 mm long, hyaline, pallid or purple, shiny, without keel, 3 -veined, 0–3 -veined. Lemma surface villous, hairy below. Lemma hairs 4–8 mm long. Lemma apex setaceous acuminate. Palea 0.3 length of lemma, hyaline, 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, ciliate. Staminodes present, 0.1–0.3 mm long.

Male inflorescence sometimes bisexual similar to female, a panicle. Male spikelets distinct from female (glabrous).

N = 36 (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe (*), Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America.

Region. Northern Europe (*), Southwestern Europe, Eastern Europe.

Country /Province /State. : Great Britain (*). : France, Spain, Azores. **Northern Africa, Macaronesia, South tropical Africa** (*), **Southern Africa** (*). Egypt. Azores, Madeira. Angola. Gauteng, Mpumalanga, Kwazulu-Natal, Western Cape, Eastern Cape. **Middle Asia, Caucasus, Western Asia, China, Eastern Asia.** Turkmenistan, Tadjikistan, Uzbekistan. China Southeast. Taiwan (+). **Indian Subcontinent, Indo-China, Malesia.** Java, Philippines. **Australia, New Zealand.** Western Australia (*), South Australia (*), Queensland (*), New South Wales (*), Victoria (*), Tasmania (*CHECK). New Zealand North I, New Zealand South I. **North-central Pacific.** New Caledonia. Hawaii (*). **Southwestern USA, South-central USA, Mexico.** Arizona, California, Nevada. New Mexico, Texas. Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Costa Rica, Honduras. Bolivia. Brazil West Central, Brazil Southeast, Brazil South. Argentina Northeast, Argentina South, Chile North, Chile Central, Chile South, Paraguay, Uruguay.

TDWG4. Jiangsu (+), Zhejiang (+). South-West. Southern. South East. Coast. Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Catamarca, La Rioja, Mendoza, Salta, San Juan, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Entre Rios, Formosa, La Pampa, Santa Fe. Chubut, Río Negro. Tarapaca, Atacama. Valparaiso, Santiago, O'Higgins, Biobio, La Araucania. Los Lagos, Aisen, Magellanes. Distrito Federal, Mexico State, Morelos, Puebla. Coahuila, Chihuahua, Durango, Guanajuato, Neuvo Leon, Queretaro, Zacatecas. Baja California, Sonora. Jalisco, Michoacan. Chiapas.

Cortaderia sericantha (Steud.) Hitchcock. *Contrib. U. S. Nat. Herb* 24: 348 (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 Ecuador. **Basionym or Replaced Name:** *Danthonia sericantha* Steud. *Syn. Pl. Glumac.* 1: 246 (1854)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Jameson 93*, Ecuador: Andes of Quito, on boggy plains on the eastern Cordillera at 1700ft (K; ILT: K, OXF, P, US-865623 (fragm.)). LT designated by Connor & Edgar, *Taxon* 23: 602 (1974).

Illustrations (Books): G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 21, Fig. 3 (1997)).

Derivation (Clifford & Bostock 2007): Gk. serikos, silken; anthos, flower. Glumes and lemmas long, hairy.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 30–50 cm long, 1 mm diam. Culm-nodes glabrous. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs bearded. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades convolute, 10–25 cm long, 2–3 mm wide. Leaf-blade surface pilose, hairy adaxially or on both sides. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle, exerted or embraced at base by subtending leaf. Panicle contracted, elliptic, 4–10 cm long, 2–3 cm wide. Primary panicle branches 5 cm long. Panicle axis pilose. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long, ciliate.

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, 17–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.5 mm long, bearded. Floret callus hairs 2–3 mm long.

Glumes. Glumes similar, exceeding apex of florets, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 18–22 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface asperulous. Lower glume apex acute. Upper glume lanceolate, 18–22 mm long, 2.5–2.8 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface asperulous. Upper glume apex acute.

Florets. Fertile florets female. Fertile lemma ovate, 7–8 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous, plumose, hairy below. Lemma hairs 5–6 mm long. Lemma apex lobed, 2 -fid, with filiform lobes, with lobes 0.3–1 mm long, acuminate, awned, 1 -awned. Principal lemma awn 4–8 mm long overall. Palea lanceolate, 5.5–6.3 mm long, 0.66 length of lemma, 2 -veined. Palea keels ciliolate. Palea surface glabrous or pubescent, hairy on flanks. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3. Staminodes present, 1.5 mm long. Caryopsis with adherent pericarp.

Male inflorescence bisexual similar to female, a panicle. Male spikelets resembling female.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America. Colombia, Ecuador, Peru.

Cortaderia speciosa (Nees & Meyen) Stapf. *Gard. Chron.* 2: 396 (1897).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Chile. **Basionym or Replaced Name:** *Gynierium speciosum* Nees & Meyen *Gramineae* 21 (1841)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Meyen s.n.*, Mar 1831, Chile: Copiaps (B). LT designated by Connor & Edgar, *Taxon* 23: 603 (1974); cited by Astegiano et al., *Darwiniana* 33: 51 (1995).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (264, Fig 53).

Derivation (Clifford & Bostock 2007): L. species, beauty; -osa, abundance. Showy in some respect, in particular the inflorescence.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms robust, 200–300 cm long, 3–5 mm diam. Culm-nodes brown, glabrous. Ligule a fringe of hairs, 2–3 mm long. Leaf-blades 100–150 cm long, 6–10 mm wide. Leaf-blade midrib keeled beneath. Leaf-blade margins scabrous. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Peduncle 40–50 cm long. Panicle open, elliptic, dense, 40–60 cm long, 10–15 cm wide. Primary panicle branches appressed, 20–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–8 mm long, scaberulous.

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 cuneate, laterally compressed, 9–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long. Floret callus evident, 0.6–0.8 mm long, bearded.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 6–8 mm long, 0.75–0.9 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface asperulous. Lower glume margins ciliolate. Lower glume apex entire or dentate, 2 -fid, acuminate. Upper glume lanceolate, 8–9 mm long, 0.9–1 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume surface asperulous. Upper glume margins ciliolate. Upper glume apex entire or dentate, 2 -fid, acuminate.

Florets. Fertile florets female. Fertile lemma lanceolate, 8–10 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, plumose, hairy below. Lemma margins ciliolate. Lemma hairs 4–6 mm long. Lemma apex attenuate, mucicous or awned, 1 -awned. Principal lemma awn 0–2.5 mm long overall. Palea 3–4 mm long, 0.5 length of lemma, hyaline, 2 -veined. Palea keels ciliolate. Palea apex entire or dentate, 2 -fid, truncate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.3–0.5 mm long, fleshy, ciliate. Anthers 3. Staminodes present, 0.1–0.2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Southern South America. Bolivia, Peru. Argentina Northwest, Chile North, Chile Central.

TDWG4. Catamarca, Jujuy, La Rioja, Mendoza, Salta, San Juan. Tarapaca, Antofagasta, Atacama. Coquimbo, Santiago.

Cortaderia vaginata Swallen. *Sellowia*, No. 7, 9 (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Reitz* 2398, 16 Dec 1948, Brazil: Santa Catarina: Bom Retiro, Campo dos Padres, beira do rio, 2000 m (US-2022897; IT: HBR).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (328, Fig. 75).

Derivation (Clifford & Bostock 2007): *L. vagina*, sheath; -ata, possessing. Leaf-sheaths conspicuous.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 80 cm long. Leaves mostly basal. Leaf-sheaths 10–22 cm long, keeled, smooth, glabrous on surface. Ligule a fringe of hairs. Leaf-blades 5 mm wide. Leaf-blade margins scabrous. Leaf-blade apex attenuate. Gynodioecious ("male", in this context, indicating the bisexual state).

Inflorescence. Inflorescence a panicle. Panicle open, ovate, loose, 15 cm long. Primary panicle branches ascending or spreading. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 lanceolate, laterally compressed, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pilose. Floret callus hairs 2–3 mm long.

Glumes. Glumes similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 5–6 mm long, 1 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 5–6 mm long, 0.66 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate.

Florets. Fertile florets female. Fertile lemma lanceolate, 7–9 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma apex setaceously acuminate. Palea 5 mm long, 0.66 length of lemma, hyaline, 2 -veined. Palea keels scabrous. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Male inflorescence terminal (but details unknown).

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil South.

Catarina, Rio Grande do Sul.

Corynephorus canescens (L.) Beauv. *Agrost.* 90 t. 18. f. 2. (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: *Aira canescens* L. *Sp. Pl.* 65 (1753)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: (LINN-85.16). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 244 (2000).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (256), N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (377 (257), Pl.4), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (743).

Derivation (Clifford & Bostock 2007): *L. canescens*, grow white. Leaf-blades or leaf-sheaths densely invested with white or grey hairs.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 10–30(–45) cm long, 2–5 -noded. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1.5–3.5 mm long, acute. Leaf-blades filiform, involute, 2–6 cm long, 0.3–0.5 mm wide, stiff, grey-green. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate or oblong, 1.5–8 cm long, 0.5–1.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long.

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, laterally compressed, 3–4(–5) mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume lanceolate, 3–4(–5) mm long, 1 length of upper glume, membranous, much thinner on margins, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 3–4(–5) mm long, 2 length of adjacent fertile lemma, membranous, with membranous margins (white), 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, (1.6–)1.8–2.2 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, with clavate limb, 2–3 mm long overall, not or scarcely exerted from spikelet, with twisted column. Column of lemma awn with bearded apex.

Flower and Fruit. Anthers 3, 1.2–1.6 mm long. Ovary glabrous. Hilum punctiform.

$N = 7$ (1 ref TROPICOS). $2n = 14$ (8 refs TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, 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. : France, Portugal, Sardinia, Spain. : Italy, Romania, Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, Northwest European Russia, Ukraine. **Northern Africa.** Morocco. **Northwest USA, Northeast USA.** Washington. Maine. **Western South America.** Ecuador.

TDWG4.

Corynephorus deschampsoides Bornm. *Verh. Zool.-Bot. Ges. Wien*, 48:645 (1898).

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

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

Derivation (Clifford & Bostock 2007): Gk *-oides*, resembling. Resembling *Deschampsia*..

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose, clumped loosely. Culms erect, 30–80 cm long. Ligule an eciliate membrane, 2.5–4 mm long. Leaf-blades filiform, convolute, 3–5 cm long, 0.5–1 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 5–10 cm long, 3–8 cm wide, with spikelets clustered towards branch tips. Primary panicle branches spreading, branching divaricately. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 3–5 length of fertile spikelet, scaberulous.

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, laterally compressed, 2.5–3 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. Lower glume lanceolate, 2–2.5 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, 2.5–3 mm long, 2.5–3 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 ovate, 1 mm long, hyaline, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, with clavate limb, 2.5 mm long overall, not or scarcely exerted from spikelet, with twisted column. Column of lemma awn with bearded apex.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Lebanon-Syria.

Corynephorus divaricatus (Pourret) Breistr. *Proc. Verb. Soc. Dauph. Etud. Biol., Grenoble, Ser. 3, 11* (1950).

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 France. **Basionym or Replaced Name:** *Aira divaricata* Pourret *Chloris Narbonensis* (1783)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: France,.

Recent Synonyms: *Corynephorus articulatus* (Desf.) Beauv., *Agrost.* 90. (1812).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 267), L.Boulos, *Flora of Egypt* 4 (2005) (166, Fig 46).

Derivation (Clifford & Bostock 2007): *L. divarico*, spread out. Inflorescence branches or culms regularly dividing into equal branches.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect, 7–42 cm long, 3 -noded. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 5–8 mm long, acute. Leaf-blades filiform, involute, 2–4.5 cm long, 0.5 mm wide. Leaf-blade surface scabrous, rough abaxially.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 2–10 cm long, 0.5–7 cm wide, with spikelets clustered towards branch tips. Primary panicle branches spreading, 3–6 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.2–3 mm long, scaberulous.

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, laterally compressed, 4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose. Floret callus bearded. Floret callus hairs 0.25–0.66 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume lanceolate, 3–4(–5) mm long, 0.8–1 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, 3.7–4.3 mm long, 2–2.5 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 ovate, 1.5–2 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, with clavate limb, 2.5 mm long overall, not or scarcely exerted from spikelet, with twisted column. Column of lemma awn with bearded apex.

Flower and Fruit. Anthers 3, 0.4–0.5 mm long. Ovary glabrous. Hilum punctiform.

$2n = 14$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, South America.

Region. Southwestern Europe, Southeastern Europe, Eastern Europe.

Country /Province /State. : Corsica, France, Sardinia, Spain. : Bulgaria, Italy, Crete, Sicily, Turkey Europe. **Northern Africa.** Algeria, Egypt, Libya, Morocco. **Caucasus, Western Asia.** Iran. **Southern South America.** Chile South.

TDWG4. Biobio.

Corynephorus fasciculatus Boiss. & Reut. *Pugill. Pl. Nov.* 123. (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).

Illustrations (Books): G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (91, Fig 51).

Derivation (Clifford & Bostock 2007): L. fascis, bundle; -ulus, diminutive. -ata, possessing. With spikelets or branches clustered in the inflorescence.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect, 20–60 cm long. Culm-nodes purple. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3–9 mm long. Leaf-blades filiform, involute, 1–8 cm long, 0.2–1 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, effuse, 5–18 cm long, with spikelets clustered towards branch tips. 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 oblong, laterally compressed, 2.8–3.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose. Floret callus pubescent. Floret callus hairs 0.15–0.25 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume lanceolate, 2.6–3.2 mm long, 0.8–1 length of upper glume, membranous, pallid or purple, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 2.8–3.7 mm long, 1.8–2 length of adjacent fertile lemma, membranous, pallid or purple, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 1.5–1.8 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, with scarcely tapering limb, 2.4–2.8 mm long overall, not or scarcely exerted from spikelet, with twisted column. Column of lemma awn 1 mm long, with bearded apex.

Flower and Fruit. Anthers 3, 0.3–0.6 mm long. Ovary glabrous. Caryopsis 1 mm long. Hilum punctiform.

N = 7 (4 refs TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, South America.

Region. Southwestern Europe, Southeastern Europe.

Country /Province /State. : Corsica, France, Portugal, Sardinia, Spain. : Sicily. **Northern Africa, Southern Africa** (*). Morocco. Western Cape. **Southern South America.** Argentina Northeast.

TDWG4. Buenos Aires.

Corynephorus macrantherus Boiss. & Reut. *Pugill. Pl. Nov.* 124 (1852).

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): Gk. makros, large; antheros, blooming. Panicle large.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect, 7–42 cm long, 3 -noded. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 5–8 mm long, acute. Leaf-blades filiform, involute, 2–4.5 cm long, 0.5 mm wide. Leaf-blade surface scabrous, rough abaxially.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 2–10 cm long, 0.5–7 cm wide. Primary panicle branches spreading, rebranched below middle, bearing spikelets almost to the base. 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 oblong, laterally compressed, 4.5–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pilose. Floret callus pilose. Floret callus hairs 0.25 length of lemma.

Glumes. Glumes persistent, similar, exceeding apex of florets, shiny. Lower glume lanceolate, 4.5–5 mm long, 0.8–1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 4.5–5 mm long, 2–2.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, 1.5–2 mm long, membranous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn dorsal, arising 0.1–0.2 way up back of lemma, with clavate limb, 2.5 mm long overall, not or scarcely exerted from spikelet, with twisted column. Column of lemma awn with bearded apex.

Flower and Fruit. Anthers 3, 1.5 mm long. Ovary glabrous. Hilum punctiform.

Distribution (TDWG). Continent. Europe.

Region. Southwestern Europe.

Country /Province /State. : Portugal, Spain.

Cottea pappophoroides Kunth. *Rev. Gram.* 1: 84, 281. t. 52 (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 Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Coll. Ukn. s.n.*, 1820, Peru (US-A865660 (fragm. ex B-W)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (289), F.W.Gould, *The Grasses of Texas* (1975), S.A.Renvoize, *Gramineas de Bolivia* (1998) (290, Fig 59), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (357, Fig. 123), G.Harling & C.Persson, *Flora of Ecuador* (2006) (68: 5, Fig. 1 (2001)).

Illustrations (Journals): *Ruizia* (13:239, Fig 27f-h (1993)).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Resembling species of Pappophorum in the form of the lemma.

Classification. Subfamily Chloridoideae. Tribe: Eragrostideae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 30–70 cm long. Culm-internodes distally pilose, with capitate hairs. Leaf-sheaths without keel, pilose, with capitate hairs. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades 8–20 cm long, 3–6 mm wide. Leaf-blade surface pilose, hairy on both sides, with capitate hairs. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, elliptic, 10–20 cm long, 4–6 cm wide. Panicle branches pilose, with capitate hairs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 7–10 mm long, 4–6 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 4–5 mm long, 1 length of upper glume, membranous, without keels, 7–13 -veined. Lower glume lateral veins ribbed. Lower glume surface hispidulous. Lower glume apex acute. Upper glume lanceolate, 4–5 mm long, 1.3 length of adjacent fertile lemma, membranous, without keels, 7–13 -veined. Upper glume lateral veins ribbed. Upper glume surface hispidulous. Upper glume apex acute.

Florets. Fertile lemma oblong, 3–4 mm long, chartaceous, without keel, 9–13 -veined, more than 3-veined. Lemma lateral veins ribbed. Lemma surface villous, hairy below. Lemma apex lobed, 9–13 -fid, with irregular lobes, incised 0.25–0.5 of lemma length, awned, 7–11 -awned. Principal lemma awn spreading, 1–3.5 mm long overall, limb scabrous. Lateral lemma awns present, arising on apex of lobes, 1–3.5 mm long, of irregular length. Palea 1.1 length of lemma, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Caryopsis with adherent pericarp, oblong, 1.5 mm long.

Cleistogenes present, in lower sheaths.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Southwestern USA, South-central USA, Mexico. Arizona. New Mexico, Texas. Northeast Mexico, Northwest Mexico, Southwest Mexico. **Western South America, Southern South America.** Bolivia, Ecuador, Peru. Argentina Northwest.

TDWG4. Catamarca, Jujuy, La Rioja, Mendoza, Salta, Santiago del Estero, San Juan, San Luis, Tucuman. Cordoba, La Pampa. Puebla. Coahuila, Chihuahua, Durango, Neuvo Leon, San Luis Potosi, Tamaulipas, Zacatecas. Sonora. Jalisco, Oaxaca.

Craspedorhachis africana Benth. *Hook. Ic. Pl. t.* 1377 (1882).

Accepted by: 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: *J. Kirk s.n.*, no date, Mozambique / Zambia: (K; IT: US-865658 (fragm. ex K)).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (79, Fig 19).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Africa.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 50–100 cm long. Ligule a ciliate membrane. Leaf-blades 5–10 cm long, 1–3 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 2–10, digitate, unilateral, 6–17 cm long. Rhachis flattened. Spikelets appressed, 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, dorsally compressed, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes lower persistent, upper deciduous, dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 1 length of upper glume, 1 length of spikelet, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.5–4 mm long, 2 length of adjacent fertile lemma, coriaceous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma oblong, dorsally compressed, 1.5–2 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma surface pubescent. Lemma apex obtuse. Palea hyaline. Palea keels ciliate.

Flower and Fruit. Caryopsis with adherent pericarp, obovoid.

Distribution (TDWG). Continent. Africa.

Country /Province /State. South tropical Africa, Southern Africa, Western Indian ocean. Malawi, Mozambique, Zambia, Zimbabwe. Namibia, Mpumalanga. Madagascar.

Craspedorhachis digitata F.K. Kupicha & T.A. Cope. *Kew Bull.*, 40(1): 89 (1985).

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: Zimbabwe: S: Chibi District: Razi Hill, 40 km S of Chibi District Commissioner's office, *Biegel 3260* (HT: K; IT: SRGH).

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

Derivation (Clifford & Bostock 2007): *L. digitus*, finger; -ata, possessing. Inflorescence branches finger-like.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 50–75 cm long, wiry. Ligule a ciliate membrane. Leaf-blades involute, 2–10 cm long, 1–2 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 1–5, digitate, unilateral, 6–9 cm long. Central inflorescence axis 0 cm long. Rhachis narrowly winged, flattened, smooth on margins or scaberulous on margins. Spikelets appressed, 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, dorsally compressed, 2.4–3.1 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes lower persistent, upper deciduous, dissimilar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 2.4–3.1 mm long, 1 length of upper glume, 1 length of spikelet, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.4–3.1 mm long, 2 length of adjacent fertile lemma, coriaceous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, dorsally compressed, 1.2 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma surface pubescent, hairy on veins. Lemma apex obtuse. Palea hyaline. Palea keels ciliate.

Flower and Fruit. Caryopsis with adherent pericarp, 1–2 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. South tropical Africa. Zimbabwe.

Craspedorhachis rhodesiana Rendle. *Journ. Linn. Soc., Bot.* 40: 233 (1911).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Illustrations (Books): G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999):222 t. 65), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (92, Fig 52).

Derivation (Clifford & Bostock 2007): *L. -ana*, indicating location. From Rhodesia, now Zimbabwe.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms 90–120 cm long. Ligule a ciliate membrane. Leaf-blades 10–20 cm long, 1–2.5 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 10–17, digitate, unilateral, 6–12 cm long. Central inflorescence axis 2–4 cm long. Rhachis narrowly winged, flattened. Spikelets appressed, 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, dorsally compressed, 2–2.2 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes lower persistent, upper deciduous, dissimilar, with lower wider than upper, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 2–2.2 mm long, 1 length of upper glume, 1 length of spikelet, 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 mm long, 2 length of adjacent fertile lemma, coriaceous, without keels, 1 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, dorsally compressed, 1 mm long, hyaline, without keel, 3 -veined, 0–3 -veined. Lemma surface glabrous. Lemma apex obtuse. Palea hyaline.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. South tropical Africa, Southern Africa, Western Indian ocean. Angola, Mozambique, Zambia, Zimbabwe. Namibia, Botswana. Madagascar.

Crinipes abyssinicus (Hochst. ex A. Braun) Hochst. *Flora*, 38 :280 (1855).

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:** *Danthonia abyssinica* Hochst. ex A. Braun *Flora* 24(45): 712 (1841)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: OM: *Schimper (u. i. 1840 sect. prim.) 114*, 3 Oct 1837, Abyssinia: In fissuris rupium regionis superioris septentrionalis montis Scholoda (plantae Adoknses) (IT: US-945081, US-878163, US-1612006). Specimen listed by Hochstetter *Flora* 24: 20 (1841).

Recent Synonyms: *Danthonia tenuiglumis* Steud., nom superfl. *Syn. Pl. Gram.* 244 (1854).

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

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

Classification. Subfamily Arundoideae. Tribe: Arundineae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 60–80 cm long. Ligule a fringe of hairs. Leaf-blades flat or convolute, 20–40 cm long, 2–6 mm wide, stiff. Leaf-blade surface ribbed, pilose, hairy adaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle contracted, elliptic, 10–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

Fertile Spikelets. Spikelets comprising 2 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 lanceolate, laterally compressed, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1–1.3 mm long. Floret callus elongated, 0.7 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 lanceolate, 3 mm long, 1 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 1 mm long. Upper glume lanceolate, 3 mm long, 0.8 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

Florets. Fertile lemma elliptic, 4 mm long, scarious, without keel, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma hairs 0.5–1 mm long. Lemma apex entire, acute, awned. Principal lemma awn apical, 7–12 mm long overall. Palea 0.6–0.7 length of lemma. Rhachilla extension 0.1–0.2 length of fertile floret. Apical sterile florets 0–1 in number, rudimentary. Apical sterile lemmas awned. Apical sterile lemma awns 0–7 mm long.

Flower and Fruit. Lodicules 2, glabrous.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa. Ethiopia (inc. Eritrea).

Crinipes longifolius C. E. Hubbard. *Kew Bull.* 1935, 306 (1935).

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: HT: A.S. *Thomas 296*, 27 Aug 1932, Uganda: Bugishu, Mt. Elgon, Bulago, on moist rock, 1860 m (K; IT: US-1538891).

Illustrations (Books): R.M.Phillips, F.T.E.A., *Gramineae* (1(1970):131, Fig.42), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (69, Fig 30).

Derivation (Clifford & Bostock 2007): *L. longus*, long; folium, leaf. With long leaf-blades.

Classification. Subfamily Arundinoideae. Tribe: Arundineae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 60–150 cm long. Ligule a fringe of hairs. Leaf-blades flat or convolute, 40–75 cm long, 5–14 mm wide, stiff. Leaf-blade surface ribbed. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open or contracted, oblong, 17–30 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

Fertile Spikelets. Spikelets comprising 2 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, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.2 mm long. Floret callus elongated, 1–1.5 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 lanceolate, 3–4 mm long, 0.8 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 1 mm long. Upper glume lanceolate, 3.5–5 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

Florets. Fertile lemma elliptic, 3–4 mm long, scarios, without keel, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma hairs 0.5–1 mm long. Lemma apex entire or dentate, 2 -fid, acute, awned. Principal lemma awn apical or from a sinus, 3–6 mm long overall. Palea 0.6–0.7 length of lemma. Rhachilla extension 0.1–0.2 length of fertile floret. Apical sterile florets 0–1 in number, rudimentary. Apical sterile lemmas awned. Apical sterile lemma awns 0–7 mm long.

Flower and Fruit. Lodicules 2, glabrous.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northeast tropical Africa, East tropical Africa. Ethiopia (inc. Eritrea), Sudan. Uganda.

Crithopsis delileana (Schult.) Roshev. *Zlaki (Grasses)* 319, (1937).

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: *Elymus delileanus* Schult. *Mant.* 2: 424 (1824)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Delile Descript. de l'Egypte (sub geniculato t. 13. f. 1" 1812, nom. nud., cited.

Recent Synonyms: *Hordeum geniculatum* (Delile) Thell., non All.(1785), *Mem. Soc. Nat. Sc. Cherbourg*, Ser. 4(38) 162 (1912). *Elymus geniculatus* Delile, non Curtis(1790), *Fl. Egypte*, 174 (1813).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl 204), L.Boulos, *Flora of Egypt* 4 (2005) (205, Pl. 59), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (227 & 247, Pl. 77 & 85 as *Hordeum geniculatum*), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986).

Derivation (Clifford & Bostock 2007): *L. -ana*, indicating connection. In honor of Alire Raffeneau Delile (1778–1850) French botanist.

Classification. Subfamily Pooideae. Tribe: Triticeae.

Habit, Vegetative Morphology. Annual. Culms erect or decumbent, 10–35 cm long. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blades 2–7 cm long, 1–3 mm wide. Leaf-blade surface scabrous, pilose. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, oblong, bilateral, 2–3.5 cm long. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs 2 mm long. Spikelet packing broadside to rhachis. Rhachis internodes oblong, falling with spikelet above. Spikelets ascending, in pairs. Fertile spikelets sessile, 2 in the cluster.

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, dorsally compressed, 12 mm long, falling entire, deciduous with accessory branch structures, readily shedding fertile florets.

Glumes. Glumes similar, exceeding apex of florets. Lower glume linear, 12 mm long, 1 length of upper glume, coriaceous, without keels, 3 -veined. Lower glume surface scabrous. Lower glume apex attenuate. Upper glume linear, 12 mm long, coriaceous, without keels, 3 -veined. Upper glume surface scabrous. Upper glume apex attenuate.

Florets. Fertile lemma elliptic, 5–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, villous, hairy above. Lemma apex attenuate, awned, 1 -awned. Principal lemma awn

5–7 mm long overall, limb scabrous. Palea 2 -veined. Palea keels ciliate. Apical sterile florets 1 in number, barren, linear, 3 mm long.

Flower and Fruit. Ovary pubescent on apex. Caryopsis with adherent pericarp, ellipsoid, dorsally compressed, hairy at apex. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, South America.

Region. Northern Europe (*), Southeastern Europe.

Country /Province /State. : GB Aliens (Ryves et al). : Crete. **Northern Africa.** Egypt, Libya, Morocco. **Western Asia.** Cyprus, Iran, Iraq, Lebanon-Syria, Palestine, Israel & Jordan, Turkey. **Southern South America.** Argentina Northeast.

TDWG4. Buenos Aires.

Crypsis aculeata (L.) Ait. *Hort. Kew.* 1: 48 (1789).

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).

Basionym or Replaced Name: *Schoenus aculeatus* L. *Sp. Pl.* 1: 42 (1753)

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 397), L.Boulos, *Flora of Egypt* 4 (2005) (273, Pl. 81), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (461, Pl. 176), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14d (1956) (61, Fig. 12), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 688).

Derivation (Clifford & Bostock 2007): subtending bracts of inflorescence sharp pointed.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, 1–30 cm long. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades 1–5 cm long, 3.5 mm wide, glaucous. Leaf-blade surface pilose, hairy on both sides. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, subtended by sheathless blades (2 blades), embraced at base by subtending leaf or enclosed. Panicle capitate, corymbose, 0.5–1 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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 elliptic, laterally compressed, 3–4.5 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet. Lower glume lanceolate, 2.5–3 mm long, 0.75–0.9 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, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein ciliolate. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, laterally compressed, 3.5–4.5 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute. Palea 0–1 -veined.

Flower and Fruit. Lodicules absent. Anthers 2, 0.8–1 mm long. Caryopsis with free soft pericarp, oblong or obovoid, 2 mm long, apex unappendaged.

$2n = 16$ (1 ref TROPICOS).

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

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

Country /Province /State. : GB Aliens (Ryves et al). : Austria, Czechoslovakia, Hungary. : Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym, Central European Russia, East European Russia, South European Russia, Northwest European Russia. **Northern Africa, Southern Africa (*).** Algeria, Egypt, Morocco, Tunisia. Siberia, **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia, Eastern Asia.** Kazakhstan, Kirgizistan, Turkmenistan, Tadzhikistan, Uzbekistan. Iran, Iraq. China South Central, Inner Mongolia, China North-Central, China Southeast, Xinjiang. **Indian Subcontinent.** Pakistan.

TDWG4. Gansu, Hebei, Shaanxi, Shandong, Shanxi. Anhui, Henan, Jiangsu, Zhejiang. Yunnan.

Crypsis acuminata Trin. *Spreng. Neue Entdeck.* 2: 57 (1821).

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).

Basionym or Replaced Name: *Crypsis borszczowii* Regel, *Bull. Soc. Nat. Mosc.* 41 (2) 306. (1868).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 393).

Derivation (Clifford & Bostock 2007): *L. acumen*, sharp point; -ata, possessing. Lemmas or glumes acute.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 1–40 cm long. Leaf-sheaths glabrous on surface or pilose. Ligule a fringe of hairs. Leaf-blades 2–4 cm long, 1–3 mm wide, glaucous. Leaf-blade surface puberulous to pilose, hairy on both sides. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 3–8 cm long, 0.5–0.7 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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 elliptic, laterally compressed, 2–4 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet or reaching apex of florets. Lower glume lanceolate, 2–2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume apex acuminate, awned, 1 -awned, awn 1–2 mm long. Upper glume lanceolate, 2–2.5 mm long, 0.8–1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein ciliolate. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 1–2 mm long.

Florets. Fertile lemma lanceolate, laterally compressed, 2–4 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma midvein ciliate. Lemma apex acute, awned, 1 -awned. Principal lemma awn 0.5–1.2 mm long overall. Palea 2–3 mm long, 2 -veined. Palea apex obtuse.

Flower and Fruit. Lodicules absent. Anthers 3, 1–2 mm long. Caryopsis with free soft pericarp, ovoid, 1–1.5 mm long, apex unappendaged.

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

Region. Eastern Europe.

Country /Province /State. East European Russia, South European Russia, Ukraine. **Middle Asia, Caucasus, Western Asia, Mongolia.** Kazakhstan, Tadjikistan. Iraq.

TDWG4.

Crypsis alopecuroides (Pill. & Mitt.) Schrad. *Fl. Germ.* 1: 167 (1806).

Accepted by: R.J.Soreng et al., *Catalogue of 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. **Basionym or Replaced Name:** *Phleum alopecuroides* Piller & Mitterp. *Iter Poseg. Slavon.* 147, t. 16 (1783). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Hungary: Iter per Poseganum Slavoniae provinciam.

Recent Synonyms: *Heleochloa alopecuroides* (Pill. & Mitterp.) Host, *Gram. Austr.* 1: 23. t. 29. (1801).

Illustrations (Books): G.Hegi, *Flora von Mitteleuropa* 1 (1909), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 392), L.Boulos, *Flora of Egypt* 4 (2005) (273, Pl. 81), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 65), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (463, Pl. 177), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (141), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14d (1956) (63, Fig. 13 as *Heleochloa*).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar to *Alopecurus*, usually in respect of the inflorescence.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 2–35 cm long. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades 8–10 cm long, 0.5–3 mm wide, mid-green to glaucous. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 0.5–7.5 cm long, 0.3–0.6 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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 elliptic, laterally compressed, 2–2.5 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet. Lower glume lanceolate, 1.5–2.2 mm long, 0.8–1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume lanceolate, 1.8–2.2 mm long, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein ciliolate. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Fertile lemma ovate, laterally compressed, 2–2.5 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute. Palea 1–1.5 mm long, 2 -veined. Palea apex obtuse.

Flower and Fruit. Lodicules absent. Anthers 3, 0.6–1 mm long. Caryopsis with free soft pericarp, ellipsoid, 1–1.2 mm long, apex unappendaged.

N = 9 (1 ref TROPICOS).

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

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

Country /Province /State. : Austria, Czechoslovakia, Hungary. : Corsica, France, Portugal. : Albania, Bulgaria, Greece, Italy, Romania, Sicily, Turkey Europe, Yugoslavia. Belarus, Central European Russia, East European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa.** Algeria, Egypt, Libya, Morocco, Tunisia. Siberia, **Middle Asia, Caucasus, Western Asia.** Kazakhstan, Tadjikistan, Uzbekistan. Iran, Iraq. **Northwest USA, Southwestern USA, Mexico.** Colorado, Idaho, Montana, Oregon, Washington, Wyoming. California, Nevada, Utah. Northeast Mexico.

TDWG4. Coahuila.

Crypsis ambigua (Boiss. & Bal. ex Boiss.) Lorch. *Bull. Res. Counc. Israel, Sect. D. Bot.*, 11: 97 (1962).

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

Basionym or Replaced Name: *Heleochloa ambigua* Boiss. & Bal. ex Boiss., *Fl. Or.* 5: 477 (1884).

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

Derivation (Clifford & Bostock 2007): *L.* uncertain. Species that may be readily confused with others or do not necessarily belong in the genus in which they have been placed or are intermediate in characters between other genera.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual, caespitose, clumped densely. Culms 5–10 cm long. Leaf-sheaths pilose. Ligule a fringe of hairs. Leaf-blades 7–15 cm long, 4–6 mm wide. Leaf-blade venation prominent.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle spiciform, linear or lanceolate, 0.7–1.5 cm long, 0.5–0.7 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. Spikelets solitary. Fertile spikelets sessile.

Sterile Spikelets. Basal sterile spikelets well-developed (at base of inflorescence).

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 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, 4.1–5 mm long, falling entire.

Glumes. Glumes similar, reaching apex of florets. 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 margins ciliolate. Lower glume apex acuminate, awned, 1 -awned, awn 2.5–3.3 mm long. Upper glume lanceolate, 4–5 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 margins ciliolate. Upper glume apex acuminate, awned, 1 -awned, awn 1.3–1.7 mm long.

Florets. Fertile lemma lanceolate, laterally compressed, 4.1–5 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma midvein scabrous. Lemma apex awned, 1 -awned. Principal lemma awn 2.5–3.3 mm long overall. Palea 2.5 mm long, 2 -veined. Palea apex obtuse.

Flower and Fruit. Lodicules absent. Anthers 3, 1 mm long. Caryopsis with free soft pericarp, ellipsoid, 1.5 mm long, apex unappendaged.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. **Western Asia.** Turkey.

Crypsis factorovskyi Eig. *Zionist Org. Inst. Agric. & Nat. Hist.*, Bull. 6, 58 (1927).

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

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 396).

Illustrations (Journals): *Bull. Res. Counc. Israel* (11D: 103, Fig.6 (1962)).

Derivation (Clifford & Bostock 2007): in honor of Eliezer Faktorovsky (1897–1926) Russian-born Palestine botanist.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual. Culms prostrate, 20–90 cm long. Lateral branches ample. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades 1–5 cm long, 1.5–2 mm wide. Leaf-blade surface pilose, hairy adaxially or on both sides. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, subtended by sheathless blades (2 blades), embraced at base by subtending leaf or enclosed. Panicle capitate, corymbose, 0.4–0.6 cm long, 0.5–0.8 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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 elliptic, laterally compressed, 4–6 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet. Lower glume lanceolate, 3.5–4.8 mm long, 0.9 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, 3.5–4.8 mm long, 0.75–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein ciliolate. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, laterally compressed, 4.5–5.2 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute. Palea 2 -veined.

Flower and Fruit. Lodicules absent. Anthers 3, 2–3 mm long. Caryopsis with free soft pericarp, ellipsoid or oblong, 2–2.5 mm long, apex unappendaged.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Middle Asia, Western Asia. Turkmenistan.

TDWG4.

Crypsis hadjikyriakou Raus & H.Scholz. *Willdenowia* 34(2): 457 (-462; fig. 1) (2004).

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

TYPE from Cyprus. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cyprus, Troodos, Almyrolivadon: Hadjikyriakou 4721 (B holo, BTU).

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

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual, culms solitary. Culms erect or prostrate, 1–30 cm long. Lateral branches lacking or sparse. Leaf-sheaths inflated, longer than adjacent culm internode, without keel, ribbed, smooth, glabrous on surface or pilose, with tubercle-based hairs, outer margin glabrous or hairy. Ligule a fringe of hairs. Leaf-blades flat or involute, 0.5–2 cm long, 1–5 mm wide, stiff, glaucous. Leaf-blade surface ribbed, scabrous, rough adaxially, pilose, sparsely hairy, hairy on both sides, with tubercle-based hairs. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, comprising 8–15 fertile spikelets, subtended by an inflated leaf-sheath, embraced at base by subtending leaf or enclosed. Panicle capitate, elliptic or ovate, 0.5–1 cm long, 0.4–0.5 cm wide. Panicle axis glabrous. Spikelets solitary or in pairs. Fertile spikelets sessile or sessile and pedicelled.

Sterile Spikelets. Basal sterile spikelets well-developed, 1–2 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, 3–4 mm long, falling entire.

Glumes. Glumes similar, with lower narrower than upper, shorter than spikelet. Lower glume lanceolate, 2–2.5 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous, eciliate. Lower glume lateral veins absent. Lower glume margins eciliate. Lower glume apex caudate. Upper glume lanceolate or ovate, 2–2.5 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 margins eciliate. Upper glume apex caudate.

Florets. Fertile lemma lanceolate, 2–2.5 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma apex caudate. Palea 1.2–2 mm long, 2 -veined. Palea apex dentate, 4 -fid.

Flower and Fruit. Lodicules absent. Anthers 3, 2.5 mm long, yellow or brown. Caryopsis ellipsoid or oblong, 1.5–2 mm long. Embryo 0.75 length of caryopsis.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Cyprus.

Crypsis minuartioides (Bornm.) Mez. Fedde, *Repert.* 17: 293 (1921).

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

Basionym or Replaced Name: *Torgesia minuartioides* Bornm. *Mith. Thuring. Bot. Vereins* ser. 2, (1913)

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 395).

Illustrations (Journals): *Bull. Res. Counc. Israel* (11D: 103, Fig.8 (1962)).

Derivation (Clifford & Bostock 2007): Gk. -oides, resembling. Similar in habit to *Minuartia glomerata*.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual, caespitose. Culms prostrate, 6–25 cm long. Lateral branches ample. Leaf-sheaths 0.5–1 cm long. Ligule a fringe of hairs. Leaf-blades 1–6 cm long, 1–3 mm wide, stiff. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, comprising 5–12 fertile spikelets, subtended by sheathless blades (2–4 blades), embraced at base by subtending leaf. Panicle capitate, corymbose, 0.7–0.9 cm long, bearing few spikelets. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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 elliptic, laterally compressed, 4–5 mm long, falling entire.

Glumes. Glumes similar, reaching apex of florets. Lower glume lanceolate, 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 margins eciliate or ciliolate. Lower glume apex acute. Upper glume ovate, 4–5 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 surface glabrous or puberulous. Upper glume margins ciliolate. Upper glume apex obtuse or acute.

Florets. Fertile lemma ovate, laterally compressed, 4–5 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute. Palea 3–4 mm long, 2 -veined.

Flower and Fruit. Lodicules absent. Anthers 3, 2–2.5 mm long. Caryopsis with free soft pericarp, apex unappendaged.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Palestine, Israel & Jordan.

Crypsis schoenoides Hochst. ex Steud., in syn. *Syn. Pl. Gram.* 152 (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), 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 Spain. **Basionym or Replaced Name:** *Phleum schoenoides* L., *Sp. Pl.* 60 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Loefling s.n.*, Spain (LINN).

Illustrations (Books): G.Hegi, *Flora von Mitteleuropa* 1 (1909), N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (969 (641), Pl.14), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (224, Fig. 148), R.M.Phill, F.T.E.A., *Gramineae* (2(1974):352, Fig. 99), G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999):199 t. 56), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (115, Fig. 35), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 394), L.Boulos, *Flora of Egypt* 4 (2005) (273, Pl. 81), N.L.Bor, *Gramineae in Flora of Iraq* (1968) (465, Pl. 178), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (138), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 688).

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 *Schoenus*.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 1–30 cm long. Lateral branches ample. Leaf-sheaths outer margin glabrous. Ligule a fringe of hairs. Collar glabrous. Leaf-blades deciduous at the ligule, 0.5–12 cm long, 1–5 mm wide, stiff, glaucous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath or a spatheole, embraced at base by subtending leaf. Panicle capitate, elliptic or oblong, 0.5–3 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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, laterally compressed, 2.5–4 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet. Lower glume lanceolate, 2.5–4 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein eciliate. Lower glume lateral veins absent. Lower glume margins eciliate. Lower glume apex acute. Upper glume lanceolate, 2.5–4 mm long, 0.9 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein eciliate. Upper glume lateral veins absent. Upper glume margins eciliate. Upper glume apex acute.

Florets. Fertile lemma lanceolate, laterally compressed, 2.5–4 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute. Palea 2 -veined.

Flower and Fruit. Lodicules absent. Anthers 3, 0.9 mm long. Caryopsis with free soft pericarp, ellipsoid to obovoid, 1.5 mm long, apex unappendaged.

$2n = 32$.

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, Tropical Asia, Australasia (*), North America (*).

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

Country /Province /State. : GB Aliens (Ryves et al). : Austria, Czechoslovakia, Hungary. : Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Belarus, Krym, Central European Russia, East European Russia, South European Russia, Ukraine. **Northern Africa, West tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Western Indian ocean.** Algeria, Egypt, Morocco, Tunisia. Senegal. Sudan. Tanzania. Malawi, Mozambique. Madagascar. Siberia, **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Mongolia.** Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq. Inner Mongolia, China North-Central, China Southeast, Xinjiang. **Indian Subcontinent.** Pakistan, West Himalaya. **Australia.** Western Australia (*). **North-central USA, Northeast USA, Southwestern USA, South-central USA.** Illinois, Iowa, Missouri, Wisconsin. Massachusetts, Ohio. Arizona, California, Nevada, Utah.

TDWG4. Hebei, Shandong, Shanxi. Anhui, Henan, Jiangsu. Madhya Pradesh, Maharashtra, Punjab, Rajasthan. South-West.

Crypsis turkestanica Eig. *P.Z.E. Inst. Agric. & Nat. Hist., Agric. Rec. No. 2*, 206 (1929).

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).

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

Derivation (Clifford & Bostock 2007): L. -ica, belonging to. From Turkestan, former Soviet Union.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 5–15 cm long. Ligule a fringe of hairs. Leaf-blades deciduous at the ligule, involute, 1–3 mm wide. Leaf-blade surface scabrous, rough adaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath or a spatheole, embraced at base by subtending leaf (2 leaves). Panicle spiciform, ovate, 0.8–1 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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, laterally compressed, 4.5 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet. Lower glume lanceolate, 3–4 mm long, 0.9 length of upper glume, membranous, pallid, 1-keeled, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume margins eciliate. Lower glume apex acute. Upper glume lanceolate, 3–4 mm long, 0.7–0.9 length of adjacent fertile lemma, membranous, pallid, 1-keeled, 1 -veined. Upper glume primary vein ciliolate. Upper glume lateral veins absent. Upper glume margins eciliate. Upper glume apex acute.

Florets. Fertile lemma lanceolate, laterally compressed, 4.5 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma apex obtuse. Palea 1–2 -veined.

Flower and Fruit. Lodicules absent. Anthers 2–3, 0.6–1.3 mm long. Caryopsis with free soft pericarp.

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

Region. Eastern Europe.

Country /Province /State. East European Russia, South European Russia. Siberia, **Middle Asia, Caucasus, and China.** Kazakhstan, Tadjikistan, Uzbekistan.

TDWG4.

Crypsis vaginiflora (Forssk.) Opiz. *Natural.* 8: 83 (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 Egypt. **Basionym or Replaced Name:** *Phalaris vaginiflora* Forssk. *Fl. Aegypt.-Arab.* 18 (1775)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Forsskal 52*, Egypt: Alexandria (C (2 sheets)).

Illustrations (Books): S. Phillips, *Poaceae* (Gramineae) in I. Hedberg & S. Edwards, *Flora of Ethiopia and Eritrea* (1995) (143, Fig 59), M.E. Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (138).

Derivation (Clifford & Bostock 2007): L. vagina, sheath; flos, flower.

Classification. Subfamily Chloridoideae. Tribe: Zoysieae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 10–30 cm long. Lateral branches ample. Leaf-sheaths outer margin hairy. Ligule a fringe of hairs. Collar pilose. Leaf-blades deciduous at the ligule, 1–5 cm long, 2–3 mm wide, stiff, glaucous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle, subtended by an inflated leaf-sheath or a spatheole, embraced at base by subtending leaf. Panicle capitate, ovate, 0.3–1.5 cm long. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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 elliptic, laterally compressed, 2.5–3.2 mm long, falling entire.

Glumes. Glumes similar, reaching apex of florets. Lower glume lanceolate, 2.5–3.2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein ciliolate. Lower glume lateral veins absent. Lower glume margins ciliate. Lower glume apex acute. Upper glume lanceolate, 2.5–3.2 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume margins ciliate. Upper glume apex acute.

Florets. Fertile lemma lanceolate, laterally compressed, 2.5–3.2 mm long, membranous, keeled, 1 -veined, 0–3 -veined, one-veined. Lemma apex acute. Palea 2 -veined.

Flower and Fruit. Lodicules absent. Anthers 3, 0.6–0.7 mm long. Caryopsis with free soft pericarp, 1.3–1.7 mm long, apex unappendaged.

$2n = 48$.

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, North America.

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Algeria, Egypt, Libya, Senegal, Eritrea, Ethiopia (inc. Eritrea), Sudan, Tanzania, Mozambique. Western Asia. Afghanistan, Iraq. Indian Subcontinent. India, West Himalaya. Northwest USA, Southwestern USA, Mexico. Idaho, California. Northwest Mexico.

Baja California.

Cryptochloa capillata (Trin.) T.R. Soderstrom. *Brittonia*, 34(2): 202 (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. **Basionym or Replaced Name:** *Olyra capillata* Trin. *Mem. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 3,1(2–3): 114 (1834)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *G.H. von Langsdorff s.n.*, Brasilia: in sylvis umbrosis pr. Balhao (LE-TRIN-1117.01; IT: US-2877959 (fragm.)).

Illustrations (Books): S.A. Renvoize, *The Grasses of Bahia*, 1984 (22, Fig. 5), E. Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (154, Fig 25).

Derivation (Clifford & Bostock 2007): inflorescence branches thread-like.

Classification. Subfamily Bambusoideae. Tribe: Olyreae.

Habit, Vegetative Morphology. Perennial, caespitose. Roots bearing tubers. Butt sheaths absent. Culms 50–80 cm long. Culm-nodes glabrous or pubescent. Leaves cauline, 4–6 per branch. Leaf-sheaths outer margin hairy. Ligule an eciliate membrane, 4–8 mm long, acute. Leaf-blade base broadly rounded, symmetrical, with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long, petiole pubescent. Leaf-blades elliptic, 10–13 cm long, 30–42 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in different inflorescences (or the terminal mixed).

Inflorescence. Inflorescence composed of racemes, comprising 2–4 fertile spikelets, axillary, embraced at base by subtending leaf. Racemes 1, single, 3–5 cm long, bearing few fertile spikelets, bearing 2–4 fertile spikelets on each. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled. Pedicels present, clavate (female), 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, dorsally compressed, 11–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long.

Glumes. Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 11–13 mm long, 1 length of upper glume, membranous, without keels, 5–7 -veined. Lower glume surface pubescent, hairy below. Lower glume apex acuminate, awned, 1 -awned, awn 2–4 mm long. Upper

glume lanceolate, 1.4 length of adjacent fertile lemma, membranous, without keels, 5–7 -veined. Upper glume surface pubescent, hairy below. Upper glume apex acuminate, awned, 1 -awned, awn 2–4 mm long.

Florets. Fertile florets female. Fertile lemma lanceolate, 7.5–9 mm long, indurate, pallid or dark brown, mottled with last colour, shiny, without keel. Lemma margins involute. Lemma apex acute. Palea involute, 1 length of lemma, indurate.

Flower and Fruit. Lodicules 3, membranous. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp, 6 mm long.

Male inflorescence terminal, similar to female, a panicle (ovate, 5–8 cm). Male spikelets distinct from female, 1 flowered, linear, 5–9 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined, awned, with 2–3 mm long awn.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Brazil. Brazil West Central, Brazil Northeast, Brazil North, Brazil Southeast.

TDWG4. Para, Amapa, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo.

Cryptochloa concinna (Hook. f.) Swallen. *Ann. Missouri Bot. Gard.* 29: 320 (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 Costa Rica. **Basionym or Replaced Name:** *Olyra concinna* Hook. f. *Bot. Mag.* 122: t. 7469 (1896)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Anonymous s.n.*, 1891, Costa Rica: San Josi (K(fragm., US-2877956)).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (155, Fig 48).

Derivation (Clifford & Bostock 2007): L. elegant. Panicles or habit attractive.

Classification. Subfamily Bambusoideae. Tribe: Olyreae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths absent. Culms 20–40 cm long, wiry. Leaves cauline, distichous. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane, 0.2–0.8 mm long. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades spreading (in one plane, folding at night), lanceolate, 1.8–2.5 cm long, 6–8 mm wide. Leaf-blade margins scabrous. Leaf-blade apex abruptly acute. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence a panicle, comprising 1–3 fertile spikelets (and 1–3 male), terminal and axillary, embraced at base by subtending leaf. Panicle contracted, linear. 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, 8.4–11.7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long.

Glumes. Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 1 length of upper glume, membranous, without keels, 5 -veined. Lower glume apex acuminate. Upper glume ovate, 1.3–1.5 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acuminate.

Florets. Fertile florets female. Fertile lemma ovate, 6–7 mm long, indurate, pallid, shiny, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acute. Palea 1 length of lemma, indurate, 2–4 -veined.

Flower and Fruit. Lodicules 3, membranous, veined, truncate. Anthers 3, 1.2–1.5 mm long. Stigmas 2. Caryopsis with tardily free pericarp, ovoid, dorsally compressed. Embryo 0.15 length of caryopsis.

Male spikelets distinct from female, 2–2.5 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined, muticous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Western South America. Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama. Colombia.

Cryptochloa decumbens T.R. Soderstrom & F.O. Zuloaga. *Brittonia*, 37(1): 29 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: C.E. Caldersn 2074, 3 Mar 1968, Panama: Panama (PMA; IT: MO, US-2641924, US-2641923).

Illustrations (Books): E.J. Judziewicz et al. *American Bamboos* (1999) (269, Fig. 163).

Illustrations (Journals): *Brittonia* (37: 230–31, Fig5 (1985)).

Derivation (Clifford & Bostock 2007): *L. decumbo*, fall down. Culms prostrate.

Classification. Subfamily Bambusoideae. Tribe: Olyreae.

Habit, Vegetative Morphology. Perennial. Butt sheaths absent. Culms decumbent, 15–30 cm long, rooting from lower nodes. Culm-internodes thin-walled. Culm-nodes constricted, pubescent. Lateral branches ample. Leaves cauline, 4–6 per branch, distichous. Leaf-sheaths keeled, outer margin hairy. Ligule a ciliate membrane, 0.9–1.5 mm long, pubescent on abaxial surface. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.1 cm long, petiole pubescent. Leaf-blades lanceolate or oblong, 1.8–2.1 cm long, 6–7 mm wide, mid-green or purple, discolorous with last colour beneath (purple below). Leaf-blade surface scabrous, glabrous to pubescent, hairy on both sides. Leaf-blade margins scabrous. Leaf-blade apex abruptly acute, apiculate. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence comprising only a few spikelets, comprising 2 fertile spikelets (and 1 male), axillary, embraced at base by subtending leaf. Axillary inflorescences present in lower axils. Sexes segregated, with male below. Spikelets in threes. Fertile spikelets pedicelled, 2 in the cluster. Male spikelets pedicelled, 1 in a cluster. Pedicels present, clavate (female) or linear (male), unequal (male intermediate in length), scabrous.

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 lanceolate, dorsally compressed, 7.6–8.5 mm long, 1.8–2 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1 mm long.

Glumes. Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 7.6–8.5 mm long, 1 length of upper glume, membranous, mid-green or purple, without keels, 5 -veined. Lower glume lateral veins obscure, with cross-veins. Lower glume surface scabrous, rough at apex. Lower glume apex acuminate. Upper glume lanceolate, 7.4–8.2 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, mid-green or purple, without keels, 5–7 -veined. Upper glume lateral veins with cross-veins. Upper glume surface scabrous, rough at apex. Upper glume apex acuminate.

Florets. Fertile florets female. Fertile lemma lanceolate, 6–6.2 mm long, 1.6–1.9 mm wide, indurate, pallid, shiny, without keel. Lemma surface papillose. Lemma margins involute. Lemma apex acute. Palea 1 length of lemma, indurate. Palea surface papillose.

Flower and Fruit. Lodicules 3, 1.3 mm long, membranous. Anthers 3, 1.1 mm long. Stigmas 2. Caryopsis fusiform, 4.2–4.4 mm long, light brown. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

Male spikelets distinct from female, 1 flowered, separately deciduous, oblong, 3 mm long, glabrous. Male spikelet glumes absent. Male spikelet lemma 3 -veined, muticous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Panama.

Cryptochloa dressleri T.R. Soderstrom. *Brittonia*, 34(1): 25 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: C.E. Caldersn & R.L. Dressler 2135, 27 Oct 1971, Panama: Colsn (US-2690612; IT: MO, US-2690611).

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. Rhizomes short. Butt sheaths absent. Culms 30–50 cm long. Culm-internodes purple, ridged. Leaves cauline, 4–6 per branch. Leaf-sheaths ribbed, papillose, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule a ciliate membrane, 4.4–5.2 mm long, brown, obtuse. Leaf-blade base broadly rounded, symmetrical, with a brief petiole-like connection to sheath. Leaf-blades ascending or spreading, linear or lanceolate, 5–10 cm long, 10–15 mm wide, light green or purple (below), discolorous with last colour beneath. Leaf-blade midrib conspicuous, prominent beneath. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Monoecious, with male terminal and mixed axillary inflorescences.

Inflorescence. Inflorescence composed of racemes, axillary, enclosed. Racemes 2, paired, bearing few fertile spikelets, bearing 3–4 fertile spikelets on each (female branch). Sexes segregated, on unisexual branches, with male conjugate, with 5–8 male spikelets per branch. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled. Pedicels present, cuneate (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 oblong, dorsally compressed, 9.4–11.1 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.7 mm long.

Glumes. Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume ovate, 10.9 mm long, 1.1–1.2 length of upper glume, membranous, purple, without keels, 5 -veined. Lower glume apex acuminate. Upper glume ovate, 9.2 mm long, 1.3–1.4 length of adjacent fertile lemma, membranous, purple, without keels, 5 -veined. Upper glume apex acute.

Florets. Fertile florets female. Fertile lemma ovate, 6.8 mm long, indurate, pallid, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma margins involute. Lemma apex acute. Palea 1 length of lemma, indurate, 2 -veined.

Flower and Fruit. Lodicules 3, cuneate, fleshy. Anthers 2, 1.3 mm long, orange. Stigmas 2, terminally exerted. Caryopsis with adherent pericarp, ellipsoid. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

Male spikelets distinct from female, 1 flowered, oblong, 2.2–3 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined, muticous.

N = 11 (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Panama.

Cryptochloa soderstromii G. Davidse. *Novon*, 2(2): 96 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Hammel & W.G. D'Arcy 4984*, 7 Oct 1978, Panama: San Blas: Ailigandi, area along trail from ocean to waterfall on river, 0–200 ft, culms clumped, to 1 m tall, leaves dark green matte above, burgundy below, on slope along river (MO-3334173; IT: PMA, US-2849324).

Illustrations (Journals): *Novon* (2: 97, Fig. 7 (1992)).

Derivation (Clifford & Bostock 2007): in honor of Thomas Robert Soderstrom (1936–1987) United States agrostologist.

Classification. Subfamily Bambusoideae. Tribe: Olyreae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths absent. Culms 60–100 cm long. Culm-internodes thin-walled, smooth or scaberulous. Culm-nodes glabrous. Culm-sheaths present. Leaves cauline. Leaf-sheaths outer margin glabrous. Leaf-sheath auricles erect. Ligule a ciliolate membrane, 5–8 mm long. Leaf-blade base symmetrical, with a brief petiole-like connection to sheath, petiole 0.15 cm long, petiole glabrous. Leaf-blades elliptic or oblong or ovate, 10–13 cm long, 30–40 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence a panicle, terminal and axillary, embraced at base by subtending leaf, with 2–3 peduncles per sheath. Panicle contracted, lanceolate, bearing few spikelets. Primary panicle branches appressed. Panicle branches angular, scaberulous. Sexes segregated, on unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled, 1 in a cluster or 2 in a cluster. Pedicels present, filiform (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, 9–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.6–2.2 mm long.

Glumes. Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 9–13 mm long, 1 length of upper glume, membranous, without keels, 7–9 -veined. Lower glume lateral veins with cross-veins. Lower glume surface scabrous, rough above. Lower glume apex acute, muticous or awned, 1 -awned, awn 0–3 mm long. Upper glume lanceolate, 9–13 mm long, 1.2–1.6 length of adjacent fertile lemma, membranous, without keels, 7–9 -veined. Upper glume lateral veins with cross-veins. Upper glume surface scabrous, rough above. Upper glume apex acute, muticous or mucronate or awned, 1 -awned, awn 0–1 mm long.

Florets. Fertile florets female. Fertile lemma lanceolate, 7.8–8.3 mm long, indurate, shiny, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acute. Palea involute, 1 length of lemma, indurate, 2 -veined.

Flower and Fruit. Lodicules 3, membranous, veined. Anthers 3, 3.3–3.6 mm long. Stigmas 2. Caryopsis with adherent pericarp.

Male spikelets distinct from female, 1 flowered, lanceolate, 3.5–5 mm long, glabrous. Male spikelet glumes absent. Male spikelet lemma 3 -veined, muticous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Panama.

Cryptochloa strictiflora (Fourn.) Swallen. *Ann. Missouri Bot. Gard.* 29: 321 (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 Mexico. **Basionym or Replaced Name:** *Strephium strictiflorum* E. Fourn. *Bull. Soc. Roy. Bot. Belgique* 15(3): 465 (1876)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Liebmann 266*, Mexico: Mirador (C), *fide Olivera et al, Kew Bull.* 64:737 (2009).

Illustrations (Books): W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (157, Fig 49 as *C. granulifera*).

Derivation (Clifford & Bostock 2007): *L. strictus*, erect; flos, flower. Panicles narrow.

Classification. Subfamily Bambusoideae. Tribe: Olyreae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths absent. Culms geniculately ascending, 35–55 cm long. Culm-internodes thick-walled, distally hispid. Culm-nodes swollen, pubescent. Leaves cauline, 5–17 per branch. Leaf-sheaths tight, puberulous, outer margin hairy. Leaf-sheath auricles erect. Ligule an eciliate membrane, 4–6 mm long, pubescent on abaxial surface, acute. Collar pubescent. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.15 cm long, petiole pubescent. Leaf-blades elliptic, 5–8 cm long, 14–24 mm wide, dark green or purple, discolorous with last colour beneath. Leaf-blade apex abruptly acute. Monoecious, with male and female spikelets in the same inflorescence (or some all female).

Inflorescence. Inflorescence a panicle, terminal and axillary, embraced at base by subtending leaf. Panicle contracted, linear, 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), 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, dorsally compressed, 10.5–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 1.2–1.5 mm long.

Glumes. Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 10.5–12 mm long, 1 length of upper glume, membranous, without keels, 3(–5) -veined. Lower glume apex acuminate, muticous or awned, 1 -awned, awn 0.5–1.5 mm long. Upper glume lanceolate, 10.5–12 mm long, 1.7 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume apex acuminate, muticous or awned, 1 -awned, awn 0.5–1.5 mm long.

Florets. Fertile florets female. Fertile lemma ovate, 6–7 mm long, indurate, pallid, shiny, without keel, 5 -veined, more than 3-veined. Lemma margins involute. Lemma apex acute. Palea ovate, involute, 1 length of lemma, indurate.

Flower and Fruit. Lodicules 3, membranous, veined. Anthers 3, 2.4–2.6 mm long. Stigmas 2, terminally exerted. Caryopsis with adherent pericarp, ellipsoid or ovoid, dorsally compressed, 5 mm long, light brown. Hilum linear, 1 length of caryopsis.

Male spikelets distinct from female, 1 flowered, linear, 4.8–6 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined, muticous.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Western South America.** Costa Rica, Panama. Ecuador.

Veracruz. Oaxaca. Chiapas, Tabasco.

Cryptochloa unispiculata T.R. Soderstrom. *Brittonia*, 34(2): 200 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T. Plowman, R.E. Schultes & O. Tovar 7215*, 3 May 1977, Peru: Loreto: Prov. Maynas: Rmo Ampiyacu, Pebas and vicinity, approx. 8:10'S, 71:49'W, trail from Pebas to Corutu in upland primary forest (US-2885974; IT: F, USM).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (58, Fig 10).

Illustrations (Journals): *Ruizia* (13:45, Fig.4a-b (1993)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): *L. unus*, one; *spica*, thorn; *-ula*, diminutive; *-ata*, possessing. The inflorescence bears a single terminal female spikelet.

Classification. Subfamily Bambusoideae. Tribe: Olyreae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Butt sheaths absent. Culms erect, 30–50 cm long. Leaves cauline, 12–15 per branch. Leaf-sheaths pubescent. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.3 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole pubescent. Leaf-blades oblong, 8–12 cm long, 15–20 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex abruptly acute. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence comprising only a few spikelets, comprising 1 fertile spikelets (and 2 male), axillary, embraced at base by subtending leaf. Axillary inflorescences present in upper axils. Sexes segregated, with male below. Spikelets in threes. Fertile spikelets pedicelled, 1 in the cluster. Male spikelets sessile, 2 in a cluster. 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, dorsally compressed, 17–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 3–4 mm long.

Glumes. Glumes deciduous, similar, exceeding apex of florets, thinner than fertile lemma. Lower glume linear or lanceolate, 17–20 mm long, 1 length of upper glume, membranous, without keels, 5 -veined. Lower glume lateral veins with cross-veins. Lower glume apex acuminate. Upper glume linear or lanceolate, 17–20 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, without keels, 5 -veined. Upper glume lateral veins with cross-veins. Upper glume apex acuminate.

Florets. Fertile florets female. Fertile lemma lanceolate, 14 mm long, indurate, pallid, shiny, without keel. Lemma margins involute. Lemma apex acute, pubescent. Palea 1 length of lemma, indurate. Palea apex pubescent.

Flower and Fruit. Lodicules 3, membranous. Anthers 3, 2 mm long. Stigmas 2.

Male spikelets distinct from female, 1 flowered, separately deciduous, elliptic, 4.3–4.6 mm long, glabrous. Male spikelet glumes absent. Male spikelet lemma 3 -veined, mucicous.

Distribution (TDWG), Continent. South America.

Country /Province /State. Western South America, Brazil. Bolivia, Colombia, Ecuador, Peru. Brazil North.

Cryptochloa variana Swallen. *Ann. Missouri Bot. Gard.* 29: 318 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P.H. Allen 2201*, 14 Jul 1940, Panama: Cocli: hills north of El Valle de Antsn, 1000 m (US-1791492; IT: US-1791491).

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

Derivation (Clifford & Bostock 2007): *L. varius*, variable; *-ana*, indicating connection.

Classification. Subfamily Bambusoideae. Tribe: Olyreae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths absent. Culms geniculately ascending or decumbent, 10–20 cm long, wiry. Culm-nodes pubescent. Leaves cauline, 3–5 per branch. Leaf-sheaths keeled, pubescent, outer margin hairy. Leaf-sheath auricles absent or erect. Ligule an eciliate membrane, 1–3 mm long. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.1 cm long, petiole pubescent. Leaf-blades lanceolate or oblong, 4–6 cm long, 8–13 mm wide. Leaf-blade surface glabrous or puberulous, hairy on both sides. Leaf-blade apex acute or acuminate. Monoecious, with male and female spikelets in the same inflorescence.

Inflorescence. Inflorescence a panicle, comprising 1–6 fertile spikelets, terminal and axillary, embraced at base by subtending leaf. Panicle contracted, linear, 2–3 cm long, bearing few spikelets. Primary panicle branches appressed, indistinct the panicle almost racemose. Panicle branches pubescent. Sexes segregated, on unisexual branches, with male below. Spikelets solitary. Fertile spikelets pedicelled. Male spikelets pedicelled. Pedicels present, clavate (female), 4–10 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, dorsally compressed, 7–8.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.5–1 mm long.

Glumes. Glumes deciduous, similar, reaching apex of florets, thinner than fertile lemma. Lower glume elliptic, 7–8.5 mm long, 1 length of upper glume, membranous, without keels, 3 -veined. Lower glume lateral veins with cross-veins. Lower glume surface smooth or asperulous. Lower glume apex acute. Upper glume

elliptic, 1 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume lateral veins with cross-veins. Upper glume surface smooth or asperulous. Upper glume apex acuminate.

Florets. Fertile florets female. Fertile lemma elliptic, 6.5–7 mm long, indurate, grey or dark brown, mottled with last colour, shiny, without keel. Lemma margins involute. Lemma apex acute. Palea involute, 1 length of lemma, indurate.

Flower and Fruit. Lodicules 3, membranous. Anthers 3, 1 mm long. Stigmas 2. Caryopsis with adherent pericarp, 1.5 mm long.

Male spikelets distinct from female, 1 flowered, linear, 2.5 mm long. Male spikelet glumes absent. Male spikelet lemma 3 -veined, muticous.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Caribbean, Western South America. Panama. Colombia.

Ctenium aromaticum (Walt.) Wood. *Class-Book Bot.* 806 (1861).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Aegilops aromatica* Walter *Fl. Carol.* 249 (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 25 *Poaceae*, part 2 (2003) (236).

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

Derivation (Clifford & Bostock 2007): L. scented. Roots aromatic.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 100–150 cm long. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1–3 mm long, erose. Leaf-blades flat or involute, 5–10 cm long, 1–3 mm wide, aromatic. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1, single, arcuate, unilateral, 5–15 cm long. Rhachis semiterete, glabrous on surface, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2.5 mm long, 0.3–0.5 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, 1.3 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins. Upper glume apex acute or acuminate, awned, 1 -awned, awn dorsal or oblique, awn 3–5 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 3–5 mm long, membranous, 1-keeled, ciliate on margins, fringed in the middle, acute, awned. Awn of lower sterile floret dorsal, 2–3 mm long. Lemma of upper sterile floret elliptic, 4–6 mm long, membranous, tufted on margins, fringed in the middle, acute, awned. Awn of upper sterile floret dorsal, curved, 4–5 mm long. Fertile lemma ovate, 4.5–5.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy in the middle. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 1–2 mm long overall. Palea 2 -veined. Apical sterile florets 1 in number, elliptic, 3–4 mm long.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southeastern USA. Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Virginia.

Ctenium bahiense Longhi-Wagner. *Kew Bull.* 60(1): 123 (-125; fig. 1) (2005).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Bahia, Serra de Sao Pedro: Longhi-Wagner et al. CFCR7084 (SPF holo, ICN, K).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–100 cm long. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 0.5 mm long, obtuse. Leaf-blades convolute, 15–30 cm long, 2–3 mm wide. Leaf-blade surface scabrous, rough on both sides. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1(–2), single, unilateral, 10–17 cm long, 10–15 mm wide. Rhachis glabrous on surface, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3.5–3.8 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume elliptic, 8–9 mm long, 2 length of adjacent fertile lemma, herbaceous, 1-keeled, 3 -veined. Upper glume surface tuberculate, rough on veins. Upper glume apex acuminate, awned, 1 -awned, awn dorsal and oblique, awn 3.3–3.5 mm long.

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, 2–2.6 mm long, membranous, 1-keeled, ciliate on margins, fringed above, bearing hairs 1–1.2 mm long, acute, awned. Awn of lower sterile floret subapical, 10–11 mm long. Lemma of upper sterile floret ovate, 3–3.5 mm long, membranous, ciliate on margins, fringed above, acute, awned. Awn of upper sterile floret subapical, 11–11.5 mm long. Fertile lemma ovate, 3.5–4 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma hairs 3–3.5 mm long. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 7–7.2 mm long overall. Palea 3.5–3.7 mm long, 2 -veined. Apical sterile florets 3–4 in number, linear or lanceolate, 1–2.6 mm long. Apical sterile lemmas muticous or awned.

Flower and Fruit. Caryopsis with adherent pericarp. Embryo 0.2 length of caryopsis.

Distribution (TDWG), Continent. South America.

Country /Province /State. Brazil. Brazil Northeast.

Ctenium brachystachyum (Nees) Kunth. *Rev. Gram.* 2: 447 (1831).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Campulosus brachystachyus* Nees *Fl. Bras. Enum. Pl.* 2(1): 417–418 (1829)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, no date, Brazil (B; IT: US-2606902 (fragm. ex B)).

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

Derivation (Clifford & Bostock 2007): Gk. brachys, short; stachys, ear of corn. Inflorescence comprised of short branches or spikelets short.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 35–60 cm long. Ligule an eciliate membrane. Leaf-blades filiform, involute, 15–25 cm long, 1–2 mm wide, stiff. Leaf-blade surface scabrous, rough on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, arcuate, unilateral, 2.5–4 cm long. Rhachis semiterete, glabrous on surface, scabrous on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume ovate, 1.5 mm long, 0.33 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein tuberculate. Lower glume lateral veins absent. Lower glume apex acute. Upper glume elliptic, 4–5 mm long, 1.3 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins. Upper glume apex acute, awned, 1 -awned, awn dorsal or oblique, awn 1–2 mm long.

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, 3–3.5 mm long, membranous, 1-keeled, 3 -veined, pilose, ciliate on margins, fringed below, acute, awned. Awn of lower sterile floret subapical, 1.5 mm long. Lemma of upper sterile floret oblong, 3.5 mm long, membranous, pilose, ciliate on margins, fringed in the middle, dentate, 2 -fid, awned. Awn of upper sterile floret terminal, straight, 2 mm long. Fertile lemma ovate, 4–5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy in the middle. Lemma apex emarginate, mucronate. Palea 2 -veined. Apical sterile florets 1 in number, oblong, 4 mm long.

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. Mato Grosso, Sao Paulo Parana.

Ctenium brevispicatum J. G. Sm. *Coult. Bot. Gaz.* 21: 363 (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).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: *Campulosus brachystachyus* Nees ab Esenb.,.

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

Derivation (Clifford & Bostock 2007): *L. brevis*, short; *spica*, thorn; -ata, possessing. Inflorescence a single or pair of secund spikes.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths or fibrous dead sheaths. Culms 25–50 cm long. Ligule an eciliate membrane. Leaf-blades 5–15 cm long, 1.5–3 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes (1–)2–3, paired or digitate, arcuate or watch-spring spiralled, unilateral, 2–5 cm long. Rhachis semiterete, pubescent on surface, ciliate on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume ovate, 1 mm long, 0.25 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 4 mm long, 1.3 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins. Upper glume apex acute, awned, 1 -awned, awn dorsal or oblique, awn 1.5–2 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 2 mm long, membranous, 1-keeled, 3 -veined, villous on margins, fringed all along, acute, awned. Awn of lower sterile floret subapical, 4 mm long. Lemma of upper sterile floret ovate, 3 mm long, membranous, villous on margins, fringed in the middle, acute, awned. Awn of upper sterile floret subapical, straight, 5 mm long. Fertile lemma ovate, 3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins villous, hairy in the middle. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 2 mm long overall. Palea 2 -veined. Apical sterile florets 1 in number, ovate, 2 mm long.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil. Bolivia. Brazil West Central, Brazil Southeast, Brazil South.

TDWG4. Goias, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana.

Ctenium canescens Benth. *Hook. Niger Fl.* 566 (1849).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Whydah, *Don s.n.* (HT: BM).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962), R.Pilger, *Die Naturlichen Pflanzenfamilien* 14d (1956) (81, Fig. 19).

Derivation (Clifford & Bostock 2007): *L. canesco*, grow white. Leaf-blades or leaf-sheaths densely invested with white or grey hairs.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes short, scaly. Glands wart-like. Culms 90–120 cm long. Ligule an eciliate membrane, erose. Leaf-blades 15–30 cm long, 1–5 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 2–5, digitate, straight or arcuate, unilateral, 7–17 cm long. Rhachis semiterete, glabrous on surface, ciliate on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 7–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, gaping. Lower glume lanceolate, 0.25–0.33 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 7–9 mm long, 1.7–1.8 length of adjacent fertile lemma, membranous, glandular (on keel), 1-keeled, 2 -veined. Upper glume primary vein tuberculate, ciliate. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 3–5 mm long.

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, 0.66 length of fertile lemma, membranous, 1-keeled, 3 -veined, ciliate on margins, cuspidate, awned. Awn of lower sterile floret dorsal, 6 mm long. Lemma of upper sterile floret oblong, 1.1 length of lower sterile floret, membranous, eciliate on margins, obtuse, awned. Awn of upper sterile floret dorsal, 10–12 mm long. Fertile lemma ovate, 4–5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins villous, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 6–10 mm long overall. Palea 2 -veined. Palea keels eciliate. Apical sterile florets 1 in number, elliptic, 4 mm long. Apical sterile lemmas pilose (above).

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG), Continent. Africa.

Country /Province /State. West tropical Africa. Ghana, Ivory Coast, Nigeria, Togo.

Ctenium chapadense (Trin.) Doell. *Mart. Fl. Bras.* 2, 3: 73 (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. **Basionym or Replaced Name:** *Campulosus chapadensis* Trin. *Sp. Gram.* 3(26): , t. 3003 (1829–1830)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: Brazil (LE-TRIN 2070.02; IT: K).

Illustrations (Books): S.A.Renvoize, *The Grasses of Bahia*, 1984 (77, Fig. 27).

Derivation (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Serra da Chapada, Brazil.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths or fibrous dead sheaths. Culms erect, 70–145 cm long. Leaves heterophyllous (culm leaves filiform). Ligule an eciliate membrane. Leaf-blades flat or involute, 20–34 cm long, 4–7 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 1–3, single or digitate, straight or flexuous, unilateral, 7–18 cm long. Rhachis semiterete, glabrous on surface, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 6–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3–4 mm long, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume elliptic, 6–8 mm long, 2 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 3–4 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2 mm long, membranous, 1-keeled, 3 -veined, ciliate on margins, fringed all along, acute, awned. Awn of lower sterile floret subapical, 5 mm long. Lemma of upper sterile floret elliptic, 3 mm long, membranous, tufted on margins, fringed above, acute, awned. Awn of upper sterile floret subapical, 4 mm long. Fertile lemma ovate, 3–3.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma hairs 2 mm long. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 5 mm long overall. Palea 2 -veined. Apical sterile florets 1 in number, linear, 2 mm long.

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.

TDWG4. Goiás, Bahia, Minas Gerais, Rio de Janeiro, Espírito Santo.

Ctenium cirrhosum (Nees) Kunth. *Rev. Gram.* 2: 445. t. 136 (1831).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Campulosus cirrosus* Nees *Fl. Bras. Enum. Pl.* 2(1): 416–417 (1829)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT:US: *K.F.P. von Martius s.n.*, May-Jun, Brazil: Minas Gerais: in campis elatioribus, 3000 pedum alt., inter Villa Rica et Tejuco (US-2606904 (fragm. ex B)).

Illustrations (Books): E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (155, Fig 26).

Derivation (Clifford & Bostock 2007): lemma awn long flexuous.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths or fibrous dead sheaths. Culms 50–100 cm long. Ligule an eciliate membrane. Leaf-blades 15–25 cm long, 2–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, arcuate, unilateral, 5–17 cm long. Rhachis semiterete, glabrous on surface, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 1.5 mm long, 0.25 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 6–7 mm long, 2 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 3–5 mm long.

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, 1.5–2 mm long, membranous, 1-keeled, 3 -veined, ciliate on margins, fringed all along, acute, awned. Awn of lower sterile floret subapical, 3 mm long. Lemma of upper sterile floret linear, 2.5 mm long, membranous, ciliate on margins, fringed above, awned. Awn of upper sterile floret subapical, flexuous or curved, 15–30 mm long. Fertile lemma elliptic, 2.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma apex acute, muticous. Palea 2 -veined. Apical sterile florets 1 in number, linear, 1 mm long.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Northern South America, Brazil.** Surinam. Brazil West Central, Brazil Southeast.

TDWG4. Mato Grosso, Goiás, Minas Gerais, Rio de Janeiro, Espírito Santo, Sao Paulo Parana.

Ctenium concinnum Nees. *Fl. Afr. Austr.* 1: 237 (1841).

Accepted by: 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: IT: *Drhge s.n.*, South Africa: Cape Province: in graminosis inter Omsamcaba et catarractas maiores alt. 1500 ft (K).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (192, Fig 167), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (93, Fig 53), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (75, Fig 19).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): L. elegant. Panicles or habit attractive.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths dark brown, persistent and investing base of culm, with curly dead sheaths. Glands wart-like. Culms erect, 30–100 cm long, wiry. Ligule an eciliate membrane, erose. Leaf-blades involute, 10–35 cm long, 1–5 mm wide.

Inflorescence. Inflorescence composed of racemes. Peduncle hirsute above (at tip). Racemes 1, single, arcuate, unilateral, 5–10 cm long. Rhachis semiterete, glabrous on surface, pubescent on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 0.3–0.5 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface hispidulous. Lower glume apex acuminate, mucronate. Upper glume lanceolate, 5–6 mm long, 1.2–1.5 length of adjacent fertile lemma, herbaceous, with hyaline margins, glandular, 1-keeled, 2 -veined. Upper glume primary vein tuberculate. Upper glume surface hispidulous. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 1–2 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, (2.5–)3–3.5 mm long, 0.7–0.8 length of fertile lemma, membranous, 1-keeled, puberulous (densely), hairy between veins, ciliate on midvein, ciliate on margins, obtuse, awned. Awn of lower sterile floret subapical. Lemma of upper sterile floret lanceolate, 3–3.5 mm long, 0.9–1 length of lower sterile floret, membranous, pubescent or pilose, ciliate on midvein, ciliate on margins, obtuse, awned. Awn of upper sterile floret dorsal (with a triangular tongue 0.3–0.5 mm long above insertion). Fertile lemma ovate, (3.6–)4–4.5(–5) mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma hairs 2–2.5 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 4.5–5.5 mm long overall. Palea 2 -veined. Palea keels ciliolate. Apical sterile florets 2 in number, separate, linear, 1–2.5 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 1 per spikelet in number.

Flower and Fruit. Caryopsis with adherent pericarp, ellipsoid.

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, Uganda. Angola, Malawi, Mozambique, Zambia, Zimbabwe. Limpopo, Gauteng, Mpumalanga, Swaziland, Free State, Eastern Cape. Madagascar.

Ctenium concisum Swallen. *N. Am. Fl.* 17: 601 (1939).

Accepted 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 Panama. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *H. Pittier 5065*, 8 Dec 1911, Panama: Cocli: Pichachs de Ola (US-715193).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms erect, 35–100 cm long. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades flat or involute, 15–30 cm long, 2–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1, single, arcuate or flexuous, unilateral, 5–16 cm long. Rhachis semiterete, 1.5 mm wide, scabrous on surface, glabrous on surface, pubescent on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 8–9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2 mm long, 0.25 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 8–9 mm long, 2 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 3–5 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 3 mm long, membranous, 1-keeled, ciliate on margins, fringed all along, acute, awned. Awn of lower sterile floret subapical, 4 mm long. Lemma of upper sterile floret elliptic, 4.5–5 mm long, membranous, ciliate on margins, fringed above, acute, awned. Awn of upper sterile floret subapical, 10–15 mm long. Fertile lemma ovate, 4–5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma hairs 3 mm long. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 3 mm long overall. Palea 2 -veined. Palea keels scaberulous. Palea apex obtuse, muticous or with excurrent keel veins. Apical sterile florets 1 in number, elliptic, 3 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 1 mm long.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Western South America, Brazil. Panama. Bolivia. Brazil North.

Ctenium elegans Kunth. *Rev. Gram.* 1: 295 (1830).

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: *Gay s.n.*, Senegal (P?).

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

Derivation (Clifford & Bostock 2007): *L. elegant*. Inflorescence attractive.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Glands wart-like. Culms geniculately ascending, 90–120 cm long. Ligule an eciliate membrane, erose. Leaf-blades flat, 20–30 cm long, 1–3 mm wide, aromatic. Leaf-blade apex filiform.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, straight or arcuate, unilateral, 20–30 cm long. Rhachis semiterete, glabrous on surface, pubescent on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

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, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, gaping. Lower glume lanceolate, 0.25 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 4–6 mm long, 2 length of adjacent fertile lemma, membranous, glandular (on keel), 1-keeled, 2 -veined. Upper glume primary vein tuberculate. Upper glume surface asperulous. Upper glume apex setaceously acuminate, awned, 1 -awned, awn dorsal or oblique, awn 0.1–2 mm long.

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, 0.75 length of fertile lemma, hyaline, glandular (yellow, on margins), 1-keeled, 3 -veined, pilose, obtuse, awned. Awn of lower sterile floret dorsal, 6–10 mm long. Lemma of upper sterile floret oblong, 1.1 length of lower sterile floret, hyaline, tuberculate (yellow glands on margins), ciliate on margins (and with long apical bristles), obtuse, awned. Awn of upper sterile floret subapical, 6–10 mm long. Fertile lemma ovate, 2–3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma surface with conspicuous apical hairs (2–8 in number). Lemma hairs 2 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 6–10 mm long overall. Palea 2 -veined. Palea keels tuberculate (yellow glands).

Flower and Fruit. Caryopsis with adherent pericarp.

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

Country /Province /State. West tropical Africa, Northeast tropical Africa. Burkina, Gambia, Ghana, Guinea-Bissau, Mali, Nigeria, Senegal, Niger. Sudan. **Arabian Peninsula.** Saudi Arabia.

Ctenium floridanum (Hitchc.) Hitchcock. *Proc. Biol. Soc. Wash.* 41: 162 (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. **Basionym or Replaced Name:** *Campulosus floridanus* Hitchc. *Amer. J. Bot.* 2: 306 (1915)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *A.H. Curtiss s.n.*, 1875, USA: Florida (US-726521).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (236).

Derivation (Clifford & Bostock 2007): L.-ana, indicating location. From Florida State, USA.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose. Rhizomes elongated, scaly. Culms 50–110 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades flat or involute, 8–15 cm long, 2–3 mm wide.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1, single, arcuate, unilateral, 5–20 cm long. Rhachis semiterete, 1 mm wide, smooth on surface or scabrous on surface, glabrous on surface, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2-rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume ovate, 2 mm long, 0.33 length of upper glume, membranous, 1-keeled, 1-veined. Lower glume lateral veins absent. Lower glume surface pubescent. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, 1.4 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3-veined. Upper glume primary vein scabrous. Upper glume surface scabrous, rough on veins. Upper glume apex acute or acuminate, awned, 1-awned, awn dorsal or oblique, awn 3–5 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 4 mm long, membranous, 1-keeled, 3-veined, ciliate on margins, fringed all along, acute, awned. Awn of lower sterile floret subapical, 2–4 mm long. Lemma of upper sterile floret lanceolate, 5–6 mm long, membranous, ciliate on margins, fringed in the middle, acute, awned. Awn of upper sterile floret subapical, straight, 4–5 mm long. Fertile lemma ovate, 4.5–5 mm long, membranous, keeled, 3-veined, 0–3-veined. Lemma surface scabrous. Lemma margins ciliate, hairy above. Lemma apex awned, 1-awned. Principal lemma awn subapical, 2–3 mm long overall. Palea 2-veined. Apical sterile florets 1 in number, elliptic, 3 mm long. Apical sterile lemmas mucronate.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southeastern USA. Florida, Georgia.

Ctenium ledermannii Pilger. *Notizbl. Bot. Gart. Berlin*, 9: 119 (1924).

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

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Ledermann 1790*, Dec 1908, Cameroon (B).

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

Derivation (Clifford & Bostock 2007): in honor of Carl Ludwig Ledermann (1875–1958) Swiss-born West African plant collector.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Glands wart-like. Culms 60–90 cm long. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, erose. Leaf-blades 10–25 cm long, 2–3 mm wide. Leaf-blade surface ribbed, scaberulous, rough on both sides. Leaf-blade apex filiform.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 2, paired, straight, unilateral, 5–13 cm long. Rhachis semiterete, pubescent on surface, pubescent on margins, terminating in a

barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 6.5–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 0.33 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 6.5–8 mm long, 2 length of adjacent fertile lemma, herbaceous, dark green, glandular (on keel), 1-keeled, 2 -veined. Upper glume primary vein tuberculate, ciliolate. Upper glume apex setaceously acuminate, awned, 1 -awned, awn dorsal or oblique, awn 3 mm long, awn hispidulous.

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, 3–4 mm long, 1 length of fertile lemma, membranous, 1-keeled, 3 -veined, ciliate on margins, lobed, 2 -fid, awned. Awn of lower sterile floret dorsal, 5 mm long. Lemma of upper sterile floret oblong, 2.5–3.5 mm long, 0.8 length of lower sterile floret, membranous, ciliate on margins, lobed, 2 -fid, obtuse, awned. Awn of upper sterile floret subapical, 9–12 mm long. Fertile lemma ovate, 3–4 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins villous, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 3 mm long overall. Palea 2 -veined. Palea keels eciliate or ciliolate. Apical sterile florets 1 in number, male, elliptic, 3 mm long. Apical sterile lemmas acute, mucronate.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, West-central tropical Africa. Nigeria. Central African Republic, Cameroon.

Ctenium longiglume Kupicha ex Longhi-Wagner & Cope. Kew Bull. 58:229 (2003).

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, Kawambwa to Mbeveshi: Astle 796 (K holotype).

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

Derivation (Clifford & Bostock 2007): *L. longus*, long; gluma, husk. Spikelets with long glumes and or lemmas.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 120–140 cm long. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 1.5–2.5 mm long, obtuse. Leaf-blades 20–30 cm long, 1.2–2.5 mm wide. Leaf-blade surface scabrous, rough on both sides.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1, single, unilateral, (10–)13–19 cm long, 12–14 mm wide. Rhachis scabrous on surface, glabrous on surface to pubescent on surface, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, (3.5–)7–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 2–3.2 mm long, 0.3–0.4 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume primary vein tuberculate. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex acuminate or attenuate. Upper glume lanceolate, (5.5–)7–8 mm long, 1.7–1.8 length of adjacent fertile lemma, herbaceous, 1-keeled, 2 -veined. Upper glume primary vein tuberculate. Upper glume surface scabrous, hirsute, hairy below. Upper glume apex acuminate, awned, 1 -awned, awn dorsal and oblique, awn (3.5–)3.8–4.5(–7.5) mm long.

Florets. Basal sterile florets 2 or more, dissimilar, male (sometimes the upper) or barren, with palea (the upper) or without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret lanceolate, 2.5–3 mm long, 0.7–0.8 length of fertile lemma, membranous, 1-keeled, glabrous, ciliate on margins, bearing hairs 1–2.3 mm long, emarginate or truncate, awned. Awn of lower sterile floret subapical, (5–)7–7.8 mm long. Lemma of upper sterile floret lanceolate, 3–4 mm long, 1.2–1.3 length of lower sterile floret, membranous, glabrous, ciliate on margins, fringed above, emarginate or obtuse, awned. Awn of upper sterile floret terminal or subapical, (9–)11–12 mm long. Fertile lemma lanceolate, 4–4.2(–4.8) mm long, 0.6–0.7 mm

wide, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma hairs 1.5–2 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, (2.8–)3.5–4.5 mm long overall. Palea 3.5–3.8 mm long, 2 -veined. Apical sterile florets 2 in number, male or barren, separate, linear, 1.5–4 mm long. Apical sterile lemmas mucicous or mucronate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa and South tropical Africa. Burundi, DRC. Zambia.

Ctenium newtonii Hack. *Bolet. Soc. Brot.* 5: 220 (1887).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Newton* 7, Benin: Zumbodji (W; IT: K, P).

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

Derivation (Clifford & Bostock 2007): in honor of Francisco Newton (1864–1909) Portuguese botanist who collected in Angola.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Glands wart-like. Culms erect, 50–100 cm long, wiry. Ligule an eciliate membrane, erose. Leaf-blades involute, 5–25 cm long, 2–4 mm wide, aromatic.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above (at tip). Racemes 1, single, straight or corkscrew spiralled, unilateral, (5–)7–20(–30) cm long. Rhachis semiterete, glabrous on surface, pubescent on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 4–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 0.3–0.5 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume lanceolate, 4–7 mm long, 1.75–2 length of adjacent fertile lemma, herbaceous, with hyaline margins, glandular, 1-keeled, 2 -veined. Upper glume primary vein tuberculate. Upper glume surface hispidulous. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 1–2 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic or oblong, 1.5–2 mm long, 0.5–0.75 length of fertile lemma, membranous, 1-keeled, glabrous or puberulous (sparsely), hairy between veins, ciliate on midvein, ciliate on margins, obtuse, awned. Awn of lower sterile floret subapical. Lemma of upper sterile floret ovate, 2–2.5 mm long, membranous, glabrous, eciliate on midvein or ciliate on midvein, ciliate on margins, obtuse, awned. Awn of upper sterile floret dorsal (with an oblong tongue above insertion). Fertile lemma ovate, 2–4 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, 2.5–3 mm long overall. Palea 2 -veined. Palea keels ciliate. Apical sterile florets 2 in number, separate, linear, 1–2.5 mm long. Apical sterile lemmas awned, 1 -awned.

Flower and Fruit. Caryopsis with adherent pericarp.

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, Guinea-Bissau, Guinea, Ivory Coast, Liberia, Mali, Nigeria, Senegal, Sierre Leone, Togo. Cameroon, Gabon, Annobon, Principe & Sao Tome, Rwanda, DRC. Sudan. Uganda. Angola, Zambia.

Ctenium planifolium (Presl) Kunth. *Enum. Pl.* 1: 275 (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 Mexico. **Basionym or Replaced Name:** *Campulosus planifolius* J. Presl *Reliq. Haenk.* 1(4–5): 287 (1830)

T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Haenke s.n.*, Mexico (PR; IT: MO-1990361, US-2607350 (fragm.), US-878837 (fragm. ex hb. Bernhardt [now at MO])).

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

Derivation (Clifford & Bostock 2007): L. planus, flat; folium, leaf. Leaf-blades flat.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Culms 50–100 cm long. Culm-internodes distally pubescent. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades flat, 10–20 cm long, 2–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex acuminate or attenuate.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1, single, arcuate, unilateral, 5–10 cm long. Rhachis semiterete, 1.5 mm wide, pubescent on surface, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume ovate, 2 mm long, 0.25 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 8 mm long, 1.5 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins, puberulous. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 2 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 3.5 mm long, membranous, 1-keeled, puberulous, ciliate on margins, fringed all along, obtuse, awned. Awn of lower sterile floret subapical, 4 mm long. Lemma of upper sterile floret elliptic, 4.5 mm long, membranous, pubescent, ciliate on margins, fringed above, obtuse, awned. Awn of upper sterile floret subapical, 5–6 mm long. Fertile lemma ovate, 5–6 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma hairs 2–3 mm long. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 2–3 mm long overall. Palea 2 -veined. Palea keels scabrous. Palea surface pubescent, hairy on back. Palea apex acute. Apical sterile florets 1–4 in number, separate, lanceolate, 3 mm long. Apical sterile lemmas pilose, adorned on margins, awned, 1 -awned. Apical sterile lemma awns 2 mm long.

Flower and Fruit. Caryopsis with adherent pericarp, obovoid, 2 mm long, red.

Distribution (TDWG). Continent. North America, South America.

Country /Province /State. Mexico. Northeast Mexico, Southwest Mexico, Southeast Mexico. Mesoamerica, Western South America. Colombia.

TDWG4. Zacatecas. Guerrero, Oaxaca. Chiapas.

Ctenium plumosum (Hitchcock) Swallen. *N. Am. Fl.* 17: 602 (1939).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Campulosus plumosus* Hitchc. *Contr. U.S. Natl. Herb.* 17(3): 330 (1913)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *T.S. Brandege* 7, 5 Nov 1904, Mexico: Sinaloa: Cerro Colorado, vicinity of Culican (US-555998).

Illustrations (Books): R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983).

Derivation (Clifford & Bostock 2007): L. feathery. With long hairs giving on the pedicels a feathery appearance.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 70–80 cm long. Culm-internodes distally pubescent. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades involute, 10–25 cm long, 1–2 mm wide. Leaf-blade surface scabrous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Peduncle pubescent above. Racemes 1–3, single or digitate, flexuous, unilateral, 5–10 cm long. Rhachis semiterete, 1 mm wide, scabrous on surface, glabrous on surface, ciliate on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume ovate, 2 mm long, 0.4 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral

veins absent. Lower glume apex acute. Upper glume ovate, 5 mm long, 1.6 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins. Upper glume apex acute, awned, 1 -awned, awn dorsal or oblique, awn 4 mm long, awn plumose.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 1.5–2 mm long, membranous, 1-keeled, ciliate on margins, fringed all along, dentate, 2 -fid, acute, awned. Awn of lower sterile floret 4 mm long. Lemma of upper sterile floret elliptic, 3 mm long, membranous, ciliate on margins, fringed above, acute, awned. Awn of upper sterile floret subapical, 8–10 mm long. Fertile lemma ovate, 3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 8–10 mm long overall. Palea 1 length of lemma, 2 -veined. Apical sterile florets 2 in number, separate, elliptic, 2 mm long.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Northwest Mexico, Southwest Mexico.

TDWG4. Sinaloa. Jalisco, Nayarit.

Ctenium polystachyum Balansa. *Bull. Soc. Bot. Fr.* 2: 244 (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: ST: *B. Balansa 4341 (PL. DU PARAG.)*, 18 1844, Paraguay (US-2606905).

ST: *B. Balansa 196 (Pl. du Parag.)*, 24 1876, Paraguay: (US-865648 (fragm. ex P)).

ST: *Balansa 2962*, Paraguay.

Illustrations (Books): E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (393, Fig. 137).

Derivation (Clifford & Bostock 2007): *G. polys*, many; *stachys*, ear of corn. Plants with many branched culms or inflorescences.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths or fibrous dead sheaths. Culms 80–120 cm long. Ligule an eciliate membrane. Leaf-blades 15–30 cm long, 2–5 mm wide. Leaf-blade surface puberulous. Leaf-blade apex filiform.

Inflorescence. Inflorescence composed of racemes. Racemes 3–6, digitate, arcuate, unilateral, 8–16 cm long. Rhachis semiterete, scabrous on surface, glabrous on surface, pubescent on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 3–3.5 mm long, 0.33 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume lanceolate, 10 mm long, 3 length of adjacent fertile lemma, herbaceous, with hyaline margins, 1-keeled, 3 -veined. Upper glume primary vein tuberculate. Upper glume surface tuberculate, rough on veins. Upper glume apex setaceously acuminate, awned, 1 -awned, awn dorsal or oblique, awn 3–5 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret ovate, 2 mm long, membranous, 1-keeled, 3 -veined, ciliate on margins, fringed all along, acute, awned. Awn of lower sterile floret subapical, 8 mm long. Lemma of upper sterile floret elliptic, 2 mm long, membranous, villous on margins, fringed above, emarginate, awned. Awn of upper sterile floret terminal, straight, 6 mm long. Fertile lemma ovate, 3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins villous, hairy above. Lemma apex awned, 1 -awned. Principal lemma awn subapical, 7 mm long overall. Palea 2 -veined. Apical sterile florets 1–2 in number, elliptic, 2.5 mm long.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, Southern South America. Bolivia. Brazil Southeast, Brazil South. Paraguay.

TDWG4. Sao Paulo Parana.

Ctenium sesquiflorum W. D. Clayton. *Kew Bull.* 14: 239 (1960).

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>: *vide* TROPICOS and Kew Synonymy Database: Guinea, Detinn to Diaguissa: Chevalier 12860 (K holo).

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

Derivation (Clifford & Bostock 2007): L. sesqui, one and a half; flos, flower. Spikelets with one fertile floret and a second sterile or male floret.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Glands wart-like. Culms geniculately ascending, 20–40 cm long, 1 mm diam. Leaf-sheaths antrorsely scabrous. Leaf-sheath auricles erect, 0.7 mm long. Ligule an eciliate membrane, 0.7 mm long, erose. Leaf-blades involute, 20–35 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade apex filiform.

Inflorescence. Inflorescence composed of racemes. Peduncle scaberulous above. Racemes 3, digitate, ascending or erect, arcuate, unilateral, 6–10 cm long. Rhachis semiterete, 0.5 mm wide, glabrous on surface, scaberulous on margins, glabrous on margins, terminating in a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Sterile Spikelets. Apical sterile spikelets barren.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 3.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume ovate, 1 mm long, 0.3–0.4 length of upper glume, herbaceous, 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, 1.1–1.2 length of adjacent fertile lemma, herbaceous, glandular, 1-keeled, 2 -veined. Upper glume primary vein tuberculate. Upper glume surface asperulous, glabrous. Upper glume apex acute, awned, 1 -awned, awn dorsal or oblique, awn 1.5 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, with vestigial lower floret, attached to and deciduous with the fertile. Lemma of upper sterile floret lanceolate, 1.5 mm long, membranous, glabrous, eciliate on midvein or ciliate on midvein, eciliate on margins, obtuse, awned. Awn of upper sterile floret dorsal, 4.5 mm long. Fertile lemma ovate, 3–3.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma surface glabrous or pilose. Lemma margins ciliate. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, 3.5 mm long overall. Palea 2 -veined. Palea keels scaberulous. Palea apex dentate, 3 -fid. Apical sterile florets 1 in number, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 0.2 mm long.

Flower and Fruit. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa. Guinea.

Ctenium somalense (Chiov.) Chiov. *Nuov. Giorn. Bot. Ital., n. s.*, 26: 82 (1919).

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:** *Ctenium nubicum* var. *somalense* Chiov. *Annuario Reale Ist. Bot. Roma* 7: 72 (1897)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: LT: *Riva 180 (1486)*, Ethiopia: Sidamo, Gobbo Duaya (FI). LT designated by S.A. Renvoize, *Fl. Trop. E. Africa, Gramineae (Part 2)*: 324 (1974).

ST: *D. Riva 525 (1262)*, Somali.

Illustrations (Books): R.M.Phillips, F.T.E.A., *Gramineae* (2(1974):326, Fig.91), G.V.Pope et al., *Flora Zambesiaca* 10, S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (166, Fig 68).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with fibrous dead sheaths. Glands wart-like. Culms erect, 30–100 cm long, wiry. Ligule an eciliate membrane, erose. Leaf-blades flat or involute, 10–35 cm long, 1–3 mm wide.

Inflorescence. Inflorescence composed of racemes. Peduncle hirsute above (at tip). Racemes 1, single, arcuate, unilateral, 5–10 cm long. Rhachis semiterete, glabrous on surface, pubescent on margins, terminating in

a barren extension, extension subulate. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 4.5–5.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, firmer than fertile lemma, gaping. Lower glume lanceolate, 0.3–0.5 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface hispidulous. Lower glume apex acuminate, mucronate. Upper glume lanceolate, 4.5–5 mm long, 1.4–1.7 length of adjacent fertile lemma, herbaceous, with hyaline margins, glandular, 1-keeled, 2 -veined. Upper glume primary vein tuberculate. Upper glume surface hispidulous. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 1–2 mm long.

Florets. Basal sterile florets 2 or more, dissimilar, barren, without significant palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 1.7–2.6 mm long, 0.6–0.7 length of fertile lemma, membranous, 1-keeled, glabrous or puberulous (sparsely), hairy between veins, ciliate on midvein, ciliate on margins, obtuse, awned. Awn of lower sterile floret subapical. Lemma of upper sterile floret lanceolate, 2.5–3 mm long, 0.7–0.9 length of lower sterile floret, membranous, glabrous or pubescent, ciliate on midvein, ciliate on margins, obtuse, awned. Awn of upper sterile floret dorsal (with an oblong tongue 0.5–1 mm long above insertion). Fertile lemma ovate, 2.7–3.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma hairs 2 mm long. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 3.5–5 mm long overall. Palea 2 -veined. Palea keels ciliolate. Apical sterile florets 2 in number, separate, linear, 1–2.5 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 1 per spikelet in number.

Flower and Fruit. Caryopsis with adherent pericarp, ellipsoid.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Rwanda, DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Zambia, Zimbabwe.

Ctenium villosum Berhaut. *Mem. Soc. Bot. France*, 1953–54: 10 (1954).

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

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 Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, caespitose. Glands wart-like. Culms geniculately ascending, 40–70 cm long. Ligule an eciliate membrane, erose. Leaf-blades 5–10 cm long, 1–2 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, watch-spring spiralled, unilateral, 2–10 cm long. Rhachis semiterete, glabrous on surface, ciliate on margins, terminating in a barren extension, extension subulate. Rhachis hairs 1–2 mm long. Spikelet packing broadside to rhachis, crowded, regular, 2 -rowed. Spikelets pectinate, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2 basal sterile florets, 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, 5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, dissimilar, exceeding apex of florets, gaping. Lower glume lanceolate, 0.4 length of upper glume, hyaline, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 5 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, glandular (on keel), 1-keeled, 2 -veined. Upper glume primary vein tuberculate. Upper glume apex acuminate, awned, 1 -awned, awn dorsal or oblique, awn 2.5 mm long.

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, 0.75 length of fertile lemma, membranous, 1-keeled, 3 -veined, ciliate on margins (as a dense crest), emarginate, awned. Awn of lower sterile floret subapical, 3 mm long. Lemma of upper sterile floret oblong, 1 length of lower sterile floret, membranous, ciliate on margins (villous above), obtuse, awned. Awn of upper sterile floret dorsal, 7 mm long. Fertile lemma ovate, 3.5–4 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins villous, hairy above. Lemma apex acute, awned, 1 -awned. Principal lemma awn subapical, 2 mm long overall. Palea 2 -veined. Palea keels ciliolate. Apical sterile florets 1 in number, elliptic, 2–2.5 mm long. Apical sterile lemmas obtuse.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa. Ghana, Guinea, Mali, Senegal, Togo.

Cutandia dichotoma (Forsk.) Trabut. *Battand. & Trab. Fl. Alger., Monocot.*, 237 (1895).

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

TYPE from Egypt. **Basionym or Replaced Name:** *Festuca dichotoma* Forssk. *Fl. Aegypt.-Arab.* 22 (1775). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Forsskal* 47, Egypt: Rosette (C). LT designated by Stace, Pl. Pehr Forsskel's *Fl. Aegypt.-Arab.* 265 (1994).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 314), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 6), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (71, Pl. 24).

Images: L.Boulos, *Flora of Egypt* 4 (2005);.

Derivation (Clifford & Bostock 2007): L. with divisions in pairs. Inflorescence branching dichotomously.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending or decumbent, 5–30 cm long. Leaf-sheaths inflated, smooth. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 2–10 cm long, 0.5–1.5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, dense, 2–8 cm long. Primary panicle branches 1–2 -nate, branching divaricately. Panicle axis bearing deciduous branches. Panicle branches stiff, straight, angular, scabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, angular, 0.2–1 mm long, scabrous.

Fertile Spikelets. Spikelets comprising 2–4(–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, 6–11.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–2.5 mm long, pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2.5–4.5 mm long, 0.4 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume lanceolate, 2.7–5 mm long, 0.7–0.8 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 obtuse or acute.

Florets. Fertile florets appressed to rhachilla, overlapping 0.3–0.4 their length. Fertile lemma lanceolate, 4–5.8 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma surface glabrous or pubescent. Lemma apex dentate, 2 -fid, mucronate. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous. Anthers 3, 0.3–0.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp, 2.5–3 mm long. Hilum punctiform.

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

Country /Province /State. Northern Africa, Macaronesia, West tropical Africa. Algeria, Egypt, Libya, Morocco, Tunisia. Canary Is. Middle Asia, Western Asia, Arabian Peninsula. Cyprus, Iran, Iraq, Lebanon-Syria, Palestine, Israel & Jordan, Turkey. Gulf States, Kuwait, Saudi Arabia.

TDWG4.

Cutandia divaricata (Desf.) Benth. *Journ. Linn. Soc.* 19 :118 (1881).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

Basionym or Replaced Name: *Festuca divaricata* Desf., *Fl. Atlant.* 1: 89. t. 22 (1798).

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

Derivation (Clifford & Bostock 2007): L. divarico, spread out. Inflorescence branches or culms regularly dividing into equal branches.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending or decumbent, 10–35 cm long. Leaf-sheaths loose, smooth. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades convolute, 5–10 cm long, 0.5–1.5 mm wide. Leaf-blade surface ribbed, scaberulous, rough adaxially. Leaf-blade apex attenuate, callose.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, 4–10 cm long. Primary panicle branches 1–2 -nate, branching divaricately. Panicle branches stiff, straight, angular, scabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear or oblong, angular.

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 linear, laterally compressed, 8–13 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–2 mm long, pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3 mm long, 0.75 length of upper glume, chartaceous, 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, 4 mm long, 0.8–0.9 length of adjacent fertile lemma, chartaceous, with membranous margins, 1-keeled, 1 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile florets appressed to rhachilla. Fertile lemma lanceolate, 4.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma apex obtuse or acute, mucicous or mucronate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous. Anthers 3, 2.5–2.7 mm long. Ovary glabrous. Caryopsis with adherent pericarp. Hilum punctiform.

Distribution (TDWG). Continent. Europe, Africa.

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

Country /Province /State. : GB Aliens (Ryves et al). : Sardinia, Spain. : Italy, Sicily, Yugoslavia. Northern Africa. Algeria, Libya, Morocco, Tunisia.

Cutandia maritima (L.) Benth. *Journ. Linn. Soc.* 19: 118 (1881).

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: *Triticum maritimum* L. *Sp. Pl. (ed. 2)* 128 (1762)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Alstrvmer* 20, 1761, (LINN-104.11). LT designated by Stace & Jarvis, *Bot. J. Linn. Soc.* 91: 441 (1985).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 311), L.Boulos, *Flora of Egypt* 4 (2005) (154, Fig 43).

Derivation (Clifford & Bostock 2007): L. belonging to the sea. Growing by the seaside.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect or decumbent, 10–35 cm long. Leaf-sheaths inflated. Ligule an eciliate membrane, 1–4 mm long, entire or lacerate, truncate or acute. Leaf-blades deciduous at the ligule, flat or conduplicate, 2–8 cm long, 0.5–2 mm wide.

Inflorescence. Inflorescence a panicle or composed of racemes (when impoverished), embraced at base by subtending leaf. Panicle open, elliptic, secund, 1.5–16 cm long. Primary panicle branches branching divaricately. Panicle axis bearing deciduous branches. Panicle branches stiff, straight, angular, with prominent pulvini. Racemes 1, single, unilateral. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, terete or angular, 0.5–2 mm long, smooth or scaberulous.

Fertile Spikelets. Spikelets comprising 5–9(–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 ovate, laterally compressed, 8–16(–22) 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, 4–6.5 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex obtuse or acute. Upper glume ovate, 5–7.5 mm long, 0.8–0.9 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume apex obtuse or acute.

Florets. Fertile lemma elliptic, 5.5–9.4 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma apex apiculate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous. Anthers 3, 1.6–2.5 mm long. Ovary glabrous. Caryopsis with adherent pericarp, 3–4.5 mm long. Hilum punctiform.

$N = 7$ (1 ref TROPICOS). $2n = 14$ (2 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, Portugal, Sardinia, Spain. : Greece, Italy, Crete, Sicily. Northern Africa, Macaronesia. Algeria, Egypt, Libya, Morocco, Tunisia. Canary Is. Western Asia. Lebanon-Syria, Palestine, Israel & Jordan, Turkey.

Cutandia memphitica (Spreng.) Benth. *Journ. Linn. Soc.* 19: 118 (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), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

Basionym or Replaced Name: *Dactylis memphitica* Spreng. *Nachtr. Bot. Gart. Halle* 1: 20 (1801)

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (172, Fig. 95), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 313), L.Boulos, *Flora of Egypt* 4 (2005) (154, Fig. 43), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (611).

Images: L.Boulos, *Flora of Egypt* 4 (2005);

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect or decumbent, 10–30 cm long. Leaf-sheaths inflated. Ligule an eciliate membrane, 2–5 mm long, lacerate, truncate or obtuse. Leaf-blades deciduous at the ligule, conduplicate, 3–9 cm long, 1–1.5 mm wide.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, elliptic, 3–18 cm long. Primary panicle branches branching divaricately. Panicle axis bearing deciduous branches. Panicle branches stiff, straight, angular, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, angular, 0.3–0.6(–1.5) mm long.

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 oblanceolate, laterally compressed, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5–3.2 mm long, scaberulous.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3.5–5 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acute or acuminate, mucronate. Upper glume lanceolate, 4.5–6 mm long, 0.7–0.8 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 acute or acuminate, mucronate.

Florets. Fertile lemma lanceolate, 6–8.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein without distinctive roughness or scaberulous. Lemma apex entire or dentate, 2 -fid, emarginate, mucronate or awned. Principal lemma awn from a sinus, 0.5–1.2 mm long overall. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous. Anthers 3, 1–2 mm long. Ovary glabrous. Caryopsis with adherent pericarp, linear, trigonous, 3–4 mm long. Embryo 0.1–0.15 length of caryopsis. Hilum punctiform.

$2n = 14$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe, Africa, Temperate Asia, Tropical Asia, North America.

Region. Northern Europe (*), Southwestern Europe.

Country /Province /State. : GB Aliens (Ryves et al). : Spain. **Northern Africa, Macaronesia.** Egypt, Libya. Canary Is. **Middle Asia, Caucasus, Western Asia, Arabian Peninsula.** Turkmenistan, Tadjikistan, Uzbekistan. Afghanistan, Iran, Iraq, Palestine, Israel & Jordan. Gulf States, Kuwait. **Indian Subcontinent.** Pakistan. **Southwestern USA.** California.

TDWG4.

Cutandia rigescens (Grossheim) Tzvelev. *Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS*, 18: 27 (1957).

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:** *Scleropoa rigescens* Grossh. *Monit. Jard. Bot. Tiflis, Ann.* 13–14: 38 (1919). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Russia, Lenkoran: Hohenacker (LE holo).

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

Derivation (Clifford & Bostock 2007): L. rigesco, become rigid. Leaf-blades stiff and erect.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending, 6–20 cm long. Ligule an eciliate membrane. Leaf-blades flat or conduplicate or convolute, 2–6 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or ovate, 3–10 cm long. Primary panicle branches spreading, simple, bearing 3–5 fertile spikelets on each lower branch. Panicle axis scabrous. Panicle branches stiff, straight, angular, scabrous, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, angular, 1.5–2 mm long, scabrous.

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, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1–1.2 mm long, scaberulous.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2.5 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, 3 mm long, 0.66 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile florets appressed to rhachilla. Fertile lemma elliptic, 5 mm long, coriaceous, keeled, 3 -veined, 0–3 -veined. Lemma surface scaberulous. Lemma apex acute. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous. Anthers 3. Ovary glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. Transcaucasus.

TDWG4.

Cutandia stenostachya (Boiss.) C.A. Stace. *Bot.J. Linn. Soc.*, 76(4): 352 (1978).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

TYPE from Turkey. **Basionym or Replaced Name:** *Scleropoa stenostachya* Boiss. *Fl. Orient.* 5: 638 (1884)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Turkey, Smyrna: Boissier (G syn) ; Turkey, Adalia: Bourgeau 270 (G syn, HUI, K).

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 Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, slender, 10–38 cm long. Leaf-sheaths loose, smooth. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 2–8 cm long, 0.5–1 mm wide.

Inflorescence. Inflorescence a panicle, comprising 7–15 fertile spikelets. Panicle open, linear, 3–12 cm long, bearing few spikelets. Primary panicle branches 1–2 -nate, indistinct the panicle almost racemose. Panicle branches stiff, straight, angular, with prominent pulvini. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong, angular, 0.5–2 mm long.

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 linear, laterally compressed, 5–14 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2.4–2.9 mm long, pubescent.

Glumes. Glumes persistent, dissimilar, shorter than spikelet. Lower glume lanceolate, 1.3–2.6 mm long, 0.5–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 2.3–4 mm long, 0.8–1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein smooth or scaberulous. Upper glume apex obtuse.

Florets. Fertile florets appressed to rhachilla. Fertile lemma lanceolate, 2.7–4 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma apex emarginate to obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous. Anthers 3, 1 mm long. Ovary glabrous. Caryopsis with adherent pericarp, 2.5 mm long. Hilum punctiform.

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

Region. Southeastern Europe.

Country /Province /State. : Greece, Crete. **Western Asia.** East Aegean Is, Turkey.

Cyathopus sikkimensis Stapf. *Hook., Ic. Pl.* t.2395 (1895).

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 Sikkim. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Sikkim: 2900–3200 m, *J.D. Hooker s.n.* (HT: K; IT: US).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (597, Fig. 24), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 509).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.2395 (1895)).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Sikkim.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms 80–100 cm long. Ligule an eciliate membrane. Leaf-blades 15–20 cm long, 4–8 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 18–25 cm long. 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 elliptic, laterally compressed, 2.5–3 mm long, falling entire.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of upper glume, chartaceous, 1-keeled, 3 -veined. Lower glume surface asperulous. Lower glume apex caudate. Upper glume oblong, 1 length of adjacent fertile lemma, chartaceous, 1-keeled, 3 -veined. Upper glume surface asperulous. Upper glume apex caudate.

Florets. Fertile lemma oblong, membranous, keeled, 5 -veined, more than 3-veined. Lemma apex acute. Palea 1 length of lemma.

Flower and Fruit. Lodicules 2, lanceolate, membranous. Anthers 3.

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

Country /Province /State. China. China South Central. **Indian Subcontinent.** Eastern Himalaya.

TDWG4. Yunnan. Bhutan, Sikkim.

Cymbopogon ambiguus (Hack.) A. Camus. *Rev. Bot. Appliq.* 1: 290 (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. **Basionym or Replaced Name:** *Andropogon ambiguus* Steud., *Syn. Pl. Glumac.* 1: 385 (1854). T:<Type of Basionym>; *vide* TROPICOS and Kew Synonymy Database: HT: *Baudin's Expedition s.n.*, Australia: Western Australia: Islands in Sharks Bay (P (photo, BRI); IT: BM, S).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (514, Fig 440), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (190).

Illustrations (Journals): *Reinwardtia* (9: 296, fig.24 (1977)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. uncertain. Species that may be readily confused with others or do not necessarily belong in the genus in which they have been placed or are intermediate in characters between other genera.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent. Basal innovations extravaginal. Culms erect, 55–60 cm long. Culm-internodes distally glabrous or pubescent. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent or erect. Ligule an eciliate membrane, 1.9–9 mm long, membranous. Leaf-blades filiform or linear, 20–35 cm long, 1–2 mm wide, aromatic. Leaf-blade surface scabrous, glabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence compound, linear or paniculate, 10–20 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 4–9 cm long, chartaceous, glabrous. Racemes 2, paired, erect, 1.5–2 cm long. Rhachis fragile at the nodes, semiterete, villous on surface. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, villous.

Sterile Spikelets. Basal sterile spikelets absent.

Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, 3–4 mm long, shorter than fertile, deciduous with the fertile. 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 or ovate, dorsally compressed, 5.5–6.5 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 or ovate, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 3–4 in number. Lower glume surface flat or concave, impressed below. Lower glume apex acuminate. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. 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 glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, oblanceolate, isodiametric, 2 mm long.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

TDWG4. Kimberley, Eremean, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, Inland. Western Slopes, Western Plains.

Cymbopogon annamensis (A.Camus) A. Camus. *Bull. Mus. Hist. Nat. Paris*, 26: 563 (1920).

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

TYPE from Vietnam. **Basionym or Replaced Name:** *Cymbopogon martinii* var. *annamensis* A. Camus *Bull. Mus. Hist. Nat. (Paris)* 25: 670 (1919)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Vietnam., *Chevalier s.n.* (HT: P).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 882).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Annam.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths absent. Basal innovations extravaginal. Culms geniculately ascending, 65–100 cm long, wiry. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1.5 mm long. Leaf-blade base broadly rounded. Leaf-blades 20–40 cm long, 3–4 mm wide, aromatic. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, linear, 20 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2.5 cm long. Racemes 2, paired, deflexed, 1.8–2 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with swollen internode in lower raceme, sessile and pedicelled. Basal sterile spikelet pedicels fused to internode in lower raceme, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 3.8 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface with V-shaped depression. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. 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 glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

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

Country /Province /State. China. China South Central. **Indo-China.** Laos, Thailand, Vietnam.

TDWG4. Yunnan.

Cymbopogon auritus B. S. Sun. *J. Yunnan Univ.* 21 : 95 (1999).

Not on *GrassBase*.

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: Yunnan: grassy slopes, ca. 1000 m, (HT: ?).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 882).

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Cymbopogon bhutanicus H.J. Noltie. *Edinburgh J. Bot.*, 56(3): 398 (1999).

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

TYPE from Bhutan. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Bhutan: Mongar district: between NPSW 99 (HT: E; IT: THIM).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (801, Fig. 57).

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent. Culms erect, 120–150 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3.5–4 mm long, scarious. Collar pubescent. Leaf-blade base tapering to the midrib. Leaf-blades involute, 40–80 cm long, 5–9.8 mm wide, glaucous, aromatic. Leaf-blade surface scaberulous, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence compound, linear, 30–60 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.5–2.6 cm long, red. Racemes 2, paired, deflexed, 1.5–2 cm long. Rhachis fragile at the nodes, semiterete, pubescent on surface (above), ciliate on margins. Rhachis hairs 1.5–2.5 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured), pubescent. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, with 1.5–2.5 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 5–6 mm long, as long as fertile, deciduous with the 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 lanceolate, dorsally compressed, 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, chartaceous, with oil streaks, 2-keeled, keeled all along, keeled laterally, wingless. Lower glume intercarinal veins distinct, 2(–3) in number. Lower glume surface concave. Upper glume lanceolate, 1-keeled, keeled above, winged on keel, 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 lanceolate, hyaline. Fertile lemma lanceolate, 4 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 11–13 mm long overall, with twisted column. Column of lemma awn 6 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. Eastern Himalaya. Bhutan.

Cymbopogon bombycinus (R.Br.) Domin. *Biblioth. Bot.* 1, 5: 274 (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:** *Andropogon bombycinus* R. Br., *Prodr.* 202 (1810). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6175*, Australia: East Coast [Upper Head, Broad Sound = Charon Point] (BM; IT: BRI, K, MEL, P).

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. bombyx, silk; -inus, belonging to. Inflorescence or leaves invested with long silky hairs.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent, persistent and investing base of culm, with compacted dead sheaths or curly dead sheaths. Basal innovations extravaginal. Culms erect, 30–100 cm long. Culm-internodes distally glabrous. Culm-nodes bearded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–5.5 mm long, membranous. Leaf-blades 15–25 cm long, 2–4.5 mm wide, aromatic. Leaf-blade surface scaberulous, rough abaxially, glabrous.

Inflorescence. Synflorescence compound, linear, 25 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2–3.4 cm long, herbaceous, pubescent (on margins). Peduncle 0.6 cm long, pubescent above. Racemes 2, paired, erect, 1.7–2.2 cm long. Rhachis fragile at the nodes, semiterete, villous on surface. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal, pilose. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, villous.

Sterile Spikelets. Basal sterile spikelets rudimentary, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets smaller than fertile.

Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, lanceolate, shorter than fertile, deciduous with the fertile. 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 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 all along, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Lower glume apex acuminate. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 9–18 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, orbicular or obovoid, 2–5 mm long.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. North, Central, South East, Inland. Western Slopes.

Cymbopogon caesius (Hook. & Arn.) Stapf. *Kew Bull.* 1906, 341, 360 (1906).

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 caesius* Nees ex Hook. & Arn. *Bot. Beechey Voy.* 244 (1838)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Wight 1700b*, India (K).

ST: *N. ab E. in Wight Cat. n. 1700*, [China ?]

ST: *Millett; G.H. Vachell n. 41.a*, [China]: "Hab. a et b, in vicinia urbis Macao, et in insulis adjectis; Millett; G.H. Vachell, n. 41. a."

Recent Synonyms: *Cymbopogon excavatus* (Hochst.) Stapf ex Burtt-Davy, *Ann. Transvaal Mus.* 3: 121 (1912). *Cymbopogon plicatus* Stapf, *Kew Bull.* 1914, 83. (1914).

Illustrations (Books): R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):762, Fig 179), G.V.Pope et al., *Flora Zambesiaca* 10 (4(2002):79, t. 26 as subspecies *caesius* & *giganteus*), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (Plt. 23 as *C. excavatus*), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (94, Fig 54 as *C. excavatus*), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (229, Fig 82 as *C. plicatus*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (329, Fig 132), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (262, Fig 155), K.M.Matthew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (pl.738, pl.739).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999) (as *C. excavatus*).

Derivation (Clifford & Bostock 2007): L. bluish-grey, as of eyes. Plant in whole or in part bluish-grey.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock not evident, or evident. Butt sheaths withering. Basal innovations extravaginal. Culms erect or geniculately ascending or rambling, 30–300 cm long, without nodal roots or with prop roots. Ligule an eciliate membrane, 0.3–4 mm long, membranous or scarious. Leaf-blade base simple or broadly rounded or cordate. Leaf-blades linear or lanceolate, 5–60 cm long, 1.5–30 mm wide, herbaceous or coriaceous, dark green or glaucous, aromatic. Leaf-blade surface smooth. Leaf-blade apex attenuate.

Inflorescence. Synflorescence compound, linear or paniculate, 5–70 cm long, dense or lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 1–2 cm long, herbaceous. Racemes 2, paired, deflexed, 1–1.5 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 0.5–1 mm long. Rhachis internodes linear, 2.5–3 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal, 0.5–1.5 mm long, pubescent or pilose. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels fused to internode in lower raceme, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 3–5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 7 -veined, acute, 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 elliptic, dorsally compressed, 3–5 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 oblong, 1 length of spikelet, membranous, without oil streaks (or obscure), 2-keeled, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins absent or obscure. Lower glume surface with V-shaped depression. Lower glume apex truncate. Upper glume lanceolate, 1-keeled, 1–3 -veined. Upper glume primary vein ciliate. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret linear, 2–4 mm long, hyaline. Fertile lemma linear or lanceolate, 3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma margins ciliate. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, mucous (rarely) or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 6–17 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.5 mm long.

$N = 10$ (2 refs TROPICOS), or 20 (1 ref TROPICOS). $2n = 20$ (3 refs TROPICOS), or 40 (1 ref TROPICOS).

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, Western Indian ocean. Rwanda, DRC. Ethiopia (inc. Eritrea), 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, Eastern Cape. Mauritius, Madagascar, Reunion, Rodrigues. **Western Asia, Arabian Peninsula, China.** Yemen. China South Central, China Southeast. **Indian Subcontinent, Indo-China.** India, Pakistan, Sri Lanka. Laos, Vietnam.

TDWG4. Guangxi. Yunnan. Kerala, Karnataka. Tamilnadu.

Cymbopogon calcicola C. E. Hubbard. Kew Bull. 1941, 24 (1941).

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

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *SFN* 36256, Malay Peninsula (K).

Illustrations (Books): H.B.Gilliland, *Grasses of Malaya* (1971) (298, Fig 64), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (45, Fig. 33).

Derivation (Clifford & Bostock 2007): L. calx, lime; -cola, dweller. Growing on limestone.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 100–150 cm long. Culm-internodes distally glabrous. Culm-nodes pubescent. Leaf-sheaths 20–25 cm long, wider than blade at the collar, glabrous on surface. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades 40–70 cm long, 8–11 mm wide, aromatic. Leaf-blade surface smooth or scaberulous, rough abaxially, glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence compound, paniculate, 50–90 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2–2.5 cm long, brown. Peduncle 0.6–1 cm long, glabrous. Racemes 2, paired, deflexed, 2 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured), pubescent. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 3.5 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 3 in number. Lower glume surface flat, smooth or wrinkled. Upper glume lanceolate, 1-keeled, keeled above, 3 -veined. Upper glume primary vein scaberulous. Upper glume margins ciliate. Upper glume apex acute.

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 lanceolate, 3 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, 8–14 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.

Distribution (TDWG), Continent. Tropical Asia.

Country /Province /State. Indo-China, Malesia. Thailand. Malaya.

Cymbopogon calciphilus Bor. *Dansk Bot. Arkiv*, 23: 157 (1965).

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

TYPE from Thailand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Kai Larsen* 8335, Thailand (K).

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

Derivation (Clifford & Bostock 2007): L. calx, lime; Gk. phileo, love. Growing on limestone.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent. Culms erect, 70–120 cm long. Culm-internodes distally glabrous. Culm-nodes bearded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1.5 mm long. Leaf-blades 20–60 cm long, 6–10 mm wide, light green, aromatic. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Synflorescence compound, linear, 15–20 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.5 cm long. Peduncle 0.6–1 cm long. Racemes 2, paired, deflexed, 1.5 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 4.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 lanceolate, dorsally compressed, 4–4.5 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface flat, smooth or wrinkled. Upper glume lanceolate, 1-keeled, keeled above. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 11 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Thailand.

Cymbopogon cambogiensis (Bal.) E. G. Camus & A. Camus. Lecomte, *Fl. Gen. Indo-Chine*, 7: 351 (1922).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Cambodia. **Basionym or Replaced Name:** *Andropogon cambogiensis* Balansa *J. Bot. (Morot)* 4: 114 (1890)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *M. Godefroy* 292, 1875, Cambodia: Grand Luc (L).

Recent Synonyms: *Cymbopogon siamensis* Bor, *Dansk Bot. Arkiv*, 23: 158 (1965).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Cambogia, Indo-China.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths absent. Culms geniculately ascending, 90–175 cm long, 2–4 mm diam., wiry. Culm-internodes distally glabrous. Culm-nodes swollen. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 5 mm long. Leaf-blade base broadly rounded. Leaf-blades 10–30 cm long, 4–9 mm wide, coriaceous, aromatic. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, linear, 12–20 cm long, dense or lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.5–1.9 cm long. Racemes 2, paired, deflexed, 1.8 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate or ovate, 3 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 5(–7) -veined, glabrous, 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 ovate, dorsally compressed, 3–3.2 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 oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins absent or distinct, 0–2 in number. Lower glume surface with V-shaped depression. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 2–7 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Cambodia, Thailand.

Cymbopogon citratus (DC) Stapf. *Kew Bull.* 1906, 322, 357 (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), 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), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

TYPE from France. **Basionym or Replaced Name:** *Andropogon citratus* DC. *Cat. Pl. Horti Monsp.* 78 (1813). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: Cult. at Montpellier, France, from seed collected in Asia.

Illustrations (Books): C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (658), C-C Hsu, *Taiwan Grasses* (1975), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (667), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (404, Fig. 358), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrata Catarinensis Gramineas* (1981–1982) (1312 & 1313, Fig. 259 & 260), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (159, Fig 50), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (159, Fig 27), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig 879).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.2826 (1907)), *Ruizia* (13:442 Fig 59i (1993)).

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

Derivation (Clifford & Bostock 2007): *L. citron*, lemon; -atus, resembling. Plant lemon-scented.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Culms 100–200 cm long. Ligule an eciliate membrane. Leaf-blades tapering towards sheath, 45–90 cm long, 10–20 mm wide, aromatic.

Inflorescence. Synflorescence compound, paniculate, 30–60 cm long, open.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 2, paired, deflexed, 1–2.5 cm long. Rhachis fragile at the nodes, semiterete, villous on margins. Rhachis hairs 2–3 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, villous, with 2–3 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, elliptic, 4–4.5 mm long, shorter than fertile, deciduous with the 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, 5–6 mm long, 0.7 mm wide, 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, 2-keeled, keeled laterally, wingless. Lower glume intercarinal veins absent. Lower glume surface flat or concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex entire or dentate, 2 -fid, muticous or mucronate, 1 -awned. Palea absent or minute.

Flower and Fruit. Anthers 3.

$2n = 60$ (3 refs TROPICOS).

Distribution (TDWG). **Continent.** Africa, Temperate Asia, Tropical Asia, Australasia (*), Pacific, North America (+), South America.

Country /Province /State. Northern Africa, West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Western Indian ocean. Egypt (+). Ghana, Ivory Coast, Liberia, Sierre Leone. Gabon, Annobon, Principe & Sao Tome, Rwanda, DRC. Ethiopia (inc. Eritrea). Tanzania. Angola (*). Aldabra (+), Mauritius (*), Madagascar (+), Reunion (+), Rodrigues (+), Seychelles. **China** (+), **Eastern Asia.** China South Central, Hainan, China Southeast. Kazan-retto, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, India, Sri Lanka. Myanmar, Vietnam. Java, Malaya, Singapore, Philippines, Sumatra. New Guinea, Solomon Is (*). **Australia.** Northern Territory (*). **Southwestern Pacific, South-central Pacific, Northwestern Pacific, North-central Pacific.** Fiji (*), Niue (*), New Caledonia (*), Samoa (*), Tonga (*), Wallis-Futuna Is (*). Cook Is (*). Caroline Is (*), Marianas (*), Marshall Is (*). **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, Guatemala, Honduras, Nicaragua, Panama. Cuba (+), Jamaica (+), Windward Islands. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Galapagos, Peru. Brazil West Central, Brazil Northeast, Brazil North, Brazil Southeast, Brazil South. Chile North, Paraguay, Uruguay.

TDWG4. Fujian, Guangdong, Zhejiang. Guizhou, Hubei, Yunnan. South East. Mato Grosso, Goias, Minas Gerais, Rio de Janeiro, Espirito Santo. Misiones. Tarapaca. Morelos, Puebla. Coahuila, Neuvo Leon. Veracruz. Jalisco, Oaxaca. Chiapas, Tabasco, Yucatan.

Cymbopogon clandestinus (Steud.) Stapf. *Bull. Imp. Inst., Lond.* 27 :458 (1929).

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. **Basionym or Replaced Name:** *Andropogon clandestinus* Nees ex Steud. *Syn. Pl. Glumac.* 1: 388 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Wallich 8794K*, Burma: Mt. Segain (K).

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

Derivation (Clifford & Bostock 2007): L. hidden. The inflorescence is enclosed or partially enclosed in the upper leaf-sheath.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, culms solitary. Culms erect, 100–200 cm long, 2–4 mm diam., with prop roots. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3 mm long, membranous. Leaf-blades 20–45 cm long, 5–9 mm wide, aromatic. Leaf-blade surface scaberulous, rough on both sides, glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence compound, linear, 15–60 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2–3.5 cm long. Peduncle 0.5–0.7 cm long. Racemes 2, paired, deflexed, 1.7–2.3 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear, 2.5 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels fused to internode in lower raceme, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 5–5.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, pubescent, 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 ovate, 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 ovate, 1 length of spikelet, chartaceous, without oil streaks, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly, winged below. Lower glume primary vein ciliate. Lower glume intercarinal veins distinct, 2 in number. Lower glume surface with V-shaped depression, pubescent. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, 1-keeled. Upper glume surface pubescent. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -veined. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 20–24 mm long overall, with twisted column. Column of lemma awn 12 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Assam. Myanmar, Thailand.

Cymbopogon coloratus (Hook.f.) Stapf. *Kew Bull.* 1906, 321, 356 (1906).

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), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from India. **Basionym or Replaced Name:** *Andropogon nardus* var. *coloratus* Hook. f. *Fl. Brit. India* 7(21): 206 (1897)[1896]

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: S. India, Heyne, Wight., *A. coloratus*, *Nees ex Wight Cat. n. 1703. Wall. Cat. n. 8794 B (in part).*

Illustrations (Books): K.M.Mathew, Further Illustrations on the *Flora of Tamilnadu Carnatic* (1988) (pl.740, pl.741).

Derivation (Clifford & Bostock 2007): L. color, color; -ata, possessing. Colored unusually, especially with reference to lemmas.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock evident. Butt sheaths pubescent. Culms erect, 60–140 cm long. Culm-internodes distally glabrous. Culm-nodes pubescent. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2 mm long. Leaf-blades 30–40 cm long, 4–6 mm wide, dark green, aromatic. Leaf-blade surface scaberulous, rough on both sides, glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence compound, linear, 30–65 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.4–2 cm long, glabrous. Peduncle 0.2 cm long, glabrous. Racemes 2, paired, deflexed, 1.2–1.8 cm long. Rhachis fragile at the nodes, semiterete, pubescent on surface, ciliate on margins. Rhachis internodes linear, 2–3 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured), pubescent. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2–3 mm long, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, swollen in lower raceme. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 5 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 lanceolate, dorsally compressed, 5.5–6 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume primary vein scabrous. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface flat, wrinkled, glabrous or puberulous. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, 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 lanceolate, 4.5 mm long, hyaline, 2 -veined, ciliolate on margins, fringed above. Fertile lemma lanceolate, 3 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 5 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia, Pacific.

Country /Province /State. **Indian Subcontinent, Indo-China, Papuasia.** India. Myanmar, Vietnam. Solomon Is. **Southwestern Pacific.** Fiji (*).

Cymbopogon commutatus (Steud.) Stapf. *Kew Bull.* 1907, 211 (1907).

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 *C. parkeri*).

TYPE from Ethiopia. **Basionym or Replaced Name:** *Andropogon commutatus* Steud. *Syn. Pl. Glumac.* 1: 387 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Schimper 685*, Ethiopia (P; IT: K).

Recent Synonyms: *Cymbopogon parkeri* Stapf, *Kew Bull.* 1929, 10 (1929).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 432 as *C. parkeri*), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (329 & 331, Fig 132 & 133), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (519, l. 198 as *C. parkeri*).

Derivation (Clifford & Bostock 2007): L. commuto, change. Of species that in the opinion of the proposer may be confused with another.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm. Culms 15–150 cm long. Ligule an eciliate membrane. Leaf-blades filiform or linear, flat or involute, 10–50 cm long, 1–4 mm wide, aromatic. Leaf-blade surface smooth or scaberulous.

Inflorescence. Synflorescence compound, linear or paniculate, 5–35 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 2, paired, deflexed, 1.5–3 cm long, bearing 5–8 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 2 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, with 2 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes or with swollen internode in lower raceme, sessile and pedicelled. Basal sterile spikelet pedicels swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 4.5–7 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, acute, 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, 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, 1 length of spikelet, chartaceous, 2-keeled, keeled above, keeled laterally, wingless. Lower glume intercarinal veins absent or obscure, 0(–3) in number. Lower glume surface concave, impressed with a boss blocking lower end, glabrous or pubescent. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, 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. Palea absent or minute.

Flower and Fruit. Anthers 3.

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

Country /Province /State. West tropical Africa, Northeast tropical Africa, East tropical Africa. Mauritania, Senegal. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania, Uganda. Western Asia, Arabian Peninsula. Afghanistan, Iran, Iraq, Gulf States, Oman. Indian Subcontinent. Pakistan.

TDWG4. Uttah Pradesh.

Cymbopogon densiflorus (Steud.) Stapf. Prain, *Fl. Trop. Afr.* 9: 289 (1918).

Accepted by: R.J.Soreng et al., *Catalogue of 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 densiflorus* Steud. *Syn. Pl. Glumac.* 1: 386 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Jardin s.n.*, Gabon (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 (151, Pl. 12), S.A.Renvoize, *The Grasses of Bahia*, 1984 (282, Fig. 108), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14e (1940) (165, Fig. 86).

Derivation (Clifford & Bostock 2007): *L. densus*, dense; *flos*, flower. Inflorescences congested.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths withering. Culms robust, 100–200 cm long. Ligule an eciliate membrane, 1–2 mm long. Leaf-blade base broadly rounded or cordate. Leaf-blades linear or lanceolate, 25–45 cm long, 8–30 mm wide, aromatic. Leaf-blade surface smooth.

Inflorescence. Synflorescence compound, paniculate (to obovate), 6–20 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 2, paired, deflexed, 0.8–1.5 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels fused to internode in lower raceme, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 2–3 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 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 elliptic, dorsally compressed, 3–4 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 oblong, 1 length of spikelet, membranous, without oil streaks, 2-keeled, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins absent. Lower glume surface with V-shaped depression. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn apical, straight, 3.5–8 mm long overall, without a column. Palea absent or minute.

Flower and Fruit. Anthers 3.

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

Country /Province /State. **West-central tropical Africa, East tropical Africa, South tropical Africa.** Gabon, DRC. Tanzania. Angola, Malawi, Mozambique, Zambia, Zimbabwe. **Brazil.** Brazil West Central, Brazil Northeast (*), Brazil Southeast (*).

TDWG4.

Cymbopogon dependens B.K. Simon. *Austrobaileya*, 3(1): 80 (1989).

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: Katherine Gorge, 8 Mar 1964, *Lazarides 7036* (HT: BRI-139135, BRI-139136; IT: CANB, DNA, K (photo, BRI), MEL).

Illustrations (Books): 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. dependeo*, hang down. Culms drooping.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Basal innovations extravaginal. Culms geniculately ascending or decumbent, 90–120 cm long, 3–5 -noded. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Collar glabrous. Leaf-blades filiform or linear, 15–30 cm long, 0.5–2.5 mm wide, aromatic. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, scanty, 17–25 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2–4 cm long, glabrous. Peduncle 0.8–1.1 cm long, pilose above. Racemes 2, paired, erect, 2–2.5 cm long, bearing 3–5 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, villous on surface, villous on margins. Rhachis hairs 4–7 mm long. Rhachis internodes linear, 2–2.5 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2–2.5 mm long, villous, with 4–7 mm long hairs.

Sterile Spikelets. Basal sterile spikelets absent.

Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, 2 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 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 elliptic, dorsally compressed, 4.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base obtuse, inserted. Spikelet callus hairs 0.6–1.2 mm long.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally. Lower glume intercarinal veins absent or obscure, 0–4 in number. Lower glume surface flat or concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, incised 0.5 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 17–20 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG), Continent. Australasia.

Country /Province /State. Australia. Western Australia, Northern Territory.

TDWG4. Kimberley, Darwin & Gulf, Central Australia.

Cymbopogon dieterlenii Stapf ex Schweick. *Kew Bull.* 1936, 325 (1936).

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. *Dieterlen* 390, Autumn, South Africa: Basutoland, Leribe, mountain slopes and veld (K; IT: US-1297282 (ex P ex K), US-1389283, US-76462 (ex Monsp.), US-1271848 (ex K), US-1275177 (ex K)).

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

Images: F. van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): in honor of Anna Dieterlen (1859–1945), French missionary and amateur botanist in Lesotho.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent, persistent and investing base of culm, with compacted dead sheaths. Culms erect, 45–85 cm long. Ligule an eciliate membrane, 5–12 mm long, scarious, acute. Leaf-blades filiform, 30–50 cm long, 1–2 mm wide, aromatic.

Inflorescence. Synflorescence compound, scanty, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 2.7 cm long. Racemes 2, paired, deflexed, 2.2 cm long, bearing 5–6 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, hairy on margins.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 5.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, winged on keels, distinctly veined, 7-veined, 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 lanceolate, dorsally compressed, 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged moderately. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface flat. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, incised 0.5 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 11 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. Southern Africa. Namibia, North-West, Gauteng, Mpumalanga, Swaziland, Kwazulu-Natal, Lesotho, Northern Cape, Eastern Cape.

Cymbopogon distans (Nees ex Steud.) W. Watson. *Atkinson, Gaz. N. W. Ind.* 392 (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 Nepal. **Basionym or Replaced Name:** *Andropogon distans* Nees ex Steud. *Syn. Pl. Glumac.* 1: 387 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Royle 236*, LT designated by Soenarko, *Reiwardtia* 9: 356 (1977).

ST: *Royle 247(2454?)*, Nepal (LIV).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 882).

Derivation (Clifford & Bostock 2007): L. disto, be apart. Spikelets widely separated in inflorescence.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous or sparsely hairy. Culms erect, 45–90 cm long. Ligule an eciliate membrane. Leaf-blades filiform or linear, flat or conduplicate, 25–50 cm long, 1–3 mm wide, aromatic. Leaf-blade surface pilose, sparsely hairy, hairy adaxially.

Inflorescence. Synflorescence compound, linear, 15–30 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2.5–3.5 cm long, green. Peduncle 0.7–2 cm long. Racemes 2, paired, deflexed, 2.5–3.5 cm long, bearing 5–8 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, glabrous on surface or puberulous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, hairy on margins.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 7 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 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 lanceolate, dorsally compressed, 6–7.5(–8.5) 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 all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 4 in number. Lower glume surface concave, smooth or rugose (wrinkled). Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, 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 absent or minute.

Flower and Fruit. Anthers 3.

N = 30 (2 refs TROPICOS).

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

Country /Province /State. **Western Asia, China.** China South Central, China North-Central, Tibet. **Indian Subcontinent.** India, Nepal, Pakistan, West Himalaya.

TDWG4. Gansu, Shaanxi. Guizhou, Sichuan, Yunnan. Jammu Kashmir.

Cymbopogon exsertus (Hack.) A.Camus. *Rev. Bot. Appliq.* 1:287 (1921).

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:** *Andropogon nardus* var. *exsertus* Hack. *DC., Monogr. Phan.* 6:608 (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: Wallich 8794M (K iso).

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

Derivation (Clifford & Bostock 2007): L. exserted. Rhachilla longer than in related species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 50–100 cm long. Culm-internodes terete, smooth, distally glabrous. Culm-nodes glabrous. Leaf-sheaths mostly shorter than adjacent culm internode, smooth, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, membranous, obtuse. Leaf-blades 50–100 cm long, 4–8 mm wide, aromatic. Leaf-blade surface scabrous, rough on both sides, glabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence compound, linear, 15–35 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, exerted. Spatheole elliptic, 1.5–2.6 cm long, red. Racemes 2, paired, ascending, 1.3–2.5 cm long. Rhachis fragile at the nodes, semiterete. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured), pubescent. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2.5 mm long, tip widened.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, elliptic, 3 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 9 -veined, smooth, glabrous, 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 oblong, 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, shiny. Lower glume oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume primary vein scabrous. Lower glume intercarinal veins absent or obscure, 1 in number. Lower glume surface flat. Upper glume lanceolate, 1-keeled, keeled above, winged on keel. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 3–5 mm long, hyaline, 2 -veined, ciliate on margins, fringed above. Fertile lemma lanceolate, 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, 7 mm long overall, with twisted column. Column of lemma awn 2.5 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.75 mm long. Caryopsis with adherent pericarp, 3 mm long.

N = 10 (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Assam.

Cymbopogon fibrosus B. S. Sun. *J. Yunnan Univ.* 21: 95 (1999).

Not on *GrassBase*.

Accepted by: 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. 882).

Derivation (Clifford & Bostock 2007): *L. fibra*, fibre; *-osa*, abundance. Leaf-sheaths disintegrating at length into copious fibres.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan, Yunnan.

Cymbopogon flexuosus (Nees ex Steud.) W. Watson. *Gaz. N. W. Ind.* 392 (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), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960) (& as *C. travancorensis*).

TYPE from India. **Basionym or Replaced Name:** *Andropogon flexuosus* Nees ex Steud. *Syn. Pl. Glumac.* 1: 388 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India:, *Wight 1704* (HT: P; IT: K) 'A. nardus Klein herb. Ind. or.'

Recent Synonyms: *Cymbopogon travancorensis* Bor, *Journ. Bombay Nat. Hist. Soc.* 52: 174 (1954).

Illustrations (Books): K.M.Mathew, *Flora Palni Hills* (1996) (803, Pl. 803, & 806, Pl 806 as *C. travancorensis*), H.J.Noltie, *The Grasses of Bhutan* (2000) (801, Fig. 57 as var. *sikkimensis*), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (45, Fig. 34), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 881).

Illustrations (Journals): *Reinwardtia* (9: 366, fig.39B (1977)).

Derivation (Clifford & Bostock 2007): *L. flecto*, bend; *-osa*, abundance. Inflorescence branches la xand drooping or bent in a zigzag fashion.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short. Butt sheaths persistent and investing base of culm, with curly dead sheaths. Culms erect, 200–300 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs pubescent. Leaf-sheath auricles absent or erect. Ligule an eciliate membrane, 2–5 mm long, scarious. Leaf-blades 50–100 cm long, 8–15 mm wide, glaucous, aromatic. Leaf-blade surface scaberulous, rough on both sides, glabrous, hairless except near base. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence compound, paniculate, 30–60 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1–2 cm long. Peduncle 0.3 cm long, pilose above. Racemes 2, paired, erect or deflexed, 1.6–1.7 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear, 2.5 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured), pubescent. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2 mm long, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, elliptic, 3.5 mm long, shorter than fertile, deciduous with the 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 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume primary vein scabrous. Lower glume intercarinal veins distinct, 3 in number. Lower glume surface flat, smooth or wrinkled. Upper glume lanceolate, 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, hyaline, 2 -veined, ciliolate on margins. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–11 mm long overall, with twisted column. Column of lemma awn 3 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.7–2 mm long. Caryopsis with adherent pericarp.

N = 20 (1 ref TROPICOS).

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

Country /Province /State. Northern Africa, Western Indian ocean. Egypt (+). Mauritius (*), Madagascar (+), Seychelles. **China.** China South Central. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Eastern Himalaya, India, Nepal. Myanmar, Thailand, Vietnam. Java, Lesser Sunda Is, Malaya, Singapore, Sumatra. New Guinea.

TDWG4. Yunnan. Darjeeling, Bhutan, Sikkim. Kerala. Tamilnadu. Jammu Kashmir.

Cymbopogon gidarba (Steud.) Haines. *Bot. Bihar & Orissa, Pt. 5*, 1048 (1924).

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:** *Andropogon gidarba* Buch.-Ham. ex Steud. *Syn. Pl. Glumac.* 1: 387 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India. or., *Wallich Cat.* 8797.

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

Derivation (Clifford & Bostock 2007): origin uncertain, not given by the author but probably a vernacular name.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 32–90 cm long. Leaf-sheaths without keel. Ligule an eciliate membrane. Leaf-blades 17–35 cm long, 2–5 mm wide, without scent. Leaf-blade surface pubescent.

Inflorescence. Synflorescence compound, paniculate, 6–30 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole 2.2 cm long. Peduncle 10 cm long. Racemes 2, paired, deflexed, 2.3 cm long, bearing 4–5 fertile spikelets on each. Rhachis

fragile at the nodes, semiterete, ciliate on margins. Rhachis internodes clavate. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with swollen internode in lower raceme, sessile and pedicelled. Basal sterile spikelet pedicels swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 5 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, acute, 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, 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, wingless. Lower glume intercarinal veins absent. Lower glume surface concave, impressed with a boss blocking lower end. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Myanmar.

TDWG4. Yunnan. Bihar. Orissa, Tamilnadu, West Bengal.

Cymbopogon giganteus Chiov. *Alc. Gram. Essenz.* 12 (1909).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (300, Fig. 238), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (249, Fig. 90).

Derivation (Clifford & Bostock 2007): L. very large. Culms tall compared with those of related species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose, clumped loosely. Butt sheaths withering. Basal innovations extravaginal. Culms erect, 100–300 cm long, without nodal roots or with prop roots. Ligule an eciliate membrane, 0.3–2 mm long, scarious. Leaf-blade base broadly rounded or cordate. Leaf-blades linear or lanceolate, 15–60 cm long, 8–30 mm wide, herbaceous, dark green, aromatic. Leaf-blade surface smooth. Leaf-blade apex attenuate.

Inflorescence. Synflorescence compound, linear, 20–70 cm long, dense or lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 1–2 cm long, herbaceous. Racemes 2, paired, deflexed, 1–1.5 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 0.5–1 mm long. Rhachis internodes linear, 2.5–3 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal, 0.5–1.5 mm long, pubescent or pilose. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels fused to internode in lower raceme, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 3.5–5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 7 -veined, acute, 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 elliptic, 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 oblong, 1 length of spikelet, membranous, without oil streaks (or obscure), 2-keeled, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins absent or obscure. Lower glume surface with V-shaped

depression. Lower glume apex emarginate. Upper glume lanceolate, 1-keeled, 1–3 -veined. Upper glume primary vein ciliate. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret linear, 2–4 mm long, hyaline. Fertile lemma linear or lanceolate, 3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma margins ciliate. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, mucicous (rarely) or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–17 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.5 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Middle Atlantic ocean, Western Indian ocean. Benin, Gambia, Ghana, Guinea-Bissau, Ivory Coast, Mali, Nigeria, Senegal, Sierre Leone, Togo. DRC. Eritrea, Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Madagascar.

Cymbopogon globosus Henrard. Fedde, *Repert.* 22: 106 (1925).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Atjeh 61*, Moluccas: Taliabu Island (Soela) (L-920.160–280; IT: BO).

Illustrations (Journals): *Reinwardtia* (9: 289, fig.21 (1977)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Derivation (Clifford & Bostock 2007): L. *globus*, sphere; -osa, abundance. Spikelets spherical.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent. Basal innovations extravaginal. Culms erect, 100–200 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades 30–60 cm long, 3–7 mm wide, aromatic. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, globose, 10–20 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 1.7–2.3 cm long, chartaceous. Peduncle pilose above. Racemes 2, paired, erect, 1.5–2 cm long. Rhachis fragile at the nodes, semiterete, pilose on surface. Rhachis hairs 3–5 mm long. Rhachis internodes linear, 2.5 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2.5 mm long, ciliate, with 3–5 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets smaller than fertile.

Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, linear, 4 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, glabrous, acute, mucicous.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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 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 all along, keeled laterally, wingless or winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 3–4 in number. Lower glume surface flat. Lower glume apex obtuse. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 12–19 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, obovoid, isodiametric, 1.5 mm long.

Distribution (TDWG). Continent. Tropical Asia, Australasia.

Country /Province /State. Malesia. Moluccas. Australia. Queensland.

TDWG4. North.

Cymbopogon goeringii (Steud.) A. Camus. *Rev. Bot. Appliq.* 1 : 286 (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).

TYPE from Japan. **Basionym or Replaced Name:** *Andropogon goeringii* Steud. *Flora* 29: 22 (1846)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan.; *Goering* 3 (HT: P) 'die japanischen Grdser .. Der Gvring'schen sammlung'.

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 880).

Derivation (Clifford & Bostock 2007): in honor of Philip Friedrich Wilhelm Goering (1809–79) German botanist.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous. Culms erect, 45–90 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3.5 mm long. Leaf-blades 15–30 cm long, 4.5 mm wide, aromatic. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, linear, 20–40 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2.3 cm long. Peduncle 1.3 cm long, glabrous. Racemes 2, paired, deflexed, 2–2.3 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 5.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, wingless or winged 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 lanceolate, dorsally compressed, 4.5–6 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly or moderately. Lower glume intercarinal veins distinct, 3–6 in number. Lower glume surface flat. Upper glume lanceolate, 1-keeled, keeled above. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 17 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

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

Country /Province /State. **China, Eastern Asia.** China South Central, China North-Central, China Southeast. Japan, Korea, Nansei-Shoto, Taiwan. **Indo-China.** Vietnam.

TDWG4. Hebei, Shandong. Anhui, Fujian, Henan, Hong Kong, Hunan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Yunnan.

Cymbopogon gratus Domin. *Biblioth. Bot.* 1, 5: 274 (1915).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from Australia, Queensland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Domin II.1910*, Australia: northern Queensland (PR).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Images: K.Domin, *Bibliotheca Botanica* 85 (1915) (275, Fig.64).

Derivation (Clifford & Bostock 2007): L. pleasing. Attractive in appearance.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent. Basal innovations extravaginal. Culms erect, 35 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades 10–20 cm long, 2–4 mm wide, aromatic. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Synflorescence compound, linear or paniculate, 10–20 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2–2.1 cm long, herbaceous, pilose (below). Peduncle 0.6 cm long. Racemes 2, paired, erect, 1–1.5 cm long. Rhachis fragile at the nodes, semiterete, villous on surface. Rhachis hairs 5–7 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, villous, with 5–7 mm long hairs.

Sterile Spikelets. Basal sterile spikelets absent.

Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, lanceolate, 3 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 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, chartaceous, 2-keeled, keeled all along, keeled laterally. Lower glume intercarinal veins distinct, 3 in number. Lower glume surface flat or concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, muticous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, obovoid, 2 mm long.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

TDWG4. North, Central.

Cymbopogon jwarancusa (Jones) Schult. *Mant.* 2: 458 (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), 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:** *Andropogon iwarancusa* Jones *Asiat. Res.* 4: 109 (1795)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: India: Lucknow.

Recent Synonyms: *Cymbopogon ladakhensis* B.K.Gupta, *Proc. Indian Acad. Sci.* 71 Sect. B, 10 (1970).

Illustrations (Books): N.L.Bor, *Gramineae in Flora of Iraq* (1968) (521, Fig.199 as *C. olivieri*), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (667), H.J.Noltie, *The Grasses of Bhutan* (2000) (807, Fig. 806), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 875as *C. jwarancusa* ssp. *jwarancusa*).

Derivation (Clifford & Bostock 2007): Bengali jwara, fever; khusa, grass. Used medicinally to control fever.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous, persistent and investing base of culm, with compacted dead sheaths or curly dead sheaths. Culms erect or geniculately ascending, 30–150 cm long. Ligule an eciliate membrane, 0.5–4 mm long. Leaf-blades 15–30 cm long, 3–5 mm wide, aromatic. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence compound, linear, 15–40 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate or elliptic, 1.5–2.5 cm long, red. Racemes 2, paired, deflexed, 1.3–2.2 cm long. Rhachis fragile at the nodes, semiterete, pilose on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, hairy on surface or margins.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 6 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 3–7 -veined, 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 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, chartaceous, 2-keeled, keeled all along, keeled laterally. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, incised 0.5 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 7–10 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

$N = 10$ (3 refs TROPICOS), or 20 (1 ref TROPICOS). $2n = 20$ (5 refs TROPICOS), or 40 (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, North America (+).

Country /Province /State. Northern Africa, Northeast tropical Africa. Egypt. Socotra. Western Asia, Arabian Peninsula, China. Afghanistan, Iran, Iraq. Gulf States, Oman, Saudi Arabia. China South Central, Tibet. Indian Subcontinent. Assam, Eastern Himalaya, India, Nepal, Pakistan, West Himalaya.

TDWG4. Sichuan, Yunnan. Bhutan. Jammu Kashmir.

Cymbopogon khasianus (Hackel) Stapf ex Bor. *Indian Forest Rec., n. s. Bot.*, 1: 92 (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), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

TYPE from India. **Basionym or Replaced Name:** *Andropogon nardus* var. *khasianus* Munro ex Hack. *Monogr. Phan.* 6: 603 (1889, Apr..)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Griffith 6764*, (K).

ST: *Griffith 6765*, India (K).

ST: *Wallich 8794H*, India: Ind. or pr. Silhet (K).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (801, Fig. 57), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 881).

Illustrations (Journals): *Reinwardtia* (9: 366, fig.39C (1977)).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From the Khasia Hills, India.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock evident. Butt sheaths glabrous or pubescent. Culms erect, 90–170 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous or pubescent. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–4 mm long. Leaf-blades 30–60 cm long, 5–10 mm wide, aromatic. Leaf-blade surface scaberulous, rough on both sides, glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence compound, paniculate, 45–90 cm long, dense or lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.5–2 cm long, glabrous. Peduncle 0.5–1 cm long, pilose above. Racemes 2, paired, deflexed, 2 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured), pubescent. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2 mm long, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 4.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7-veined, 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 elliptic, 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 elliptic, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly.

Lower glume intercarinal veins distinct, 4 in number. Lower glume surface flat. Upper glume lanceolate, 1-keeled, keeled above. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, hyaline, 2 -veined. Fertile lemma lanceolate, 2.5–3 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, 10–12 mm long overall, with twisted column. Column of lemma awn 5 mm long, glabrous. Palea absent or minute.

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

$N = 10$ (2 ref TROPICOS). $2n = 60$ (2 refs TROPICOS).

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

Country /Province /State. **China.** China South Central, China Southeast. **Indian Subcontinent, Indo-China.** Assam, Eastern Himalaya, India. Myanmar, Thailand.

TDWG4. Guangxi. Yunnan. Bhutan.

Cymbopogon liangshanensis L. Liou ex S.M. Phillips & H. Peng. *Novon* 15(3): 471–473 (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Sichuan: Liangshan, mountain slopes, 21 Aug. 1964, *T.P. Zhu 411* (HT: PE).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 877).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Liangshan, Sichuan Province, China.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose. Culms erect, slender, 50–110 cm long, 1.5 mm diam., 4–6 -noded. Ligule an eciliate membrane, 1.5–2.5 mm long. Leaf-blade base tapering to the midrib. Leaf-blades 20–30 cm long, 3–5 mm wide, grey-green, aromatic. Leaf-blade surface scaberulous.

Inflorescence. Synflorescence compound, paniculate, 30–40 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole elliptic, 2–2.5 cm long. Racemes 2, paired, erect, 1.5–1.8 cm long, bearing 3–5 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, pilose on surface. Rhachis hairs lengthening towards internode tip, 0.5–1.5 mm long. Rhachis internodes linear, 0.75 length of fertile spikelet. Rhachis internode tip transverse, cupuliform. Raceme-bases linear, subequal. 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, ciliate, hairy all along but hairs longer above, with 0.5–1.5 mm long hairs.

Sterile Spikelets. Basal sterile spikelets absent or rudimentary, 0–1 in number (lower raceme), 0 in upper racemes.

Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, lanceolate, 2.5–3.5 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous.

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, 3.7–4 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 elliptic or oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume primary vein scabrous. Lower glume intercarinal veins distinct, 2–4 in number. Lower glume surface concave. Lower glume apex dentate, 2 -fid. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 13–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. **China.** China South Central.

TDWG4. Sichuan.

Cymbopogon mandalaiaensis Soenarko. *Reinwardtia*, 9(2): 183 (1975).

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

TYPE from Myanmar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *D. Rhind 928*, 7 Nov 1928, Burma: Mandalay, Tatkon (?).

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Mandalay, Myanmar.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Annual or perennial, culms solitary. Culms erect or geniculately ascending, 60–120 cm long, with prop roots. Culm-internodes distally glabrous. Culm-nodes swollen. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 5 mm long, scarious. Leaf-blade base broadly rounded. Leaf-blades 15–30 cm long, 5–9 mm wide, aromatic. Leaf-blade surface smooth, glabrous.

Inflorescence. Synflorescence compound, linear, 50 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2.7 cm long, chartaceous, glabrous. Racemes 2, paired, deflexed, 2.2 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with swollen internode in lower raceme, sessile and pedicelled. Basal sterile spikelet pedicels fused to internode in lower raceme, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 4.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 2 -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 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, chartaceous, with oil streaks, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface with V-shaped depression. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 22 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Myanmar.

Cymbopogon marginatus (Steud.) Stapf ex Burt-Davy. *Ann. Transvaal Mus.* 3: 121 (1912).

Accepted by: W.D. Clayton & K. Harman, *GrassBase* (2008) and online, U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Andropogon marginatus* Steud., *Flora*, 12: 472 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: In lapidosis fruticosus altitudinis 2 montis dorsis leonis, *Ecklon 920* (HT: P).

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

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: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent, persistent and investing base of culm, with compacted dead sheaths. Culms erect, 20–70 cm long. Ligule an eciliate membrane, 2 mm long. Leaf-blades 15–35 cm long, 2–5 mm wide, aromatic.

Inflorescence. Synflorescence compound, linear, 5–15 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 1.9–4.9 cm long. Peduncle 0.6–2.1 cm long. Racemes 2, paired, deflexed, 2.8 cm long, bearing 5–7 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, pilose on surface, villous on margins. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 3 mm long, villous, hairy on surface or margins.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 5.5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 7 -veined, acute, 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, dorsally compressed, 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged moderately. Lower glume intercarinal veins distinct, 2 in number. Lower glume surface flat or concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, 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 absent or minute.

Flower and Fruit. Anthers 3.

N = 10 (1 ref TROPICOS), or 20 (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Western Cape, Eastern Cape.

Cymbopogon martinii (Roxb.) W. Watson. Atkinson, *Gaz. N. W. Ind.* 392 (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, 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:** *Andropogon martini* Roxb., *Fl. Ind.* 1: 280–281 (1820). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: India: Lucknow: Ballaghat, high lands, *Gen. (seeds) Martin s.n.* (HT: K).

Illustrations (Books): K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 836 & 837), H.J.Noltie, *The Grasses of Bhutan* (2000) (807, Fig. 806), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (41, Fig. 31), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (553, Fig. 202), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (1312, Fig. 259), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 876).

Derivation (Clifford & Bostock 2007): in honor of Claude Martin (1731–1800) French-born British soldier who collected in India.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock evident. Culms erect, 150–300 cm long. Culm-nodes flush with internodes or swollen. Ligule an eciliate membrane, 1.5–4 mm long. Leaf-blade base cordate or amplexicaul. Leaf-blades linear or lanceolate, 25–50 cm long, 10–30 mm wide, glaucous, aromatic. Leaf-blade margins scabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence compound, linear or paniculate, 15–30 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate or elliptic, 2–4 cm long, red. Peduncle pubescent above. Racemes 2, paired, deflexed, 1.5–2 cm long. Rhachis fragile at the nodes, semiterete, pubescent on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, hairy on surface or margins.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with swollen internode in lower raceme, sessile and pedicelled. Basal sterile spikelet pedicels free, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 4 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 8 -veined, acute, 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 oblong, dorsally compressed, 4–4.5 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 2 in number. Lower glume surface with V-shaped depression. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, incised 0.5 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 12–18 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

$N = 10$ (1 ref TROPICOS), or 20 (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Australasia (*), South America (+).

Country /Province /State. Northern Africa, Western Indian ocean. Egypt. Madagascar, Seychelles. **China.** China South Central. **Indian Subcontinent, Indo-China, Malesia.** Assam, Eastern Himalaya, India, Nepal, Pakistan, West Himalaya. Myanmar, Vietnam. Java, Malaya. **Australia.** Queensland (*). **Brazil (+), Southern South America (+).** Brazil Southeast, Brazil South.

TDWG4. Sichuan, Yunnan. Bhutan. Kerala. Central.

Cymbopogon mekongensis A. Camus. *Bull Mus. Hist. Nat. Paris* 26: 563 (1920).

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

TYPE from Vietnam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Vietnam: Mekong, *Thorel 2481* (HT: P).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 876).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Mikong, Laos.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms geniculately ascending, 25–55 cm long, wiry. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–2 mm long. Leaf-blades 10–20 cm long, 1.5–3.5 mm wide, aromatic. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, linear, 8–10 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2.3 cm long, red, glabrous. Racemes 2, paired, deflexed, 1.5 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 4.2 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 5-veined, 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 lanceolate, dorsally compressed, 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins absent. Lower glume surface with V-shaped depression. Upper glume lanceolate, 1-keeled, keeled above. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 14 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

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

Country /Province /State. China. China South Central, China Southeast. **Indo-China.** Laos, Thailand, Vietnam.

TDWG4. Guangdong, Guangxi, Hunan, Zhejiang, Guizhou, Sichuan, Yunnan.

Cymbopogon microstachys (Hook.f.) S. Soenarko. *Reinwardtia*, 9(3): 364 (1977).

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

TYPE from India. **Basionym or Replaced Name:** *Andropogon nardus* var. *microstachys* Hook. f. *Fl. Brit. India* 7(21): 207 (1897) [1896]

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Mann* 5, LT designated by Soenarko, *Reinwardtia* 9: 364 (1977).

ST: *Thompson s.n.*, India: Forests of Oudh.

Illustrations (Journals): *Reinwardtia* (9: 366, fig.39A (1977)).

Derivation (Clifford & Bostock 2007): Gk. mikros, small; stachys, ear of corn. Inflorescences or spikelets small.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous. Culms erect, 100–165 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 5–6 mm long. Leaf-blades 40–75 cm long, 10–12 mm wide, aromatic. Leaf-blade surface scabrous, rough on both sides, glabrous.

Inflorescence. Synflorescence compound, linear, 30–90 cm long, dense or lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.1–1.2 cm long. Peduncle 0.5–0.6 cm long, glabrous. Racemes 2, paired, deflexed, 1–1.2 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 4 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 lanceolate, dorsally compressed, 3.5–4.5 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged narrowly. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface concave, impressed below. Upper glume lanceolate, 1-keeled, keeled above. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–8 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

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

Country /Province /State. **China.** China South Central. **Indian Subcontinent, Indo-China.** India. Myanmar, Thailand.

TDWG4. Yunnan.

Cymbopogon microthecus (Hook. f.) A. Camus. *Rev. Bot. Appl. Agric. Colon.* 1: 284 (1921).

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. **Basionym or Replaced Name:** *Andropogon microtheca* Hook. f. *Fl. Brit. India* 7(21): 208 (1897) [1896]

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: East Nepal; hot valleys, ..., *J. D. Hooker s.n.*

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (807, Fig. 806).

Derivation (Clifford & Bostock 2007): Gk. mikros, small; theke, box. Apex of pedicels cup-shaped after spikelets have been shed.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 20 cm long. Leaf-sheaths keeled. Ligule an eciliate membrane, 1 mm long. Leaf-blades erect, 40 cm long, 3 mm wide, without scent. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, paniculate.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole 1.5–2 cm long. Peduncle 0.3–0.4 cm long. Racemes 2, paired, deflexed, 1.2–1.5 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis internodes clavate. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, clavate, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with swollen internode in lower raceme, sessile and pedicelled. Basal sterile spikelet pedicels fused to internode in lower raceme, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 4 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 5–7 -veined, 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 elliptic, dorsally compressed, 3 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, wingless. Lower glume intercarinal veins absent. Lower glume surface concave. Lower glume apex acuminate. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. 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. Palea absent or minute.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Nepal.

TDWG4. Darjeeling, Sikkim.

Cymbopogon minor B.S. Sun & R.Zhang ex S.M. Phillips & H. Peng. *Novon* 15(3): 473, f. 1 (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Qiaojia xian, Xiaobe, bank of Niulan Jiang, roadside in grassland, 900 m, 28 Oct. 1964, *Team of NE Yunnan 1466* (HT: YUNU).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 878).

Illustrations (Journals): *Novon* (15: 472 Fig 1 (2005)).

Derivation (Clifford & Bostock 2007): L. lesser. Plants small in comparison with related species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–70 cm long, wiry. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.3–2 mm long. Leaf-blades 20 cm long, 1–2 mm wide, light green, aromatic. Leaf-blade surface smooth, glabrous.

Inflorescence. Synflorescence compound, paniculate, 20–30 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, embraced at base by subtending leaf. Spatheole linear, 1.2–1.5 cm long, red. Racemes 2, paired, deflexed. Rhachis fragile at the nodes, ciliate on margins. Rhachis hairs lengthening towards internode tip, 2–3 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform, with lobed rim. Raceme-bases linear, subequal. Spikelets 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 2–3 mm long hairs.

Sterile Spikelets. Basal sterile spikelets rudimentary, 1 in number (lower raceme), 0 in upper racemes, linear.

Companion sterile spikelets represented by single glumes, linear, 0.5–2.5 mm long, shorter than fertile, deciduous with the fertile. 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 oblong, dorsally compressed, 3.8–4 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 elliptic or oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled laterally. Lower glume primary vein scabrous. Lower glume intercarinal veins distinct, 2–4 in number. Lower glume surface concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma lanceolate, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 12–13 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Cymbopogon minutiflorus S. Dransfield. *Reinwardtia*, 9(4): 390 (1980).

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

TYPE from Indonesia. T: <Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Central Sulawesi: between Tawaeli and Parigi, 25 Apr 1976, ca. 200 m, on limestone hills, locally common, *Soenarko 430* (HT: BO; IT: L, K).

Illustrations (Journals): *Reinwardtia* (9: 391, fig. 3 (1980)).

Derivation (Clifford & Bostock 2007): *L. minutus*, very small; flos, flower. Spikelets or florets very small.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous, persistent and investing base of culm, with curly dead sheaths. Culms erect, 100–200 cm long. Culm-internodes distally glabrous. Culm-nodes swollen, bearded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1 mm long, membranous. Leaf-blades 20–60 cm long, 6–8 mm wide, light green, aromatic. Leaf-blade surface scaberulous, rough on both sides, glabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence compound, paniculate, 60 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 0.9–1.6 cm long, glabrous. Peduncle 0.4 cm long, pilose above. Racemes 2, paired, deflexed, 1 cm long. Rhachis fragile at the nodes, semiterete, pilose on surface, ciliate on margins. Rhachis internodes linear, 1.5 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 1.5 mm long, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 2–2.5 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, acute, mucicous. 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, 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 2 in number. Lower glume surface flat, smooth or wrinkled. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 9 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, 1.5 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sulawesi.

Cymbopogon nardus (L.) Rendle. *Cat. Welw.Afr. Pl.* 2: 155 (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), 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 *C. thwaitesii*, *C. virgatus*), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

TYPE from Sri Lanka. **Basionym or Replaced Name:** *Andropogon nardus* L. *Sp. Pl.* 2: 1046 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sri Lanka.; *Hermann s.n.* (HT: BM).

Recent Synonyms: *Cymbopogon validus* (Stapf) Stapf ex Burtt-Davy, *Ann. Transvaal Mus.* 3: 121 (1912).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (507, Fig 406 as *C. validus*), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (660), K.M.Matthew, *Flora Palni Hills* (1996) (804, Fig 804 as var. *confertiflorus*), H.J.Noltie, *The Grasses of Bhutan* (2000) (807, Fig. 58), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (45, Fig. 32), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003).

Illustrations (Journals): *Reinwardtia* (9: 352, fig.35 (1977) as var. *confertiflorus*).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999) (as *C. validus*).

Derivation (Clifford & Bostock 2007): Gk. *nardos*, spikenard. Derived from a Semite word for aromatic balm produced by spikenard (*Nardostachys jatamansi*) and by transfer of meaning to other species producing aromatic oils. How the name became transferred to *Nardus* is unclear because its species are unscented.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm. Culms 75–300 cm long. Ligule an eciliate membrane, 3–9 mm long. Leaf-blades drooping, flat, 20–60 cm long, 3–15 mm wide, aromatic. Leaf-blade surface smooth or scaberulous.

Inflorescence. Synflorescence compound, linear, 15–60 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1–2.5 cm long. Racemes 2, paired, deflexed, 1–2 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 0.5–3 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 3.5–6 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 3–7 -veined (intercarinal), 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 lanceolate, dorsally compressed, (3–)3.5–7 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged above. Lower glume intercarinal veins absent or obscure, 0–4 in number. Lower glume surface convex or flat or concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, muticous or awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–15 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

$N = 10$ (1 ref TROPICOS). $2n = 20$ (2 refs TROPICOS).

Distribution (TDWG). **Continent.** Africa, Temperate Asia, Tropical Asia, Pacific, North America (+), South America.

Country /Province /State. Northern Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa, Western Indian ocean. Egypt. Rwanda, DRC. Sudan. Kenya, Tanzania, Uganda. Angola, Mozambique, Zimbabwe. Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Kwazulu-Natal, Lesotho, Eastern Cape. Madagascar, Seychelles. **China, Eastern Asia.** China South Central, Hainan, China Southeast. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, Bangladesh, Eastern Himalaya, India, Sri Lanka. Andaman Is, Myanmar, Vietnam. Borneo, Java, Lesser Sunda Is, Malaya, Singapore, Moluccas, Philippines, Sumatra. New Guinea. **Southwestern Pacific.** Fiji (*), Niue (*). Caroline Is (*), Marianas (*). **Mexico.** Northwest Mexico, Southwest

Mexico, Southeast Mexico. **Caribbean, Northern South America, Western South America, Brazil.** Jamaica (as *Andropogon*), Puerto Rico (& as *Andropogon*). Colombia. Brazil West Central, Brazil Northeast.

TDWG4. Fujian, Guangdong. Yunnan. Darjeeling. Coahuila. Oaxaca. Yucatan.

Cymbopogon nervatus (Hochst.) Chiov. *Alc. Gram. Essenz.* 10 (1909).

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. **Basionym or Replaced Name:** *Andropogon nervatus* Hochst. *Flora* 27: 243 (1844). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Kotschy 374*, Sudan (?; IT: K).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (329, Fig 132).

Derivation (Clifford & Bostock 2007): with conspicuously veined leaf-blades.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Annual, culms solitary or caespitose. Culms erect or geniculately ascending, 50–180 cm long, 1.5–5 mm diam., without nodal roots or with prop roots. Ligule an eciliate membrane, 3 mm long. Leaf-blade base broadly rounded. Leaf-blades 15–30 cm long, 6–10 mm wide, flaccid, glaucous, aromatic.

Inflorescence. Synflorescence compound, linear, 10–15 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole lanceolate, 1.2–1.6 cm long. Peduncle 0.4–0.8 cm long. Racemes 2, paired, deflexed, 1.2–1.6 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear, 2 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2 mm long, ciliate, hairy on margins.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with swollen internode in lower raceme, sessile and pedicelled. Basal sterile spikelet pedicels free, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, oblong, 4–5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, winged on keels, distinctly veined, 7 -veined, 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 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, with oil streaks, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 2 in number. Lower glume surface with V-shaped depression. Upper glume lanceolate, 1-keeled, winged on keel. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 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, 8–16 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, Tropical Asia.

Country /Province /State. Northeast tropical Africa. Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. **Indo-China.** Myanmar, Thailand.

Cymbopogon nervosus B. S. Sun. *J. Yunnan Univ.* 21: 95 (1999).

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: mountain slopes, ca. 2500 m.

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

Derivation (Clifford & Bostock 2007): *L. nervus*, nerve; *-osa*, abundance. Nerves, especially those of glumes, lemmas, culms or leaf-blades, conspicuous.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Yunnan.

Cymbopogon obtectus S. T. Blake. *Univ. Queensl. Papers, Dept. Biol.*, 2, No. 3, 55 (1944).

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: HT: S.T. Blake 6517, 29 Jun 1934, Australia: Queensland: Gregory North District: Woodstock, west of Winton (BRI-010799; IT: K, US-1865510).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (515, Fig 441), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (191).

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. obtego*, conceal. Segregated from a closely related species.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent, persistent and investing base of culm. Culms 50–100 cm long, 1–2 -noded. Culm-nodes glabrous or pubescent. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades flat or conduplicate or revolute, 15–35 cm long, 1.25–2.5 mm wide, aromatic. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence compound, linear or paniculate, 7–25 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole 2–3.2 cm long, herbaceous. Peduncle 0.5–1 cm long. Racemes 2, paired, deflexed, 1.5–2.5 cm long. Rhachis fragile at the nodes, semiterete, villous on surface, villous on margins. Rhachis hairs 4.5–7 mm long. Rhachis internodes linear, 2.75–3.5 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2.75–3.5 mm long, villous, with 4.5–7 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets barren (lacking florets), equalling fertile.

Companion sterile spikelets well-developed, comprising 2 unequal glumes without lemmas or containing empty lemmas, lanceolate, 3.5–5 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 11–13 -veined, glabrous, 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 lanceolate, dorsally compressed, acute, 5.2–6.4 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, chartaceous, 2-keeled, keeled laterally, wingless. Lower glume intercarinal veins distinct, 2–5 in number. Lower glume surface concave. Lower glume apex acuminate. Upper glume lanceolate, 1-keeled, keeled above, 5–7 -veined. Upper glume margins ciliolate. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 3.7–4.5 mm long, hyaline, 2–3 -veined, ciliolate on margins, acute. Fertile lemma lanceolate, 3.6–4.5 mm long, hyaline, without keel, 1–3 -veined, 0–3 -veined, one-veined or several-veined. Lemma apex lobed, 2 -fid, incised 0.15–0.33 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 6–8 mm long overall, without a column or with a straight or slightly twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 1.7–2 mm long. Caryopsis with adherent pericarp, orbicular.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. **Australia.** Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

TDWG4. Kimberley, Eremean, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

Cymbopogon osmastonii R. N. Parker. *Fedde, Repert.* 1: 126 (1932).

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: HT: *Osmaston 1430*, India (Dehra Dun).

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

Derivation (Clifford & Bostock 2007): in honor of Bertram Beresford Osmaston (1868–1961), English-born Indian forester.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–120 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blade base broadly rounded or cordate. Leaf-blades 9–18 cm long, 7–10 mm wide, aromatic. Leaf-blade surface glabrous. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence compound, linear, 15–25 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 0.8–1.4 cm long, green or red, glabrous. Peduncle 0.8–1 cm long. Racemes 2, paired, deflexed, 0.7–1 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear, 1.75 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 1.75 mm long, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 3 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 9 -veined, 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 elliptic, dorsally compressed, 2.5–3 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, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly or moderately. Lower glume intercarinal veins absent. Lower glume surface with V-shaped depression, impressed below. Upper glume lanceolate, 1-keeled, keeled above, winged on keel, winged above, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret elliptic, 2–2.5 mm long, hyaline, 2 -veined, ciliolate on margins. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus, straight, 0–2 mm long overall, without a column. Palea absent or minute.

Flower and Fruit. Anthers 3, 1–1.5 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

TDWG4. Uttar Pradesh.

Cymbopogon pendulus (Nees ex Steud.) W. Watson. Atkinson, *Gaz. N. W. Ind.* 392 (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 Nepal. **Basionym or Replaced Name:** *Andropogon pendulus* Nees ex Steud. *Syn. Pl. Glumac.* 1: 388 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nepal.; *Wallich 8794G* (HT: ?; IT: K).

Illustrations (Books): H.J. Noltie, *The Grasses of Bhutan* (2000).

Derivation (Clifford & Bostock 2007): *L. pendulus*, hanging down. Spikelets or inflorescence branches pendant.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent. Culms erect, 120–150 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1.5 mm long, scarious. Leaf-blade base tapering to the midrib. Leaf-blades 40–80 cm long, 10–20 mm wide, glaucous, aromatic. Leaf-blade surface scaberulous, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence compound, fasciculate, 30–60 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.5–2.6 cm long, red. Racemes 2, paired, deflexed, 1.5–2 cm long. Rhachis fragile at the nodes, semiterete, pubescent on surface (above), ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured), pubescent. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 5–6 mm long, as long as fertile, deciduous with the 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 lanceolate, dorsally compressed, 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, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume primary vein scabrous. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface flat. Upper glume lanceolate, 1-keeled, keeled above, winged on keel, 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 lanceolate, hyaline. Fertile lemma lanceolate, 4 mm long, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 11–13 mm long overall, with twisted column. Column of lemma awn 6 mm long, glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3, 2.5 mm long. Caryopsis with adherent pericarp.

$N = 10$ (1 ref TROPICOS). $2n = 40$ (1 ref TROPICOS), or 60 (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Assam, Eastern Himalaya, India, Nepal. Vietnam.

Yunnan. Darjeeling, Bhutan.

Cymbopogon polyneuros (Steud.) Stapf. *Kew Bull.* 1906, 345, 361 (1906).

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 polyneuros* Steud. *Syn. Pl. Glumac.* 1: 385 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *R.F. Hohenacker 933*, India: Tamil Nadu, Coimbatore, Nilgiri Hills (L).

Illustrations (Books): K.M.Matthew, *Flora Palni Hills* (1996) (805, Pl 805).

Derivation (Clifford & Bostock 2007): Gk. polys, several; neuron, nerve. The glumes and lemmas are many-nerved.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Rootstock evident. Culms 45–120 cm long. Ligule an eciliate membrane. Leaf-blade base cordate. Leaf-blades 8–20 cm long, 4–10 mm wide, glaucous, aromatic. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence compound, paniculate, 4–16 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 2, paired, deflexed, 1–2 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 2 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, with 2 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 4.5–5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 elliptic, 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 elliptic, 1 length of spikelet, 2-keeled, keeled laterally, winged on keel, winged above. Lower glume surface with V-shaped depression. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 8–16 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. India, Sri Lanka. Myanmar.

TDWG4. Tamilnadu.

Cymbopogon pospischilii (K. Schum.) C. E. Hubbard. *Kew Bull.* 1949, 175 (1949).

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 Kenya. **Basionym or Replaced Name:** *Andropogon pospischilii* K. Schum. *Bot. Jahrb. Syst.* 24(3): 328 (1897)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mozambique: near Muani, Feb. 18??, *Pospischil s.n.* (HT: B(fragm., K); K (fragm. ex B)) Deutsch Ostafrika.

Recent Synonyms: *Cymbopogon plurinodis* (Stapf) Stapf ex Burtt-Davy, *Ann. Transvaal Mus.* 3: 121 (1912).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (508, Fig 407as *C. plurinodis*), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984).

Images: F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999) (as *C. purinodis*).

Derivation (Clifford & Bostock 2007): in honor of Pospischil who collected in East Africa.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent, persistent and investing base of culm. Culms 40–100 cm long. Ligule an eciliate membrane. Leaf-blades flat, 15–30 cm long, 1–4 mm wide, aromatic. Leaf-blade surface smooth or scaberulous.

Inflorescence. Synflorescence compound, linear or paniculate, 10–30 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 2, paired, deflexed, 1.5–3.5 cm long, bearing 5–7(–8) fertile spikelets on each. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 2–3 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, with 2–3 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 4–7 mm long, as long as fertile, deciduous with the 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 lanceolate, dorsally compressed, 4.5–7 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, chartaceous, 2-keeled, keeled above, keeled laterally, wingless. Lower glume intercarinal veins absent or obscure, 0–3 in number. Lower glume surface concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, 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. Palea absent or minute.

Flower and Fruit. Anthers 3.

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

Country /Province /State. Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa. Eritrea, Ethiopia (inc. Eritrea), Somalia. Kenya, Tanzania, Uganda. Mozambique, Zimbabwe. Namibia, Botswana, Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. **Arabian Peninsula, China.** Oman, Saudi Arabia. China South Central, Tibet. **Indian Subcontinent.** India, Nepal, Pakistan, West Himalaya.
TDWG4. Yunnan.

Cymbopogon procerus (R.Br.) Domin. *Biblioth. Bot.* 1, 5: 273 (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:** *Andropogon procerus* R. Br., *Prodr.* 1: 202 (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6172*, Australia: Northern Territory: Groote Eylandt (BM; IT: E, K).

Illustrations (Books): C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (339, Pl 99), 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. tall. Culms tall.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths pubescent. Basal innovations extravaginal. Culms erect, 100–200 cm long. Culm-internodes distally glabrous. Culm-nodes bearded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3 mm long, scarious, obtuse. Leaf-blades 25–50 cm long, 8–15 mm wide, aromatic. Leaf-blade surface smooth or scaberulous, rough on both sides, glabrous.

Inflorescence. Synflorescence compound, linear, 60–75 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2.3–3 cm long, chartaceous, red. Peduncle 0.5 cm long, pilose above. Racemes 2, paired, erect, 1.7–2 cm long. Rhachis fragile at the nodes, semiterete, villous on surface. Rhachis internodes linear, 2.5 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 2.5 mm long, villous, with 6 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets lanceolate, equalling fertile.

Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, lanceolate, 4 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 3 - 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, 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, chartaceous, 2-keeled, keeled all along, keeled laterally. Lower glume intercarinal veins distinct, 2 in number. Lower glume surface concave. Lower glume apex acuminate. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 17–22 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, ellipsoid, isodiametric, 2 mm long.

Distribution (TDWG). Continent. Tropical Asia, Australasia.

Country /Province /State. **Malesia, Papuaia.** Lesser Sunda Is, Moluccas, Sulawesi. New Guinea. **Australia.** Western Australia, Northern Territory, Queensland.

TDWG4. Kimberley, Eremean. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. North.

Cymbopogon proxilus (Stapf) E. Phillips. *S. African Grass*. 218 (1931).

Regarded by K as a synonym (*C. nardus*).

Accepted by: U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from South Africa. **Basionym or Replaced Name:** *Andropogon nardus* var. *prolixus* Stapf, *Fl. Cap.* 7: 352 (1898)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Burchell 3845*, South Africa: Cape: between Port Alferd and Kaffir Drift (K). LT cited by Soenarko, *Reinwardtia* 9: 342 (1977).

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Flower and Fruit. $2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa.

Country /Province /State. **Southern Africa.** North-West, Mpumalanga, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape.

Cymbopogon pruinus (Nees ex Steud.) Chiov. *Alc. Gram. Essenz.* 13 (1909).

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

TYPE from Mauritius. **Basionym or Replaced Name:** *Andropogon pruinus* Nees ex Steud. *Syn. Pl. Glumac.* 1: 388 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Sieber 45*, Mauritius: Ile de Bourbon (?; IT: K).

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: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths. Culms erect or geniculately ascending, 20–60 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2 mm long, membranous. Leaf-blade base broadly rounded or cordate or amplexicaul. Leaf-blades 40–80 cm long, 5–15 mm wide, aromatic. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, linear or panicate, 7–20 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.7–2.6 cm long. Racemes 2, paired, deflexed, 1.5–1.7 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 oblong, dorsally compressed, 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 elliptic, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly. Lower glume intercarinal veins distinct, 2 in number. Lower glume surface with V-shaped depression. Lower glume apex dentate, 3 -fid. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 11 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. **Western Indian ocean.** Madagascar, Seychelles.

Cymbopogon queenslandicus S. T. Blake. *Contrib. Queensl. Herb.*, 17: 53 (1974).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from Australia, Queensland. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Townsville, upper slopes of Castle Hill, 210–230 m, Mar 1935, *S.T. Blake* 8353 (HT: BRI-045247, BRI-045246; IT: K).

Illustrations (Books): 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 Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous or sparsely hairy. Culms erect, 100 cm long. Culm-internodes distally glabrous or pubescent. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 20–40 cm long, 3–10 mm wide, aromatic. Leaf-blade surface scaberulous, rough on both sides, glabrous.

Inflorescence. Synflorescence compound, scanty, 40 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2–2.2 cm long. Peduncle glabrous. Racemes 2, paired, deflexed, 1.6–2 cm long. Rhachis fragile at the nodes, semiterete, pilose on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets absent.

Companion sterile spikelets well-developed, containing empty lemmas, lanceolate, 5–6 mm long, as long as fertile or longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7(–9) -veined, 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 lanceolate or oblong, 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 linear or oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 2–4 in number. Lower glume surface concave, impressed below. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2-fid, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 10–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

TDWG4. North, Central, South East.

Cymbopogon quinhonensis (A. Camus) S.M. Phillips & H. Peng. *Novon* 15(3): 473 (2005).

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

TYPE from Vietnam. **Basionym or Replaced Name:** *Andropogon quinhonensis* A. Camus, *Bull. Mus. Hist. Nat. Paris*, 25: 204. (1919). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indochina, Annam, Qui-nhon: *Balansa* 4872 .

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Qui-nhon, Annam.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–70 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheaths striately veined, smooth, glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 10–15 cm long, 2–3 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade venation distinct, with 8 secondary veins. Leaf-blade surface smooth, glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence compound, scanty.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole. Spatheole linear or lanceolate, 3–5 cm long. Peduncle 6–9 cm long, hirsute above. Racemes 2, paired, 1.5–2 cm long. Rhachis fragile at the nodes, villous on margins. Rhachis hairs 4–5 mm long. Rhachis internodes filiform, 3–4 mm long. Rhachis internode tip transverse, cupuliform, with lobed rim. Spikelets ascending, in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, filiform, 3.5–4.5 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, 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 or lanceolate, 1 length of spikelet, membranous, 2-keeled, keeled laterally. Lower glume intercarinal veins absent. Lower glume surface concave. Lower glume apex dentate, 2 -fid. Upper glume linear, membranous, 1-keeled. Upper glume apex acute, muticous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3.5–4.5 mm long, hyaline, 2 -veined, ciliolate on margins. Fertile lemma oblong, 1.5–1.8 mm long, hyaline, without keel. Lemma margins ciliolate. Lemma apex dentate, 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.

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

Country /Province /State. Indo-China. Vietnam.

Cymbopogon ramnagarensis B.K. Gupta. *Proc. Indian Acad. Sci.* 71: 86 (1970).

Regarded by K as a synonym (*C. x stracheyi*).

Accepted by: U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from India. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *B. K. Gupta* 30, India (Dehra Dun).

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

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Country /Province /State. TDWG4. Jammu Kashmir.

Cymbopogon rectus (Steud.) A. Camus. *Rev. Bot. Appl. Colon.* 1:270 (1921).

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

TYPE from Indonesia. **Basionym or Replaced Name:** *Andropogon rectus* Steud. *Syn. Pl. Glumac.* 1: 389 (1854)

. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: T: *Zollinger* 2562, Java (S-G408).

Illustrations (Journals): *Reinwardtia* (9: 344, fig.34 (1977)).

Derivation (Clifford & Bostock 2007): *L. upright*. Panicle branches erect or spike-like.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 50–100 cm long. Culm-internodes distally glabrous. Culm-nodes bearded. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent or erect. Ligule an eciliate membrane, 3 mm long, scarious. Leaf-blades 25–50 cm long, 5 mm wide, aromatic. Leaf-blade surface glabrous.

Inflorescence. Synflorescence compound, linear, 30–50 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1–3.4 cm long. Peduncle 0.2–0.9 cm long, glabrous. Racemes 2, paired, deflexed, 1.5–2 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 6 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, wingless or winged on margins, 7(–9) -veined, 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 lanceolate, dorsally compressed, 5.5–7 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 lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly. Lower glume intercarinal veins distinct, 4–5 in number. Lower glume surface flat. Upper glume lanceolate, 1-keeled, keeled above. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma

awn from a sinus, geniculate, 14 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Java, Lesser Sunda Is.

Cymbopogon refractus (R.Br.) A. Camus. *Rev. Bot. Appl. Colon.* 1:270 (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), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from Australia. **Basionym or Replaced Name:** *Andropogon refractus* R. Br., *Prodr.* 1: 202 (1810). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *R. Brown 6177*, Australia: New South Wales: Port Jackson (BM; IT: E, K, P).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (191), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (170), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (267, Fig. 40), 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) (1518, Pl. 223).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Derivation (Clifford & Bostock 2007): L. curved back abruptly. Mostly applied to species whose mature inflorescence branches curve back.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 50–100 cm long, 2–3 -noded. Culm-nodes glabrous. Ligule an eciliate membrane, 2 mm long. Leaf-blades flat or revolute, 10–25 cm long, 1.25–2 mm wide, aromatic. Leaf-blade surface scabrous, rough abaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence compound, linear, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole 2–2.5 cm long. Peduncle 0.5–1 cm long. Racemes 2, paired, deflexed, 1–2 cm long, bearing 2–6 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 1.75 mm long. Rhachis internodes linear, 3 mm long. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal, 1–5 mm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, 3 mm long, ciliate, with 1.75 mm long hairs.

Sterile Spikelets. Basal sterile spikelets represented by a single scale, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, comprising 2 unequal glumes without lemmas, lanceolate, 5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, 11 -veined, acuminate, pungent.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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 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, wingless. Lower glume intercarinal veins distinct, 4–5 in number. Lower glume surface flat. Upper glume lanceolate, chartaceous, 1-keeled, 7 -veined. Upper glume margins ciliolate. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret lanceolate, 4.5 mm long, hyaline, 1 -veined, without lateral veins, ciliolate on margins. Fertile lemma lanceolate, 3.5 mm long, hyaline, without keel. Lemma margins ciliolate. Lemma apex entire or dentate, 2 -fid, mucronate or awned, 1 -awned. Principal lemma awn from a sinus, straight, 1–12 mm long overall, without a column. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, ellipsoid, 2.5 mm long.

Distribution (TDWG). Continent. Australasia, Pacific.

Country /Province /State. Australia. Northern Territory, Queensland, New South Wales, A.C.T., Victoria, Lord Howe-Norfolk Is. **Southwestern Pacific, South-central Pacific, North-central Pacific.** Fiji, New Caledonia, Tonga, Vanuatu. Cook Is, Society Is, Tuamotu Is, Tubuai Is. Marianas. Hawaii (*).

TDWG4. Darwin & Gulf, Central Australia. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains.

Cymbopogon schoenanthus (L.) Spreng. *Pugill.* 2: 15 (1815).

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 without locality. **Basionym or Replaced Name:** *Andropogon schoenanthus* L. *Sp. Pl.* 2: 1046 (1753)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Plukenet, Phytographia t. 190, f. 1 (1692)*, (BM). LT designated by Renvoize in Cafferty et al., *Taxon* 49(2): 246 (2000).

ET: *Fitzgerald s.n. [M.E.A.L.U. Herb. 16950/1]*, 19 May 1947, Saudi Arabia: Jebel Daalm (BM). ET designated by Renvoize in Cafferty et al., *Taxon* 49(2): 246 (2000).

Illustrations (Books): S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (329, Fig 132), L.Boulos, *Flora of Egypt* 4 (2005) (338, Pl. 99).

Images: L.Boulos, *Flora of Egypt* 4 (2005);

Derivation (Clifford & Bostock 2007): Gk. anthos, flower. The spikelets superficially resemble those of *Schoenus*.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm. Culms 30–120 cm long. Ligule an eciliate membrane. Leaf-blades filiform or linear, flat or involute, 10–35 cm long, 1–4 mm wide, aromatic. Leaf-blade surface scaberulous.

Inflorescence. Synflorescence compound, paniculate, 5–40 cm long, dense.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 2, paired, deflexed, 1–3 cm long. Rhachis fragile at the nodes, semiterete, villous on margins. Rhachis hairs 2–4 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, villous, with 2–4 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels fused to internode in lower raceme, swollen in lower raceme. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 4–7 mm long, as long as fertile, deciduous with the 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 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, 4–7 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, chartaceous, 2-keeled, keeled all along, keeled laterally, wingless. Lower glume intercarinal veins absent. Lower glume surface concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight, 5–9 mm long overall, with a straight or slightly twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

$N = 20$ (3 refs TROPICOS). $2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, South America (+).

Country /Province /State. Northern Africa, West tropical Africa, Northeast tropical Africa, East tropical Africa. Algeria, Egypt, Libya, Morocco, Tunisia. Benin, Burkina, Ghana, Guinea, Ivory Coast, Mali, Mauritania, Nigeria, Togo, Niger. Djibouti, Eritrea, Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya. **Western Asia, Arabian Peninsula.** Sinai. Gulf States, Oman, Saudi Arabia. **Indian Subcontinent.** Nepal, Pakistan. **Western South America.** Ecuador (+).

Cymbopogon tortilis (Presl) A. Camus. *Rev. Bot. Appliq.* 5: 206 (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), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

TYPE from Philippines. **Basionym or Replaced Name:** *Anthistiria tortilis* J. Presl *Reliq. Haenk.* 1(4–5): 347 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Philippine Islands: Luzon, *Haenke s.n.* (HT: PR).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (449, Fig 176), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (662), C-C Hsu, *Taiwan Grasses* (1975) (637, Pl. 1460), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 880).

Illustrations (Journals): *Reinwardtia* (9: 363, fig.38 (1977)).

Derivation (Clifford & Bostock 2007): *L. torqueo*, twist; -ilis, indicating ability. Lemma awn hygroscopic.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous. Culms erect, 75–110 cm long. Culm-internodes distally glabrous. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 30–60 cm long, 4–5 mm wide, dark green, aromatic. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Synflorescence compound, scanty or linear, 35 cm long.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 1.4 cm long, red. Racemes 2, paired, deflexed, 1.3 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 3 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 lanceolate, dorsally compressed, 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, chartaceous, 2-keeled, keeled all along, keeled laterally, wingless or winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 3–4 in number. Lower glume surface flat. Upper glume lanceolate, 1-keeled, keeled above. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. 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. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

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

Country /Province /State. China, Eastern Asia. China South Central, Hainan, China Southeast. Korea, Nansei-Shoto, Ogasawara-shoto, Taiwan. **Indo-China, Malesia.** Vietnam. Moluccas, Philippines.

TDWG4. Anhui, Fujian, Guangdong, Zhejiang, Guizhou, Yunnan.

Cymbopogon traninhensis (A. Camus) S. Soenarko. *Reinwardtia*, 9(3): 347 (1977).

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 Laos. **Basionym or Replaced Name:** *Cymbopogon confertiflorus* var. *traninhensis* A. Camus *Bull. Mus. Hist. Nat. (Paris)* 26: 565 (1920). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Laos: Traninh, *Mieville s.n.* (HT: P).

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

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe **ANDROPOGONINAE**.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 70–135 cm long. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs bearded. Ligule an eciliate membrane, 5 mm long, scarios. Leaf-blades 30–75 cm long, 8–13 mm wide, aromatic. Leaf-blade surface scaberulous, rough abaxially, glabrous. Leaf-blade margins scaberulous.

Inflorescence. Synflorescence compound, linear, 25–40 cm long, dense or lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 2.5–3 cm long, glabrous. Racemes 2, paired, deflexed, 1.9–2.9 cm long. Rhachis fragile at the nodes, semiterete, glabrous on surface, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, unequal (the longer measured). Spikelets in pairs. Fertile spikelets sessile,

1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets male, equalling fertile. Basal sterile spikelet lower glume muticous.

Companion sterile spikelets well-developed, male, lanceolate, 5–5.5 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, 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 lanceolate, dorsally compressed, 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 lanceolate, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged broadly. Lower glume intercarinal veins absent or obscure, 0–2 in number. Lower glume surface flat, wrinkled, glabrous or pubescent. Upper glume lanceolate, 1-keeled, keeled above. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. 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. Palea absent or minute.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

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

Country /Province /State. **China.** China South Central. **Indian Subcontinent, Indo-China.** Assam, India, Laos, Myanmar, Thailand.

TDWG4. Yunnan.

Cymbopogon tungmaiensis L. Liou. *Fl. Xizangica*, 5: 331 (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: China: Xizang: Tungmai, valleys, 200–2500 m,.

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

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 100–120 cm long. Ligule an eciliate membrane. Leaf-blades filiform or linear, flat or conduplicate, 15–30 cm long, 2–3 mm wide, aromatic.

Inflorescence. Synflorescence compound, linear, 20–30 cm long, lax.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 2, paired, deflexed, 2–3 cm long, bearing 5–8 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, hairy on margins.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, lanceolate, 6 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, distinctly veined, 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 oblong, dorsally compressed, 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 oblong, 1 length of spikelet, chartaceous, 2-keeled, keeled all along, keeled laterally, winged on keel, winged narrowly, winged above. Lower glume intercarinal veins distinct. Lower glume surface concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex lobed, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central, Tibet.

TDWG4. Sichuan, Yunnan.

Cymbopogon winterianus Jowitt ex Bor. *Oesterr. Bot. Z.* 112(1–2): 185 (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), 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>: *fide* TROPICOS and Kew Synonymy Database: Sri Lanka: Pillagoda Valley, Buddegama Sp. P., 11 Feb. 1908, A.W. Winter s.n. (HT: K).

Illustrations (Books): C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (664), C-C Hsu, *Taiwan Grasses* (1975), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 879).

Derivation (Clifford & Bostock 2007): L. -anus, indicating connection. In honor of August Wilhelm Winter who collected in Ceylon.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 200–250 cm long. Ligule an eciliate membrane. Leaf-blades drooping, 50–100 cm long, 7–15 mm wide, light green, aromatic.

Inflorescence. Synflorescence compound, paniculate, 30–60 cm long, open (with zig-zag branching).

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Racemes 2, paired, deflexed, 1–2 cm long. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis hairs 1–2 mm long. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, with 1–2 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, male, elliptic, 5 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, 7 -veined, acute, 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 elliptic, dorsally compressed, 4–5 mm long, 1 mm wide, 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, 2-keeled, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins absent or obscure, 0–3 in number. Lower glume surface flat or concave. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma lanceolate, hyaline, without keel. Lemma apex entire or dentate, 2 -fid, mucous or mucronate. Palea absent or minute.

Flower and Fruit. Anthers 3.

$2n = 20$ (1 ref TROPICOS), or 40 (1 ref TROPICOS).

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

Country /Province /State. China (+), Eastern Asia. China South Central, Hainan. Taiwan. **Indian Subcontinent, Malesia.** Sri Lanka. Java. **Mesoamerica, Western South America, Brazil.** Costa Rica, Nicaragua. Colombia.

TDWG4. Sichuan, Yunnan.

Cymbopogon xichangensis R. S. Zhang & B. S. Sun. *J. Pl. Res. Environm.* 2(2): 40 Fig. 2 (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: Sichuan: Xichang, grasslands, ca. 2000 m.

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

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Xichang, Sichuan Province, China.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculate ascending, 100–250 cm long, 3–5 mm diam., 3–4 -noded. Culm-internodes distally glabrous. Leaf-sheaths glabrous on surface. Ligule

an eciliate membrane, 1.5 mm long, membranous, erose, obtuse. Leaf-blades 30–60 cm long, 5–12 mm wide, aromatic.

Inflorescence. Synflorescence compound, paniculate, 80–180 cm long, open.

Inflorescence composed of racemes, terminal and axillary, subtended by a spatheole, enclosed. Spatheole elliptic, 4–5 cm long, glabrous. Racemes 2, paired, 3–4 cm long, bearing 4–6 fertile spikelets on each. Rhachis fragile at the nodes, semiterete, ciliate on margins. Rhachis internodes linear. Rhachis internode tip transverse, cupuliform. Raceme-bases flattened, subequal. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, linear, semiterete, ciliate, hairy on margins, with 1.5 mm long hairs.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number (lower raceme), 0 in upper racemes, with normal internodes, sessile and pedicelled. Basal sterile spikelet pedicels free, linear. Basal sterile spikelets equalling fertile.

Companion sterile spikelets well-developed, containing empty lemmas or male, lanceolate, 6–8 mm long, shorter than fertile or as long as fertile, deciduous with the fertile. Companion sterile spikelet lemmas 2, enclosed by glumes. Chartaceous, distinctly veined, acute, 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, dorsally compressed, 7–9 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 all along, keeled laterally, winged on keel, winged narrowly. Lower glume intercarinal veins distinct, 2–4 in number. Lower glume surface concave, smooth. Upper glume lanceolate, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, ciliate on margins. Fertile lemma linear, hyaline, without keel. Lemma apex lobed, 2-fid, incised 0.5 of lemma length, awned, 1-awned. Principal lemma awn from a sinus, geniculate, 12 mm long overall, with twisted column. Column of lemma awn glabrous. Palea absent or minute.

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

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central.

TDWG4. Sichuan.

Cymbopogon x stracheyi (Hook. f.) Raizada & S.K. Jain. *Indian Forester* 80: 44 (1954).

Regarded by K as a synonym (*C. pospischilii*).

Accepted by: N.L.Bor, Grasses of Burma, Ceylon, India and Pakistan (1960).

TYPE from India. **Basionym or Replaced Name:** *Andropogon nardus* var. *stracheyi* Hook. f. *Fl. Brit. India* 7(21): 207 (1897)[1896]. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Stoliczka s.n.*, India: NW Himalaya, Kunawur, Pangi (K).

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

Derivation (Clifford & Bostock 2007): in honor of Richard Strachey (1816–1912) English-born Indian Army officer and plant collector.

Classification. Subfamily Panicoideae. Tribe: Andropogoneae. Subtribe ANDROPOGONINAE.

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

Country /Province /State. China. China South Central, Tibet. **Indian Subcontinent.** India.

TDWG4. Sichuan, Yunnan.

xCynochloris macivorii Clifford & Everist. *Proc. Roy. Soc. Queensl.* 75: 46 (1964).

Accepted by: 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: *S.L. Everist* 11, 11 Apr 1962, Australia: Queensland: Moreton Distr., Limestone Hill, Ipswich, on bank around bowling green (BRI-050891; IT: K, US-3464963 ("18 Apr 1962")).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989).

Derivation (Clifford & Bostock 2007): in honor of Ben McIvor (fl. 1964) Australian greenkeeper.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.
TDWG4. South East.

xCynochloris reynoldensis B.K.Simon. *Austrobaileya*, 1(5): 460 (1983).

Accepted by: 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: Reynolds Creek near Mt. Greville, *Simon & Sharpe 2526* (HT;BRI-227424; IT: CANB, K, MO).

Illustrations (Books): 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) (303, Fig. 52), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Derivation (Clifford & Bostock 2007): L. -ensis, denoting origin. From Reynolds Creek, south-east Queensland, Australia.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

TDWG4. South East.

Cynodon aethiopicus W. D. Clayt. & Harlan. *Kew Bull.* 24: 187 (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from Ethiopia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ethiopia, *de Wet OKLA9224* (HT: K).

Illustrations (Books): R.M.Phillips, F.T.E.A., *Gramineae* (2(1974):320, Fig.89), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (177, Fig 73), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (164, Fig. 25), 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) (241).

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 Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes absent. Stolons present, with alternating elongated and bunched internodes. Culms geniculately ascending, 40–100 cm long, 2–6 mm diam., woody. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades conduplicate, 3–25 cm long, 3–7 mm wide, stiff, glaucous. Leaf-blade surface scaberulous, glabrous or pilose, sparsely hairy.

Inflorescence. Inflorescence composed of racemes. Racemes 5–17, digitate, in several whorls, spreading, straight, unilateral, 4–8 cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Spikelets appressed, 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 ovate, laterally compressed, compressed strongly, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, subequal in width, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 0.75 length of adjacent fertile lemma, herbaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 2.5–3 mm long, cartilaginous, red or purple, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent, hairy above. Lemma apex acute. Palea 2 -veined. Palea keels eciliate.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Europe (*), Africa, Tropical Asia, Australasia (*), Pacific, North America.

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa, Southern Africa** (*). Nigeria, Rwanda, DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. Malawi, Mozambique, Zambia,

Zimbabwe. Limpopo, Gauteng, Kwazulu-Natal, Eastern Cape. **Indian Subcontinent.** India. **Australia.** Queensland (*). **North-central Pacific.** Hawaii (*). **South-central USA.** Texas.
TDWG4. Delhi.

Cynodon affinis Caro & E. Sanchez. *Kurtziana*, 5: 223 (1969).

Regarded by K as a synonym (*C. dactylon*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina: Camino entre General Madariaga y Conesa, 28 Jan 1960, *Nicora 6976* (HT: BAA).

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

Derivation (Clifford & Bostock 2007): L. allied to. Closely allied to another species.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil West Central. Uruguay.

TDWG4. Mendoza. Buenos Aires, Cordoba, Distrito Federal, Entre Rios, La Pampa, Misiones.

Cynodon barberi Rangachari & Tadol. *Journ. Bombay Nat. Hist Soc.* 24: 846 (1916).

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: Collected ... in the Districts of Tinnevely and Godavari during 1901 and 1902. ..., *Dr. C. A. Barber s.n.*

Illustrations (Books): K.M.Mathew, *Flora Palni Hills* (1996) (807, Pl 807).

Derivation (Clifford & Bostock 2007): in honor of Charles Alfred Barber (1860–1933) South African-born English botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes absent. Stolons present, with alternating elongated and bunched internodes. Basal innovations flabellate. Culms geniculately ascending, 25–40 cm long, rooting from lower nodes. Culm-nodes glabrous. Leaf-sheaths 1–2.5 cm long, keeled. Ligule a ciliolate membrane. Leaf-blades linear or lanceolate, 1.5–4.6 cm long, 3–4 mm wide. Leaf-blade surface glabrous or hispid, sparsely hairy, hairy adaxially. Leaf-blade margins scaberulous. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Racemes 4–5, digitate, unilateral, 3–5 cm long. Rhachis narrowly winged, flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Raceme-bases brief, pubescent. Spikelets appressed, 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 oblong, laterally compressed, compressed strongly, 2.2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes deciduous, similar, reaching apex of florets, thinner than fertile lemma. Lower glume oblong, 1–2 mm long, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2.2–2.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute, mucicous or mucronate.

Florets. Fertile lemma ovate, laterally compressed, 1.8–2 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma surface pubescent, hairy on veins, with clavate hairs. Lemma apex acute. Palea 2 -veined. Palea keels ciliolate (with clavate hairs).

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, 1–1.3 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India, Laccadive Is, Sri Lanka.

TDWG4. Andhra Pradesh, Bihar, Karnataka, Kerala. Orissa, Rajasthan, Tamilnadu, Uttah Pradesh, West Bengal.

Cynodon coursii A. Camus. *Not. Syst., Paris*, 16: 323 (1961).

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, Central Madagascar: Cours 2723.

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes elongated. Stolons present. Culms decumbent, 15–50 cm long. Lateral branches ample. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined, glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.2–0.3 mm long. Leaf-blades 2.5–4 cm long, stiff. Leaf-blade surface scaberulous. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Racemes 4–6, digitate, erect, unilateral, 4.5–6 cm long. Spikelet packing broadside to rachis, regular, 2 -rowed. Spikelets appressed, 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 ovate, laterally compressed, compressed strongly, 2.5–2.8 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, 1.5 mm long, 0.75–1 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 1.6–2 mm long, 0.66 length of adjacent fertile lemma, herbaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma ovate, laterally compressed, 2.5–2.8 mm long, cartilaginous, keeled, 1 -veined, 0–3 -veined. Lemma margins ciliolate. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea apex dentate, 2 -fid.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cynodon dactylon (L.) Pers. *Syn. Pl.* 1: 85 (1805).

Accepted by: R.J.Soreng et al., *Catalogue of 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 Portugal. **Basionym or Replaced Name:** *Panicum dactylon* L., *Sp. Pl.* 1: 58 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: In europa australi,.

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (362), N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (969 (641), Pl.14), H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (211, Fig. 136), F.N.Hepper, *F.W.T.A.* 3(2) (1972) (404, Fig.434), G.V.Pope et al., *Flora Zambesiaca* 10 (2(1999):236, T. 71), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (Pl. 6 & 200, Fig. 175), M.A.N.Muller, *Grasses of South West Africa/Namibia* (1984), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (96, Fig. 55), J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (24 & 91, Fig. 3 & 24), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl.389), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (177, Fig. 73), L.Boulos, *Flora of Egypt* 4 (2005) (281, Pl. 83), T.A.Cope, in M.Thulin, *Poaceae* (Gramineae). *Flora of Somalia* (1995) (212, Fig. 117), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 64 as var. *villosus*), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (457, Pl. 174 & as var. *villosus*), T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (282, Fig. 108), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (376), C-C Hsu, *Taiwan Grasses* (1975) (467, Pl. 1397), N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (470, Fig. 52), K.M.Matthew, Illustrations on the *Flora of Tamilnadu Carnatic* (1982) (Pl. 838), H.J.Noltie, *The Grasses of Bhutan* (2000) (677, Fig. 36), H.B.Gilliland, *Grasses of Malaya* (1971) (91, Fig. 14), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (47, Fig. 35), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (349, Fig. 280 & 350, Fig. 281 as var. *dactylon* and var. *pulchellas*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (215, Pl. 64), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (577, Fig. 116), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (192), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (174 as var. *dactylon* & var. *pulchellus*), 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) (304, Fig. 53 as var. *dactylon*), 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) (1518, Pl. 223), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (239 as var. *dactylon*), F.W.Gould, *The Grasses of Texas* (1975) (317, Fig. 167), R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (117, Fig. 74), S.A.Renvoize, *Gramineas de Bolivia* (1998) (357, Fig. 76), S.A.Renvoize, *The Grasses of Bahia*, 1984 (81, Fig. 29), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (80, Fig. 51), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (401, Fig. 141 as var. *dactylon*), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982)

(395, Fig. 90 & 406, Fig. 94), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (244, Fig. 93 & 245, Fig. 94), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (162, Fig. 51), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (398, Fig. 103 & 400, Fig. 104), M.N.Correra, *Flora Patagonica Parte III, Gramineae* (1978) (499, Fig. 336), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (238, Fig. 96), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (& as var. *dactylon* & var. *maritimus*), G.Harling & C.Persson, *Flora of Ecuador* (2006) (68: 109, Fig. 16 (2001)), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (163, Fig. 28), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14d (1956) (85, Fig. 21), S-L Chen et al, *Flora of China*, Illustrations, *Poaceae* (2007) (Fig. 697), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:53(1980)).

Illustrations (Journals): *Austr. J. Bot. (Suppl.5: 38, Fig.16 (1972))*, *Ruizia* (13:289, Fig 35a-c (1993)).

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*; (var. *pulchellus*), L.Boulos, *Flora of Egypt* 4 (2005);, H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005);, H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);, F.van Oudtshoorn, *Guide to Grasses of Southern Africa* (1999).

Derivation (Clifford & Bostock 2007): Gk. daktylos, finger. Inflorescence branches finger-like.

Classification Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes elongated. Stolons present. Culms geniculately ascending, 8–40 cm long, 0.5–1 mm diam. Ligule a ciliate membrane, 0.2–0.3 mm long. Leaf-blades flat or conduplicate, 1–12 cm long, 2–4 mm wide, glaucous. Leaf-blade surface scaberulous, glabrous or pilose, sparsely hairy.

Inflorescence. Inflorescence composed of racemes. Racemes 4–6, digitate, unilateral, 1.5–6(–8) cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Spikelets appressed, 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 ovate, laterally compressed, compressed strongly, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, subequal in width, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 0.5–0.8 length of adjacent fertile lemma, herbaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 2–2.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma apex acute. Palea 2 -veined. Palea keels eciliate.

Flower and Fruit. Caryopsis with adherent pericarp, ellipsoid, laterally compressed.

$N = 9$ (2 refs TROPICOS), or 18 (7 refs TROPICOS). $2n = 18$ (4 refs TROPICOS), or 27 (5 refs TROPICOS), or 36 (5 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. : Great Britain. : Austria, Czechoslovakia, Germany, Hungary, Netherlands, Switzerland. : Balears, Corsica, France, Portugal, Sardinia, Spain, Azores. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Ukraine. **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. Azores, Canary Is, Cape Verde, Madeira. Benin, Burkina, Ghana, Liberia, Mali, Nigeria, Senegal, Niger. Central African Republic, Gabon, Annobon, Principe & Sao Tome, Rwanda, DRC. Djibouti, 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, St Helena. Mauritius, Madagascar, Rodrigues, Seychelles. Siberia, **Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia.** Altay. Turkmenistan, Tadjikistan, Uzbekistan. Iran, Iraq. Gulf States, Kuwait, Oman. China South Central, Hainan, China North-Central, China Southeast. Japan, Nansei-Shoto, Ogasawara-shoto, Taiwan. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. **Indian Subcontinent, Indo-China, Malesia, Papuasiasia.** Assam, Bangladesh, Eastern Himalaya, India, Pakistan, Sri Lanka, West Himalaya. Andaman Is, Cambodia, Laos, Myanmar, Thailand, Vietnam. Borneo, Java, Lesser Sunda Is, Malaya, Singapore, Moluccas, Philippines, Sumatra, Christmas I. New Guinea (*), Solomon Is (*). **Australia, New Zealand.** Western Australia, Northern Territory, South Australia, Queensland, New South Wales, A.C.T., Victoria, Tasmania, Lord Howe-Norfolk Is. Kermadec Is, New Zealand North I, New Zealand South I. **Southwestern Pacific,**

South-central Pacific, Northwestern Pacific, North-central Pacific. Fiji (*), Gilbert Is (*), Howland-Baker Is (*), Nauru (*), Niue (*), New Caledonia (*), Phoenix Archipelago (*), Samoa (*), Tonga (*), Wallis-Futuna Is (*). Cook Is (*), Easter Is (*), Line Is (*), Marquesas (*), Pitcairn Is (*), Society Is (*), Tuamotu Is (*), Tubuai Is (*). Marianas (*), Wake Is (*). Hawaii (*). **Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** British Columbia. New Brunswick. Colorado, Idaho, Montana, Oregon, Washington. Illinois, Kansas, Nebraska, Oklahoma. Indiana, Michigan, Ohio, New York, 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), Pacific Is (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, Cayman Is, Cuba, Dominican Republic, Haiti, Jamaica, Leeward Is, Windward Islands, Puerto Rico, Trinidad-Tobago, Venezuelan and Netherlands Antilles. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Galapagos. Brazil West Central, Brazil Northeast, Brazil North, Brazil Southeast, Brazil South. Argentina Northeast, Argentina South, Argentina Northwest, Chile North, Chile Central, Uruguay. **Subantarctic islands.** Tristan de Cunha.

TDWG4. Gansu, Shaanxi. Fujian, Guangdong, Jiangsu, Jiangxi, Zhejiang. Hubei, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura. Andhra Pradesh, Bihar, Chandigarh, Chattisgarh, Dadra-Nagar-Haveli, Diu, Delhi, Daman, Goa, Gujarat, Haryana, Jharkhand, Karaikal, Karnataka, Kerala. Mahe, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Punjab, Rajasthan, Tamilnadu, Uttah Pradesh, West Bengal, Yanam. Himachal Pradesh, Jammu Kashmir, Uttaranchal. Kimberley, Ereman, South-West. Darwin & Gulf, Victoria R & Barkly Tableland, Central Australia. NW & Lake Eyre, Southern. North, Central, South East, Inland. Coast, Tablelands, Western Slopes, Western Plains. 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, Misiones, Santa Fe. Neuquén, Río Negro. Tarapaca, Antofagasta, Atacama. Coquimbo, Valparaiso, Santiago, O'Higgins, Maule, Biobio. 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. Colima, Guerrero, Jalisco, Michoacan, Nayarit, Oaxaca. Campeche, Chiapas.

Cynodon distichloides Caro & E. Sanchez. *Kurtziana*, 5: 254 (1969).

Regarded by K as a synonym (*C. dactylon*).

TYPE from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Uruguay: Piriapolis, verano 1924, *Bordale s.n.* (HT: BAA).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (25, Fig 3).

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Uruguay.

Cynodon hirsutissimus (Litard. & Maire) Caro & E.Sanchez. *Kurtziana*, 5: 220 (1969).

Regarded by K as a synonym (*C. dactylon*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from Morocco. **Basionym or Replaced Name:** *Cynodon dactylon* subvar. *hirsutissimus* Litard. & Maire, *Mem. Soc. Sci. Nat. Maroc* 4(1): 25 (1924). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Morocco, Casablanca, *Litardiere*.

Illustrations (Books): A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (400, Fig. 104).

Derivation (Clifford & Bostock 2007): *L. hirsutus*, hairy; -issima, most. Plant in whole or in part very hairy.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Uruguay.

TDWG4. Mendoza. Buenos Aires, Distrito Federal, Entre Rios, La Pampa, Misiones.

Cynodon hirsutus Stent. *Bothalia*, 2: 227, 286 (1927).

Regarded by K as a synonym (*C. incompletus*).

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 South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Transvaal, *Burtt-Davy* several syntypes cited.

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (202, Fig 177), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (400, Fig. 104).

Derivation (Clifford & Bostock 2007): L. hairy. Plant hairy in respect to all or some parts.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. Africa, South America.

Country /Province /State. Southern Africa. Gauteng. **Southern South America.** Argentina Northwest, Argentina Northeast, Uruguay.

TDWG4. Coast, Tablelands. Catamarca, Jujuy, Mendoza, San Luis, Tucuman. Buenos Aires, Cordoba, Distrito Federal, Entre Rios, La Pampa, Misiones, Santa Fe.

Cynodon incompletus Nees. *Linnaea*, 7: 301 (1832).

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 South Africa. **Basionym or Replaced Name:** *Cynodon bradleyi* Stent, *Bothalia*, 2: 277, 285 (1927), *Cynodon hirsutus* Stent, *Bothalia*, 2: 227, 286 (1927). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Drige s.n.*, South Africa: Cape: Gaaup, in district Beaufort (K).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (202, Fig 178), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (192), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (304, Fig 53), 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) (241 as var. *incompletus* & *hirsutus*).

Illustrations (Journals): *Austr. J. Bot.*.

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. imperfect. Terminal floret incomplete.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes absent. Stolons present, with alternating elongated and bunched internodes. Culms geniculately ascending, 5–17 cm long. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane, 0.4–1 mm long, truncate. Leaf-blades 3–6 cm long, 1–3 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy.

Inflorescence. Inflorescence composed of racemes. Racemes 3–5, digitate, unilateral, 1.5–3.5 cm long. Rhachis narrowly winged, flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Raceme-bases brief, pubescent. Spikelets appressed, 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 ovate, laterally compressed, compressed strongly, 2.5–3 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, 0.5 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 0.25–0.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 2.5–3 mm long, cartilaginous, keeled, winged on keel, 3 -veined, 0–3 -veined. Lemma midvein ciliate or ciliate. Lemma apex acute. Palea 2 -veined. Palea keels scaberulous.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Europe (*), Africa, Australasia (*), South America.

Region. Northern Europe (*).

Country /Province /State. : Great Britain (*). **West-central tropical Africa, South tropical Africa, Southern Africa.** DRC. Angola (*). Limpopo, North-West, Gauteng, Mpumalanga, Swaziland, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. **Australia.** Queensland (*), New South Wales (*). **Southern South America.** Argentina Northeast.

TDWG4. Central, South East. Coast, Tablelands, Western Slopes, Western Plains. Buenos Aires, Entre Rios.

Cynodon laeviglumis Caro & E. Sanchez. *Kurtziana*, 5: 217 (1969).

Regarded by K as a synonym (*C. dactylon*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina: La Pampa: Depto. Leventue: Victoria, Carro Quemado, Estancia las Vertientes, Feb 1960, *Legaspi s.n.* (HT: BAA-2237).

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

Derivation (Clifford & Bostock 2007): *L. laevis*, smooth; gluma, husk. Glumes glabrous.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northeast.

TDWG4. La Pampa.

Cynodon x magennisii Hurcombe. *Journ. S. Afr. Bot.* 13:19 (1947).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

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

Derivation (Clifford & Bostock 2007): From cultivar Magennis, a South African turf grass.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Southern Africa. Gauteng.

Cynodon maritimus H. B. & K. *Nov. Gen. et Sp.* 1: 170 (1815).

Regarded by K as a synonym (*C. dactylon*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Humboldt & Bonpland s.n.*, Oct, Peru: between Lima, santa and Trujillo (P).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (395, Fig. 90), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (400, Fig. 104).

Derivation (Clifford & Bostock 2007): *L. belonging to the sea*. Growing by the seaside.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil, Southern South America. Brazil West Central, Brazil Southeast, Brazil South. Argentina Northeast.

TDWG4. Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Entre Rios, Misiones, Santa Fe. Río Negro.

Cynodon mucronatus Caro & E. Sanchez. *Kurtziana*, 5: 239 (1969).

Regarded by K as a synonym (*C. dactylon*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina: Misiones: Dpto. Montecarlo: Colonia Caraguatay, 19 Dec. 1943, *Porta 85* (HT: BAA).

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

Derivation (Clifford & Bostock 2007): *L. mucro*, sharp point; -ata, possessing.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northeast.

TDWG4. Buenos Aires, Misiones.

Cynodon nitidus Caro & Sanchez. *Darwiniana*. 17: 510 (1972).

Regarded by K as a synonym (*C. dactylon*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile: Dpto. Arica: Azapa, Aug 1925, *Wedermann 704* (HT: SI; IT: GH, LIL, NY, US-1498176) Chile: Prov. Tacna, dep. Arica, Azapa.

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

Derivation (Clifford & Bostock 2007): *L. niteo*, shine; Spikelets or lemmas shiny.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Chile North. Tarapaca.

Cynodon nlemfuensis Vanderyst. *Bull. Agric. Congo Belg.* 13:324 (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), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)* (as *C. lemfuensis*), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from DRC. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Vanderyst 6095*, Zaire (BR).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (350, Fig 282as var. *nlemfuensis*), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (241), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (162, Fig 51).

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. -ensis*, denoting origin. From Nlemfu, Zaire.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes absent. Stolons present, with alternating elongated and bunched internodes. Culms geniculately ascending, 30–60 cm long, 1–3 mm diam., firm. Ligule a ciliolate membrane, 0.3 mm long. Leaf-blades flat, 5–16 cm long, 2–6 mm wide, stiff or firm, mid-green or glaucous. Leaf-blade surface scaberulous, glabrous or pilose, sparsely hairy.

Inflorescence. Inflorescence composed of racemes. Racemes 4–8(–13), digitate, straight or flexuous, unilateral, 4–7(–10) cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Spikelets appressed, 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 ovate, laterally compressed, compressed strongly, 2–3 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, subequal in width, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 0.5–0.8 length of adjacent fertile lemma, herbaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 2–3 mm long, cartilaginous, mid-green or red, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent or ciliate. Lemma apex acute. Palea 2 -veined. Palea keels eciliate.

Flower and Fruit. Caryopsis with adherent pericarp.

N = 18 (1 refss TROPICOS).

Distribution (TDWG). Continent. Africa, Tropical Asia, Australasia (*), Pacific, 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 (*), **Middle Atlantic ocean.** Ghana, Nigeria. Burundi, Rwanda, DRC. Ethiopia (inc. Eritrea), Somalia, Sudan. Kenya, Tanzania, Uganda. Angola, Malawi, Zambia, Zimbabwe. Limpopo, Gauteng, Kwazulu-Natal, Western Cape. St Helena. **Malesia.** Philippines. **Australia.** Western Australia (*), Northern Territory (*), South Australia (*), Queensland (*). **North-central Pacific.** Niue (*). Hawaii (*). **South-central USA, Mexico.** Texas. Central Mexico, Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Western South America, Brazil, Southern South America.** Bolivia, Colombia. Brazil Southeast. Argentina Northwest.

TDWG4. Kimberley. Central Australia. Southern. North, Central, South East, Inland. Tucuman. Mexico State. Aguascalientes, Tamaulipas. Veracruz. Jalisco, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

Cynodon parviglumis Ohwi. *Bot. Mag., Tokyo*, 55: 538 (1941).

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

TYPE from Micronesia. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: IT: *R. Kanehira & S. Hatusima 4348*, no date, Federate states of Micronesia: Caroline Is., Yap I. (FU, US-1963781 (fragm.)).

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

Derivation (Clifford & Bostock 2007): as for *parvigluma*. Glume or glumes short especially in comparison to lemmas.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms prostrate, 15–20 cm long, 3–4 -noded. Culm-internodes striate, distally glabrous. Lateral branches ample. Leaf-sheaths 1–2 cm long, striately veined, glabrous on surface. Ligule a ciliolate membrane. Leaf-blades 2–3 cm long, 2–3 mm wide, flaccid. Leaf-blade surface smooth, glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence composed of racemes. Racemes 4–5, digitate, unilateral, 3–5 cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets sessile.

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 ovate, laterally compressed, compressed strongly, 2–2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, subequal in width, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 0.5–0.6 mm long, 1 length of upper glume, herbaceous, 1-keeled, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 0.5–0.6 mm long, 0.2–0.25 length of adjacent fertile lemma, herbaceous, 1-keeled, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 2–2.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma margins pubescent. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea keels eciliate. Palea apex obtuse. Rhachilla extension 0.5 mm long, glabrous.

Flower and Fruit. Anthers 3, 0.66 mm long. Caryopsis with adherent pericarp, ellipsoid, laterally compressed.

Distribution (TDWG). Continent. Tropical Asia, Pacific.

Country /Province /State. Indo-China, Malesia. Thailand. Borneo, Java, Lesser Sunda Is, Sumatra. Northwestern Pacific. Caroline Is.

Cynodon pedicellatus J.A. Caro. *Dominguezia*, 6: 9 (1983).

Regarded by K as a synonym (*C. dactylon*).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online.

TYPE from Uruguay. T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: Uruguay: Depto. Montevideo: Sayago, 26 Nov. 1959, *Praderi 579* (HT: LIL-458958).

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

Derivation (Clifford & Bostock 2007): L. pes, foot; -ellus, diminutive; -ata, possessing. Spikelets shortly stalked.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Uruguay.

Cynodon plectostachyus (K.Schum.) Pilger. *Engl. Jahrb.* 40: 82 (1907).

Accepted by: R.J.Soreng et al., *Catalogue of 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).

TYPE from Tanzania. **Basionym or Replaced Name:** *Leptochloa plectostachya* K. Schum. *Pflanzenw. Ost-Afrikas* 112 (1895). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *Volkens 477*, Tanzania (B).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (201, Fig 176), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (177, Fig 73), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (239).

Derivation (Clifford & Bostock 2007): Gk. plektos, coil; stachys, ear of corn. Racemes of inflorescence curved.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes absent. Stolons present, with alternating elongated and bunched internodes. Culms geniculately ascending, 30–90 cm long, 1–4 mm diam. Ligule an eciliate membrane, 1 mm long, hyaline. Leaf-blades flat, 10–30 cm long, 4–7 mm wide, mid-green. Leaf-blade surface scabrous, rough on both sides, pilose, sparsely hairy, hairy on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes 7–20, digitate, in several whorls, incurved, unilateral, 3–7 cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Spikelets appressed, 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 ovate, laterally compressed, compressed strongly, 2.5–3 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, subequal in width, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.2–0.3 mm long, 0.5 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 0.4–0.6 mm long, 0.1–0.2 length of adjacent fertile lemma, herbaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 2.5–3 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma surface glabrous or hispidulous. Lemma hairs 0.3 mm long. Lemma apex acute. Palea 2 -veined. Palea keels ciliate.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa, North America, South America.

Country /Province /State. **Northeast tropical Africa, East tropical Africa, Western Indian ocean.** Ethiopia (inc. Eritrea). Kenya, Tanzania, Uganda. Madagascar (*). **Southwestern USA, Mexico.** California. Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Southern South America.** Argentina Northeast.

TDWG4. Buenos Aires, Chaco, Cordoba, Corrientes, Distrito Federal, Entre Rios, Misiones. Hidalgo, Tamaulipas. Veracruz. Baja California. Colima, Nayarit, Oaxaca. Campeche, Chiapas, Quintana Roo, Tabasco, Yucatan.

Cynodon radiatus Roth ex Roem. & Schult. *Syst.* 2: 411 (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), 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) (as *C. arcuatus*).

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India: 1814, *B. Heyne s.n.* (HT: L).

Recent Synonyms: *Cynodon arcuatus* J. & C. Presl, *Rel. Haenk.* 1: 290 (1830).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (93, Fig 25 as *C. arcuatus*), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (374), C-C Hsu, *Taiwan Grasses* (1975) (as *C. arcuatus*), K.M.Matthew, *Flora Palni Hills Supplement* (1998) (as *C. arcuatus*), K.O.Mallett (ed.), *Flora of Australia*, Vol 44B. *Poaceae* (2004) (304, Fig 53), 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. 697).

Illustrations (Journals): *Austr. J. Bot. (Suppl.5: 38, Fig.16 (1972))*.

Derivation (Clifford & Bostock 2007): *L. radius*, spoke of a wheel; -ata, possessing. With racemes arranged in fascicles along a central axis.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, mat forming. Rhizomes absent. Stolons present, with alternating elongated and bunched internodes. Culms geniculately ascending, slender, 20–80 cm long. Leaf-sheath oral hairs lacking or ciliate. Ligule a ciliate membrane, 0.5 mm long. Leaf-blades linear or lanceolate, 4–15 cm long, 3–6(–10) mm wide, glaucous. Leaf-blade surface scaberulous, glabrous, hairless except near base.

Inflorescence. Inflorescence composed of racemes. Racemes 4–8, digitate, drooping, flexuous, unilateral, 5–10 cm long. Rhachis narrowly winged, flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Raceme-bases brief, pubescent. Spikelets appressed, 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 ovate, laterally compressed, compressed strongly, 1.8–2.2 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, 0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent.

Lower glume apex acute. Upper glume lanceolate, 0.7–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, laterally compressed, 1.8–2.2 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma surface pubescent, hairy on veins, with simple hairs or clavate hairs. Lemma apex acute. Palea 2 -veined. Palea keels smooth or scaberulous.

Flower and Fruit. Anthers 3, 0.5 mm long. Caryopsis with adherent pericarp, laterally compressed, trigonous.

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Australasia.

Country /Province /State. **Western Indian ocean.** Comoros, Madagascar, Seychelles. **China, Eastern Asia.** Hainan, China Southeast. Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Eastern Himalaya, India, Nepal, Pakistan, Sri Lanka. Myanmar, Nicobar Is, Thailand, Vietnam. Borneo, Cocos (Keeling) Is, Java, Lesser Sunda Is, Malaya, Moluccas, Philippines, Sulawesi. New Guinea PNG. New Guinea. Northern Territory, Queensland.

TDWG4. Guangdong. Bhutan. Assam, Nagaland. Andhra Pradesh, Bihar, Karnataka, Kerala. Madhya Pradesh, Maharashtra, Orissa, Tamilnadu, Uttah Pradesh, West Bengal. Darwin & Gulf. North.

Cynodon scabrifolius J.A. Caro. *Dominguezia*, 6: 13 (1983).

Regarded by K as a synonym (*C. dactylon*).

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: *N. Lima* 232, May 1968, Brazil: Federal District (US-2578849).

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

Derivation (Clifford & Bostock 2007): *L. scaber*, rough; folium, leaf. Leaf-blades rough.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Brazil.** Brazil West Central.

Cynodon transvaalensis Burt D. *Kew Bull.* 1921, 281 (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002).

TYPE from South Africa. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *J.B. Davy 18156*, Dec 1919, South Africa (US-1295750 (fragm.)).

Recent Synonyms: *Cynodon poissonii* (A. Camus) Bosser, *Adansonia, n. s.*, 6: 248 (1966).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (89, Fig 23 as *C. poissonii*), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (193), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 25 Poaceae*, part 2 (2003) (239).

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 the Transvaal, South Africa.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes elongated. Stolons present. Culms prostrate, 4–15 cm long, 0.2–0.4 mm diam. Ligule a ciliolate membrane, 0.1–0.3 mm long. Leaf-blades filiform, involute, 1–4 cm long, 0.5–1 mm wide, glaucous. Leaf-blade surface glabrous or pilose, sparsely hairy.

Inflorescence. Inflorescence composed of racemes. Racemes 1–3(–4), digitate, unilateral, 0.7–1.5 cm long. Rhachis flattened. Spikelet packing broadside to rhachis, regular, 2 -rowed. Spikelets appressed, 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 ovate, laterally compressed, compressed strongly, 2.5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, subequal in width, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 1 length of upper glume, herbaceous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 0.25–0.33 length of adjacent fertile lemma, herbaceous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate or ovate, laterally compressed, 2.5 mm long, cartilaginous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma apex acute. Palea 2 -veined. Palea keels eciliate.

Flower and Fruit. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Europe (*), Africa, Temperate Asia, Australasia, North America, South America.

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Northern Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, Southern Africa, Western Indian ocean.** Egypt (+). DRC. Ethiopia (inc. Eritrea), Sudan. Kenya, Tanzania, Uganda. North-West, Gauteng, Mpumalanga, Free State, Kwazulu-Natal, Lesotho, Northern Cape, Western Cape, Eastern Cape. Madagascar. **Western Asia.** Iran. **Australia.** New South Wales, Victoria. **Southwestern USA.** California. **Western South America.** Ecuador.

TDWG4. Coast, Tablelands.

Cynosurus balansae Coss. & Dur. *Bull. Soc. Bot. Fr.* 1: 318 (1854).

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

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. Culms geniculately ascending, 40–100 cm long. Culm-nodes brown. Leaf-sheaths keeled, smooth, glabrous on surface. Ligule an eciliate membrane, 3–6 mm long, lacerate, obtuse. Leaf-blades 15–30 cm long, 3–8 mm wide, flaccid. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, oblong, secund, 1.5–6 cm long, 0.9–1.5 cm wide. Panicle axis angular, glabrous. Panicle branches scaberulous. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, ovate, laterally compressed, 5–10 mm long, longer than fertile, persistent. Companion sterile spikelet lemmas 6–10, exerted from glumes, 3–5 mm long, 1-awned, with 2–4 mm long awn.

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 oblong, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume linear or lanceolate, 4.5–5.5 mm long, 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, awned, 1 -awned, awn 2 mm long. Upper glume linear or lanceolate, 5–6 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 apex acute, awned, 1 -awned, awn 2 mm long.

Florets. Fertile lemma oblong, 5–6 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough on veins. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 5–9 mm long overall. Palea lanceolate, 1 length of lemma. Palea apex dentate, 2 -fid.

Flower and Fruit. Anthers 3, 3 mm long. Caryopsis with adherent pericarp, oblong, 3 mm long. Embryo 0.33 length of caryopsis. Hilum linear, 0.5 length of caryopsis.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northern Africa. Algeria, Libya, Morocco, Tunisia.

Cynosurus callitrichus Barbey. *Herb. Levant* :165 (1882).

Regarded by K as a synonym (*C. coloratus*).

Accepted by: T.G.Tutin et al, *Flora Europaea* 5 (1980).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 329).

Derivation (Clifford & Bostock 2007): Gk. kallion, more beautiful; thrix, hair. Awns setiform, violet.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect, 5–20 cm long. Ligule an eciliate membrane. Leaf-blades 2–5 cm long, 1–3 mm wide.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, ovate, secund, 2–4 cm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, oblong, laterally compressed, longer than fertile, persistent. Companion sterile spikelet lemmas 10–12, exerted from glumes, 1-awned.

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, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, exceeding apex of florets. Lower glume subulate, 5–7 mm long, 1 length of upper glume, 1 -veined. Lower glume lateral veins absent. Upper glume subulate, 5–7 mm long, 1.5 length of adjacent fertile lemma.

Florets. Fertile lemma ovate, 3.5–4.5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn 18–30 mm long overall.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp. Hilum punctiform.

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

Region. Southeastern Europe.

Country /Province /State. : Crete. **Western Asia.** Palestine, Israel & Jordan.

Cynosurus coloratus Lehm. ex Steud., in syn. *Nom. ed.* 2, 1: 465 (1841).

Regarded by K as a synonym (*C. echinatus*).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Illustrations (Books): L.Boulos, *Flora of Egypt* 4 (2005) (144, Fig 40), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (120, Fig 78).

Derivation (Clifford & Bostock 2007): *L. color*, color; -ata, possessing. Colored unusually, especially with reference to lemmas.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose. Culms 5–20 cm long. Leaf-sheaths without keel, glabrous on surface. Ligule an eciliate membrane, 7–13 mm long, acute. Leaf-blades 2–5 cm long, 2 mm wide. Leaf-blade surface scaberulous, rough on both sides, glabrous. Leaf-blade margins scabrous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle capitate, ovate, secund, 2–3 cm long, 1.5–3 cm wide. Panicle axis scaberulous. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, oblong, laterally compressed, 4–5 mm long, longer than fertile, persistent. Companion sterile spikelet lemmas 11–13, exerted from glumes, 1–1.5 mm long, 1-awned, with 6–12 mm long awn.

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, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, exceeding apex of florets. Lower glume linear or lanceolate, 6–7 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, awned, 1 -awned, awn 3–6 mm long. Upper glume linear or lanceolate, 6–7 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, awned, 1 -awned, awn 3–6 mm long.

Florets. Fertile lemma lanceolate or oblong, 3.5–4 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex emarginate or acute, awned, 1 -awned. Principal lemma awn 15–20 mm long overall. Palea lanceolate, 1 length of lemma. Palea keels scabrous. Palea surface scabrous.

Flower and Fruit. Anthers 3, 0.45–0.6 mm long. Caryopsis with adherent pericarp, oblong or ovoid, 2.6–2.8 mm long.

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

Region. Southeastern Europe.

Country /Province /State. : Crete. **Northern Africa, Southern Africa** (*). Egypt, Libya. Northern Cape, Western Cape. **Western Asia.** Cyprus, Lebanon-Syria, Palestine, Israel & Jordan.

Cynosurus cristatus Linn. *Sp. Pl.* 72. (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), 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:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *Anon.*, (LINN-91.1). LT designated by Cope in Jarvis et al., *Regnum Veg.* 127: 41 (1993). ST: *van Royen s.n.*, (L (2 sheets)).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (220), N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (787 (519), Pl.9), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (119, Fig. 77), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (193), 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) (686), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (164, Fig. 52), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (68, Fig. 17), M.N.Correa, *Flora Patagonica Parte III, Gramineae* (1978) (59, Fig 26), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 343), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:54(1980)).

Derivation (Clifford & Bostock 2007): L. crested. Inflorescence forming a crest.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 5–75 cm long, 1–3 -noded. Leaf-sheaths without keel, glabrous on surface. Ligule an eciliate membrane, 0.5–1.5 mm long, truncate. Leaf-blades 2–15 cm long, 1–4 mm wide. Leaf-blade surface glabrous or pubescent, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, secund, 1–14 cm long, 0.4–1 cm wide. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, ovate, laterally compressed, 4–6 mm long, longer than fertile, persistent. Companion sterile spikelet lemmas 6–18, exerted from glumes, 4–6 mm long (linear), muticous.

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 oblong or cuneate, laterally compressed, 3–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3–5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3–5 mm long, 1–1.25 length of adjacent fertile lemma, membranous, 1-keeled, 2 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, 3–4 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, rough above. Lemma apex obtuse, awned, 1 -awned. Principal lemma awn 0.5–1 mm long overall. Rhachilla extension 0.1 length of fertile floret.

Flower and Fruit. Anthers 3, 2 mm long. Caryopsis with adherent pericarp, oblong, 2 mm long. Embryo 0.1 length of caryopsis. Hilum punctiform.

$N = 7$ (1 ref TROPICOS). $2n = 14$ (5 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, Northern Ireland, Norway, Sweden. : Austria, Liechtenstein, Belgium, Luxembourg, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : Corsica, Channel Islands, France, Monaco, Portugal, Sardinia, Andorra, Gibraltar, Spain, Azores. : Albania, 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. **Macaronesia.** Azores, Madeira. **Siberia, Caucasus, Western Asia, China.** Irkutsk, Tuva. **China Southeast. Indian Subcontinent.** Assam. **Australia, New Zealand.** Western Australia (*), South Australia (*), New South Wales (*), A.C.T. (*), Victoria (*), Tasmania (*). **New Zealand North I, New Zealand South I, Campbell Is, Auckland Is. Western Canada, Eastern Canada, Northwest USA, Northeast USA, Southwestern USA, Southeastern USA.** British Columbia. Newfoundland, Nova Scotia. Idaho, Oregon, Washington. New York. California. North Carolina, Tennessee. **Mesoamerica, Southern South America.** Costa Rica. Argentina Northeast, Argentina South, Chile Central, Chile South. **Subantarctic islands.** Falkland Is (Malvinas).

TDWG4. Jiangxi. Southern. Coast, Tablelands, Western Slopes. Mendoza. Buenos Aires, Distrito Federal. Chubut, Neuquén, Río Negro, Tierra del Fuego. Valparaiso, Biobio. Magallanes.

Cynosurus echinatus Linn. *Sp. Pl.* 72 (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), 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>: *vide* TROPICOS and Kew Synonymy Database: Habitat in europa pratis,.

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (218), G.Hegi, *Flora von Mitteleuropa* 1 (1909), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (61, Fig 33), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (98, Fig 56), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 328), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (43, Pl 11), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (413, Fig 82), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (193), T.D.Stanley & E.Ross, *Flora of South East Queensland, Gramineae* (1989) (115, Fig. 18), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (345, Fig 46), 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) (686), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (271, Fig. 85), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (68, Fig. 17), M.N.Correa, *Flora Patagonica* Parte III, *Gramineae* (1978) (55, Fig. 22), B.Rosengurt, *Gramineas Uruguayas I* (1970) (114, Fig. 41), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (2:55(1980)).

Images: D.Sharp & B.K.Simon, *AusGrass*. *Grasses of Australia*. CD-Rom Version 1.0. (2002);.

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 Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 10–100 cm long, 2–6 -noded. Leaf-sheaths without keel, glabrous on surface. Ligule an eciliate membrane, 5–10 mm long, obtuse. Leaf-blades 5–20 cm long, 3–10 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong or ovate or globose, secund, 1–8 cm long, 1–2 cm wide. Panicle branches smooth. Spikelets in pairs or in threes. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1–2 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, obovate, laterally compressed, 7–13 mm long, longer than fertile, persistent. Companion sterile spikelet lemmas 6–18, exserted from glumes, 2.5–5 mm long (lanceolate), 1-awned, with 1.4–3 mm long awn.

Fertile Spikelets. Spikelets comprising 1–5 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 cuneate, laterally compressed, 8–14 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, reaching apex of florets. Lower glume lanceolate, 7–12 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate. Upper glume lanceolate, 7–12 mm long, 1.5 length of adjacent fertile lemma, membranous, 1-keeled, 2 -veined. Upper glume apex attenuate.

Florets. Fertile lemma ovate, 5–7 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous, rough above. Lemma apex entire or dentate, 2 -fid, obtuse, awned, 1 -awned. Principal lemma awn apical or from a sinus, 6–16 mm long overall, limb scabrous. Rhachilla extension 0.25 length of fertile floret.

Flower and Fruit. Anthers 3, 2.5–4 mm long. Caryopsis with adherent pericarp, oblong, 3–4 mm long. Embryo 0.2 length of caryopsis. Hilum punctiform.

$N = 7$ (1 ref TROPICOS). $2n = 14$ (4 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, Portugal, Sardinia, Spain, Azores. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. Krym, North European Russia, Northwest European Russia, Ukraine. **Northern Africa, Macaronesia, Southern Africa** (*). Algeria, Egypt, Morocco, Tunisia. Azores, Canary Is, Madeira, Selvagens. Northern Cape, Western Cape, Eastern Cape. **Caucasus, Western Asia.** Iran, Iraq. **Australia, New Zealand.** Western Australia (*), South Australia (*), Queensland (*), New South Wales (*), A.C.T. (*), Victoria (*), Tasmania (*). New Zealand North I, New Zealand South I. **Western Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA,**

Southeastern USA, Mexico. British Columbia. Oregon, Washington. Michigan. California, Utah. Texas. Arkansas, North Carolina, South Carolina, Virginia. Northwest Mexico. **Southern South America.** Argentina Northeast, Argentina South, Chile Central, Juan Fernandez Is, Uruguay. Falkland Is (Malvinas).

TDWG4. South-West. South East. Coast, Tablelands, Western Slopes. Buenos Aires, La Pampa. Neuquén, Río Negro, Tierra del Fuego. Valparaiso, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos, Aisen. Baja California.

Cynosurus elegans Desf. *Fl. Atlant.* 1: 182 (1789).

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).

Illustrations (Books): N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 330), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 7), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (75, Pl. 25).

Derivation (Clifford & Bostock 2007): *L. elegant*. Inflorescence attractive.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose. Culms 7–70 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 3.5–8 cm long, 1–3 mm wide.

Inflorescence. Inflorescence a panicle. Peduncle nodding. Panicle contracted, ovate or globose, secund, 1–3 cm long, 0.5–1.2 cm wide. Panicle axis smooth (with white band at each joint). Panicle branches smooth. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, ovate, laterally compressed, 4–4.5 mm long, longer than fertile, persistent. Companion sterile spikelet lemmas 5–8, exerted from glumes, 3 mm long, 1-awned, with 2–4.5 mm long awn.

Fertile Spikelets. Spikelets comprising 1–2 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 cuneate, laterally compressed, 2.3–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume linear, 2.5 mm long, 0.8–0.9 length of upper glume, hyaline, pallid, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate, awned, 1 -awned, awn 1 mm long. Upper glume linear, 3 mm long, 1–1.3 length of adjacent fertile lemma, hyaline, pallid, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex attenuate, awned, 1 -awned, awn 1 mm long.

Florets. Fertile lemma ovate, 2.3–3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface hispid. Lemma apex dentate, 2 -fid, obtuse, awned, 1 -awned. Principal lemma awn from a sinus, 8–12 mm long overall, limb scabrous.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp. Hilum punctiform.

$N = 7$ (1 ref TROPICOS). $2n = 14$ (4 refs TROPICOS).

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

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

Country /Province /State. : GB Aliens (Ryves et al). : Balears, Corsica, France, Portugal, Sardinia, Spain. : Greece, Italy, Crete, Sicily. **Northern Africa, Macaronesia.** Algeria, Libya, Morocco, Tunisia. Madeira. **Middle Asia, Western Asia.** Tadjikistan. Iran, Iraq.

TDWG4.

Cynosurus junceus Murb. *Act. Univ. Lund.* 6, Afd. 2 no. 1, 13. (1900).

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

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cyrenaica,.

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

Derivation (Clifford & Bostock 2007): *L. juncea*, rush-like. Leaf-blades convolute resembling those of certain *Juncus* species.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose, clumped densely. Culms erect, 12–22 cm long, 4–6 -noded. Culm-internodes distally glabrous. Leaf-sheaths without keel, glabrous on surface. Ligule an eciliate membrane, lacerate. Leaf-blades convolute, 1–2 mm wide, coriaceous, stiff. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex mucicous or pungent, antrorsely scabrous.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle capitate, ovate, secund, 1–3 cm long. Panicle branches scaberulous. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, oblong, laterally compressed, 3.5–4.5 mm long, longer than fertile, persistent. Companion sterile spikelet lemmas 6–9, exerted from glumes, 2–4 mm long, 1-awned, with 2–3 mm long awn.

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 oblong, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2–3 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 0.5–1 mm long. Upper glume lanceolate, 2–3 mm long, 0.75 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 acuminate, awned, 1 -awned, awn 0.5–1 mm long.

Florets. Fertile lemma oblong, 2.7–3.5 mm long, chartaceous, without keel, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 6–10 mm long overall. Palea 1 length of lemma. Palea surface scaberulous.

Flower and Fruit. Lodicules 2. Anthers 3, 0.4–0.6 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northern Africa. Libya.

Cynosurus peltieri Maire. *Bull. Soc. Hist. Nat. Afr. Nord*, 1931, 22: 155, 321 (1931).

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

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

Derivation (Clifford & Bostock 2007): in honor of Peltier who collected in North Africa.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose, clumped loosely. Rhizomes elongated. Culms 30–70 cm long. Culm-internodes distally glabrous. Leaf-sheaths without keel, smooth, glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long, truncate. Leaf-blades flat, 15–30 cm long, 1–2.5 mm wide, stiff. Leaf-blade surface smooth, glabrous. Leaf-blade margins smooth. Leaf-blade apex acute, callose.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, interrupted, secund, 4–16 cm long, 0.5–1.2 cm wide. Panicle axis angular, scaberulous. Panicle branches puberulous. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, oblong, laterally compressed, 4–6 mm long, as long as fertile, persistent. Companion sterile spikelet lemmas 4–7, exerted from glumes, 4–6 mm long, 1-awned, with 1–2.5 mm long awn.

Fertile Spikelets. Spikelets comprising 1–2 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, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes smooth.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4–6 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 acuminate, awned, 1 -awned, awn 0.5–1 mm long. Upper glume lanceolate, 4–6 mm long, 0.9–1.1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 0.5–1 mm long.

Florets. Fertile lemma ovate, 5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scaberulous, rough above. Lemma apex acute, awned, 1 -awned. Principal lemma awn 1 mm long overall. Palea 1 length of lemma. Palea keels scaberulous, adorned above.

Flower and Fruit. Lodicules 2, 0.5–0.6 mm long. Anthers 3, 2.5 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northern Africa. Algeria, Tunisia.

Cynosurus polybracteatus Poir. *Voy. Barb.* 2: 97 (1798).

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

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

Derivation (Clifford & Bostock 2007): *Gk polys*, several; *L. bracteus*, bract; *-atus*, possessing. With several sterile spikelets in each cluster of spikelets.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, culms solitary or caespitose. Culms erect or geniculately ascending, 10–80 cm long. Culm-internodes striate, smooth, distally glabrous. Culm-nodes brown. Leaf-sheaths without keel, striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 1.5 mm long, lacerate, truncate. Leaf-blades 7–15 cm long, 1–3.5 mm wide. Leaf-blade surface smooth or scaberulous, rough abaxially, pubescent, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex abruptly acute or acute, callose.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, secund, 1.5–9 cm long, 0.3–0.6 cm wide. Panicle axis angular, pubescent. Panicle branches scabrous. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, cuneate, laterally compressed, 4 mm long, as long as fertile, persistent. Companion sterile spikelet glumes herbaceous, 3.5–4 mm long, keeled, winged on keels, 1 -veined, scabrous (on keel), mucronate (mucro 0.2–0.5mm). Companion sterile spikelet lemmas 6–10, exserted from glumes, 3.5–4 mm long (linear), mucicous (mucronate).

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 oblong, laterally compressed, 4 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes glabrous.

Glumes. Glumes persistent, similar, reaching apex of florets or exceeding apex of florets. Lower glume lanceolate, 3.5 mm long, 1 length of upper glume, chartaceous, much thinner on margins, 1-keeled, 1 -veined. Lower glume primary vein smooth or scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate, mucronate. Upper glume lanceolate, 4 mm long, chartaceous, with hyaline margins, 1-keeled, 1 -veined. Upper glume primary vein smooth or scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate, mucronate.

Florets. Fertile lemma oblong, 2.5–2.8 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma surface scabrous. Lemma apex emarginate or obtuse, mucicous. Palea lanceolate, 1 length of lemma. Palea keels scabrous. Palea surface scaberulous. Palea apex obtuse.

Flower and Fruit. Lodicules 2, ovate, 0.5 mm long, membranous, acute. Anthers 3, 1.5 mm long. Caryopsis with adherent pericarp, oblong, dorsally compressed, 1.6–1.8 mm long, dark brown, glabrous. Embryo 0.25 length of caryopsis. Hilum elliptic, 0.2 length of caryopsis.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northern Africa. Algeria, Tunisia.

Cynosurus turcomanicus G.M. Proskuryakova. *Byull. Mosk. Obshch. Ispyt. Prir., Biol.*, 81(6): 150 (1976).

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, Kopetdagh: Coll?.

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms 25–59 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 8 mm long, acute. Leaf-blades flat or convolute, 3 mm wide. Leaf-blade venation prominent. Leaf-blade surface pubescent, densely hairy, hairy adaxially. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle contracted, ovate, 2.5–5 cm long. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, ovate, laterally compressed, persistent. Companion sterile spikelet lemmas exserted from glumes, 1-awned.

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, 2.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume linear, hyaline, 1 -veined. Lower glume lateral veins absent. Lower glume apex setaceously acuminate. Upper glume linear, 3–4 mm long, 1.5–2 length of adjacent fertile lemma, hyaline, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex setaceously acuminate.

Florets. Fertile lemma lanceolate, 2–3 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 10–15 mm long overall.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Middle Asia. Tadjhikistan.

Cyperochloa hirsuta M. Lazarides & L. Watson. *Brunonia*, 9(2): 216 (1987).

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: Western Australia: Esperance Botanical Region (Barlow 1986): 8 km W of Bluff Knoll, Stirling Range, 20 Oct 1983, *Keighery 7011* (HT: PERTH; IT: CANB, K).

Illustrations (Books): 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. hairy. Plant hairy in respect to all or some parts.

Classification. Subfamily Panicoideae. Subfamily Panicoideae. Tribe: Cyperochloaeae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated, scaly. Culms 7–47 cm long, wiry. Culm-internodes solid, ridged, smooth or scaberulous. Lateral branches lacking. Leaf-sheaths wider than blade at the collar, outer margin hairy. Ligule a fringe of hairs, 0.6–0.8 mm long. Leaf-blades filiform, convolute, 3–6 cm long, 1–2 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle or comprising only a few spikelets, comprising 2–5 fertile spikelets, without bracts or bracteate at branch bases, subtended by sheathless blades, embraced at base by subtending leaf. Peduncle brief, the inflorescence subsessile. Panicle capitate, 1–1.5 cm long, bearing few spikelets. Spikelets solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 4–9 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, 7–9 mm long, 3–4 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 0.3–0.5 mm long. Floret callus pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2.6–3.6 mm long, 0.9–1 length of upper glume, membranous or cartilaginous, without keels or 1-keeled, 3–5 -veined. Lower glume surface smooth or asperulous, pubescent or pilose, hairy below, inner surface pubescent (near apex). Lower glume margins ciliate. Lower glume apex obtuse or acute. Upper glume ovate, 2.6–3.6 mm long, 0.6–0.7 length of adjacent fertile lemma, membranous or cartilaginous, 1-keeled, 3–5 -veined. Upper glume surface smooth or asperulous, pubescent or pilose, hairy below. Upper glume margins ciliate. Upper glume apex obtuse or acute.

Florets. Fertile lemma ovate, 4–5 mm long, membranous or cartilaginous, keeled, 5–7 -veined, more than 3-veined. Lemma surface scaberulous or papillose, rough above, pilose, hairy below, inner surface pilose (near apex). Lemma margins ciliate. Lemma apex obtuse. Palea 0.75–1 length of lemma. Palea keels thickened, ciliolate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, 0.5 mm long, fleshy, glabrous or ciliate. Anthers 3, 2.2–3 mm long. Stigmas 2, laterally exerted. Styles free to the base. Ovary glabrous. Caryopsis with adherent pericarp, ellipsoid, isodiametric, 1.5 mm long, granular. Hilum punctiform.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Western Australia.

TDWG4. South-West.

Cyphochlaena madagascariensis Hack. *Oesterr. Bot. Zeitschr.* 1901, 465. (1901).

Accepted by: 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: IT: *J.M. Hildebrandt 3354*, Feb 1880, Madagascar: Nosi Be (L, US-808340).

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From Madagascar.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual. Culms prostrate, 10–20 cm long. Ligule a ciliate membrane. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 2–7 cm long, 4–14 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 3–10, borne along a central axis, unilateral, 0.5–1 cm long. Central inflorescence axis 2–8 cm long. Rhachis angular, setose on margins. Spikelets in pairs.

Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, oblong, setose.

Sterile Spikelets. Companion sterile spikelets represented by single glumes or rudimentary or well-developed, male (or variously reduced), obovate, laterally compressed, 1.3–1.7 mm long, as long as fertile, separately deciduous. Companion sterile spikelet glumes membranous, awned, both glumes awned. Companion sterile spikelet lemmas 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 obovate, laterally compressed, 1.3–1.7 mm long, falling entire.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume ovate, 0.5–0.66 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute, awned, 1 -awned, awn 2–7 mm long (deciduous). Upper glume ovate, 1.3–1.7 mm long, indurate, pallid, 1-keeled. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblate, gibbous, 1 length of spikelet, indurate, 1-keeled, acute. Fertile lemma ovate, laterally compressed, 0.8–1.1 mm long, hyaline, keeled, 3 -veined, 0–3 -veined. Palea hyaline, 3 -veined, without keels.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cyphochlaena sclerioides (A. Camus) Bosser. *Adansonia*, n. s., 5: 413 (1965).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Boivinella sclerioides* A. Camus *Bull. Soc. Bot. France* 72: 176 (1925)

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): Gk *-oides*, resembling. Inflorescence similar to that of *Scleria*.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual. Culms decumbent, 50–60 cm long. Culm-internodes distally glabrous. Lateral branches ample. Leaf-sheaths striately veined, outer margin hairy. Ligule a ciliate membrane. Leaf-blade base broadly rounded. Leaf-blades oblong or ovate, 8–9 cm long, 15–17 mm wide. Leaf-blade venation with 6–8 secondary veins, with obscure cross veins. Leaf-blade surface glabrous. Leaf-blade margins scaberulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence composed of racemes. Racemes 3–10, borne along a central axis, erect or ascending, unilateral, 1.4–2 cm long. Central inflorescence axis 8–12 cm long. Rhachis angular, glabrous on surface, glabrous on margins. Spikelets in pairs. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, oblong.

Sterile Spikelets. Companion sterile spikelets represented by single glumes or rudimentary or well-developed, containing empty lemmas or male (or variously reduced), obovate, laterally compressed, as long as fertile, separately deciduous. Companion sterile spikelet glumes membranous. Companion sterile spikelet lemmas 0–2.

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 obovate, laterally compressed, 2.2–2.5 mm long, falling entire.

Glumes. Glumes dissimilar, with lower narrower than upper, reaching apex of florets, firmer than fertile lemma, shiny. Lower glume linear, 1.1–1.4 mm long, 0.5–0.66 length of spikelet, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex attenuate, awned, 1 -awned, awn 1.5–2 mm long. Upper glume lanceolate or oblong, 1.7–1.8 mm long, 0.75 length of spikelet, indurate, pallid, 1-keeled, 3 -veined. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret oblate, gibbous, 2.2–2.5 mm long, 1 length of spikelet, indurate, pallid, 1-keeled. Fertile lemma ovate, laterally compressed, gibbous, 2.2–2.5 mm long, hyaline, pallid, keeled, 0 -veined, 0–3 -veined. Palea hyaline, without keels.

Flower and Fruit. Anthers 3, 0.8–0.9 mm long. Caryopsis with adherent pericarp, 1.5 mm long.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cyphonanthus discrepans (Doell) Zuloaga & Morrone. *Taxon* 56: 528 (2007).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online (as *Panicum*), W.D.Clayton & K.Harman, *GrassBase* (2008) and online (as *Panicum*).

Basionym or Replaced Name: *Panicum discrepans* Doell, *Mart. Fl. Bras.* ii. II. 252. (1877).

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (279, Fig. 249 as *Panicum*), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (192, Fig. 135), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (360, Fig 131 as *Panicum*).

Illustrations (Journals): *Taxon* (56: 527, Fig.4 (2007)).

Derivation (Clifford & Bostock 2007): *L. discrepo*, be different. With the habit of *Agrostis*.

Classification. Subfamily Panicoideae. Tribe: Paspaleae. Subtribe ARTHROPOGONINE.

Habit, Vegetative Morphology. Perennial, caespitose. Culms rambling, 20–50 cm long. Leaf-sheaths hispid. Ligule a fringe of hairs. Leaf-blades 3–10 cm long, 2–3 mm wide. Leaf-blade surface pubescent or hirsute.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, dense, 2.5–6 cm long, contracted about primary branches. 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, without rhachilla extension. 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, 1.2–1.3 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, 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 spikelet, membranous, 3 -veined, obtuse. Fertile lemma oblong, dorsally compressed, 1.2–1.3 mm long, indurate, pallid, without keel, more than 3-veined. Lemma margins involute. Lemma apex obtuse, woolly. Palea involute, indurate. Palea apex pubescent.

Flower and Fruit. Anthers 2, 0.3 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Caribbean, Northern South America, Western South America, Brazil. Belize, Costa Rica. Cuba. French Guiana, Guyana, Venezuela. Bolivia, Colombia. Brazil West Central.

Para, Amapa, Amazonas, Acre, Rondonia, Mato Grosso, Goias.

Cyrtochloa fenixii (Gamble) Dransf. *Kew Bull.* 53:864 (1998).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

TYPE from Philippines. **Basionym or Replaced Name:** *Schizostachyum fenixii* Gamble *Philipp. J. Sci.* 6: 189 (1913)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Fenix s.n.*, Dec 1910, Philippines: Benguet Province: Sablang, flowers, fruit (K).

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): in honor of Eugenio Fenix (1883–1939) Philippine botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or scandent, drooping at the tip, 700–1000 cm long, 25–30 mm diam., woody. Culm-internodes terete, thick-walled, 30–50 cm long, mid-green or dark green, smooth, distally pruinose. Lateral branches dendroid. Branch complement several, with 1 branch dominant. Culm-sheaths present, persistent, 15 cm long, coriaceous, pilose, with tawny hairs, auriculate, with 9–20 mm wide auricles, ciliate on shoulders, shoulders with curved hairs, shoulders with 10–15 mm long hairs. Culm-sheath ligule 7–13 mm high, ciliate. Culm-sheath blade ovate, erect or reflexed, 9–16 cm long, 23–56 mm wide, glabrous on surface, attenuate. Leaf-sheath oral hairs ciliate, 5–10 mm long. Leaf-sheath auricles falcate, 3 mm long. Ligule a ciliolate membrane. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades lanceolate, 25–30 cm long, 35–45 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in oblong clusters, 1 cm long, dense, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters, 150 cm long overall.

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 ovate, laterally compressed, 6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume ovate, 3.5 mm long, chartaceous, without keels, 5 -veined. Lower glume margins ciliolate. Lower glume apex acute. Upper glume ovate, 4 mm

long, chartaceous, without keels, 5 -veined. Upper glume surface hispidulous, hairy above. Upper glume apex acuminate, mucronate.

Florets. Fertile lemma ovate, 5 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma margins convolute, covering most of palea. Lemma apex acute. Palea tightly convolute around flower, 5.5–6 mm long, chartaceous, 6 -veined, without keels.

Flower and Fruit. Lodicules 3, 1.5–2 mm long, ciliate. Anthers 6, 4–4.5 mm long, anther tip with extended connective and pubescent. Stigmas 3. Ovary with a steeple-like appendage, pubescent on apex. Caryopsis with fleshy pericarp, oblong, 7 mm long. Embryo with basal plumule. Endosperm evanescent.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Cyrtochloa hirsuta Dransf. *Kew Bull.* 53:869 (1998).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

TYPE from Philippines. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Philippines: Bataan Province: Dinalupihan, in Barrio San Pablo, flowers, 27 Apr 1981, *Penmoyer 853* (HT: PNH).

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): L. hairy. Plant hairy in respect to all or some parts.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or scandent, drooping at the tip, 600–700 cm long, 40–70 mm diam., woody. Culm-internodes terete, thick-walled, 40–60 cm long, yellow or light green. Lateral branches dendroid. Branch complement several, with 1 branch dominant. Culm-sheaths present, persistent, 13 cm long, coriaceous, pubescent, with appressed hairs, with yellow hairs, auriculate, with 5 mm high auricles, with 15 mm wide auricles, ciliate on shoulders. Culm-sheath blade triangular, cordate, erect, 9–10 cm long, pubescent (above), attenuate. Leaf-sheaths glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate, deciduous, 5 mm long. Leaf-sheath auricles falcate, 2 mm long. Ligule an eciliate membrane, entire or erose. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5 cm long. Leaf-blades lanceolate, 25–32 cm long, 20–50 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in oblong clusters, 1–1.5 cm long, dense, with glumaceous subtending bracts (in cluster) or spatheaceous subtending bracts (around cluster), with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between branches, 30–60 cm long overall.

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 ovate, laterally compressed, 9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume ovate, 4–8 mm long, chartaceous, without keels, 5 -veined. Lower glume surface pubescent. Lower glume apex acuminate. Upper glume ovate, 7–8 mm long, chartaceous, without keels, 9 -veined. Upper glume surface pubescent. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 8–9 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 1–3 mm long overall. Palea tightly convolute around flower, 8 mm long, chartaceous, 5 -veined, without keels. Palea surface pubescent, hairy above.

Flower and Fruit. Lodicules 3, 1 mm long, ciliate. Anthers 6, anther tip with extended connective and pubescent. Stigmas 3. Ovary with a steeple-like appendage. Caryopsis with fleshy pericarp, orbicular, 10 mm long, rugose. Embryo with basal plumule. Endosperm evanescent.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Cyrtochloa luzonica (Gamble) Dransf. *Kew Bull.* 53:871 (1998).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

TYPE from Philippines. **Basionym or Replaced Name:** *Schizostachyum luzonicum* Gamble *Philipp. J. Sci.* 5: 277 (1910). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Philippines: Zambales, flowers, Nov-Dec 1907, *Curran & Merritt 8411* (HT: K).

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): L. -icum, belonging to. From Luzon, Philippines.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 100–200 cm long, 10 mm diam., woody. Culm-internodes terete, thick-walled, 20–25 cm long, distally glabrous. Lateral branches dendroid. Culm-sheaths present, 3–5 cm long, glabrous, hairy on margins, auriculate, ciliate on shoulders. Culm-sheath blade triangular, acuminate. Leaf-sheaths striately veined, smooth, glabrous on surface. Leaf-sheath oral hairs setose. Ligule a ciliate membrane. Leaf-blade base cordate, with a brief petiole-like connection to sheath, petiole 0.3–0.5 cm long. Leaf-blades lanceolate, 10–20 cm long, 20–35 mm wide, indurate, light green. Leaf-blade venation indistinct, with 16–20 secondary veins. Leaf-blade surface glabrous. Leaf-blade margins cartilaginous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, with spathaceous subtending bracts, bracts 10–15 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets, 15–60 cm long overall.

Fertile spikelets sessile.

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, obtuse, 10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 2–3 empty glumes, persistent, shorter than spikelet. Lower glume ovate, chartaceous, without keels. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 7 mm long, chartaceous, without keels. Upper glume margins ciliate. Upper glume apex acute, mucronate.

Florets. Fertile lemma ovate, 5–6 mm long, chartaceous, without keel, 5–9 -veined, more than 3-veined. Lemma margins convolute, covering most of palea, ciliate. Lemma apex acute. Palea tightly convolute around flower, 4–5 mm long, chartaceous, without keels. Palea surface pilose, hairy on margins.

Flower and Fruit. Lodicules 3, ciliate. Anthers 6, 2 mm long, anther tip smooth. Stigmas 3. Ovary with a steeple-like appendage, pubescent on apex. Caryopsis with free brittle pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Cyrtochloa major (Pilger) Dransfiels. *Kew Bull.* 58:982 (2003).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

Basionym or Replaced Name: *Dinochloa major* Pilger, Perkins, *Frag. Fl. Philipp.* 1: 149. (1904).

Illustrations (Journals): *Kew Bulletin* (58: 984, Fig.2 (2003)).

Derivation (Clifford & Bostock 2007): L. larger. Larger in some respect than related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or geniculately ascending, 800 cm long, 25 mm diam., woody. Culm-internodes terete, thick-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, 3 mm long. Leaf-sheath auricles falcate. Ligule a ciliolate membrane, 1 mm long. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 6–24 cm long, 6–13 mm wide, firm. Leaf-blade surface scaberulous, glabrous. Leaf-blade margins serrulate. Leaf-blade apex filiform.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in oblong clusters, 3–5 cm long, open, glabrous on internodes, with spathaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters, 40 cm long overall.

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, 5 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume ovate, 4 mm long, chartaceous, without keels, 7 -veined. Lower glume surface puberulous. Lower glume apex acuminate. Upper glume ovate, 5 mm long, chartaceous, without keels, 7 -veined. Upper glume surface puberulous. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 5 mm long, 2 mm wide, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma apex attenuate. Palea tightly convolute around flower, 6 mm long, chartaceous, 6 -veined, without keels. Palea surface glabrous. Palea apex dentate, 2 -fid. Apical sterile florets 1 in number, barren, lanceolate (an empty lemma), 4 mm long.

Flower and Fruit. Lodicules 3, 1 mm long, ciliate. Anthers 6, anther tip apiculate. Stigmas 3. Ovary with a steeple-like appendage. Caryopsis with fleshy pericarp.

Distribution (TDWG). Continent. Tropical Asia.
Country /Province /State. Malesia. Philippines.

Cyrtochloa mindoroensis Dransfiel. *Kew Bull.* 58:981 (2003).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

Illustrations (Journals): *Kew Bulletin* (58: 983, Fig.1 (2003)).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Mindoro, an island in the Philippines.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 20 mm diam., woody. Culm-internodes terete, thick-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths glabrous on surface or pilose, hairs white, outer margin hairy. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles falcate, 1 mm long. Ligule a ciliolate membrane. Leaf-blade base asymmetrical, with a brief petiole-like connection to sheath, petiole 0.4 cm long. Leaf-blades lanceolate, 12–21 cm long, 15–24 mm wide, stiff. Leaf-blade surface glabrous. Leaf-blade margins serrulate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in oblong clusters, 2–3 cm long, dense, glabrous on internodes, with spathaceous subtending bracts, bracts 7–15 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters, 90 cm long overall.

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, 5–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume ovate, 3 mm long, chartaceous, without keels, 7 -veined. Lower glume surface glabrous. Lower glume margins ciliolate. Lower glume apex acuminate. Upper glume ovate, 3 mm long, chartaceous, without keels, 7 -veined. Upper glume surface glabrous. Upper glume margins ciliolate. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 4 mm long, 2.5 mm wide, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface glabrous. Lemma margins convolute, covering most of palea. Lemma apex setaceous acuminate. Palea tightly convolute around flower, 4 mm long, chartaceous, 6 -veined, without keels. Palea surface glabrous. Palea apex dentate, 2 -fid. Apical sterile florets 1 in number, barren, lanceolate (an empty lemma), 2 mm long.

Flower and Fruit. Lodicules 3, ciliate. Anthers 6, anther tip apiculate. Stigmas 3. Ovary with a steeple-like appendage. Caryopsis with fleshy pericarp, orbicular, isodiametric (globose), 4 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Cyrtochloa puser Dransf. *Kew Bull.* 53:867 (1998).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

TYPE from Philippines. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Philippines: Abra, Benguet, flowers, fruit, Feb 1911, *McVey s.n.* (HT: K).

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): Local name for species in Abra Province, Philippines.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or scandent, zigzag, drooping at the tip, 700–1000 cm long, 25–30 mm diam., woody. Culm-internodes terete, thick-walled, 30–40 cm long, mid-green or dark green, smooth, distally pruinose. Lateral branches dendroid. Branch complement several to many, with 1 branch dominant. Culm-sheaths present, persistent, 8–15 cm long, coriaceous, glabrous, truncate at apex, auriculate, with 2–5 mm high auricles, with 10–30 mm wide auricles, ciliate on shoulders. Culm-sheath ligule 2 mm high, entire. Culm-sheath blade ovate, cordate, 8–13 cm long, 15–50 mm wide, pubescent (above), attenuate. Leaf-sheaths glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate, curly, 4–7 mm long. Leaf-sheath auricles falcate, 1–3 mm long. Ligule a ciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long. Leaf-blades lanceolate, 6–23 cm long, 22–36 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in oblong clusters, 1–1.5 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 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, 6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, shorter than spikelet. Lower glume ovate, 3 mm long, chartaceous, without keels, 7 -veined. Lower glume surface pubescent. Lower glume apex acuminate. Upper glume ovate, 5–6 mm long, chartaceous, without keels, 9 -veined. Upper glume surface pubescent, hairy above. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 6–7 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Lemma surface pubescent, hairy above. Lemma margins convolute, covering most of palea. Lemma apex acuminate. Palea tightly convolute around flower, 6 mm long, chartaceous, 4 -veined, without keels.

Flower and Fruit. Lodicules 3, 1 mm long, ciliate. Anthers 6, anther tip with extended connective and pubescent. Stigmas 3. Ovary with a steeple-like appendage. Caryopsis with fleshy pericarp, obovoid, 7 mm long, rugose. Embryo with basal plumule. Endosperm evanescent.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Cyrtochloa toppingii (Gamble) Dransf. *Kew Bull.* 53:862 (1998).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

TYPE from Philippines. **Basionym or Replaced Name:** *Schizostachyum toppingii* Gamble *Philipp. J. Sci.* 5: 276 (1910). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Topping Bur. Sci.* 5222, Jul 1908, Philippines: Rizal, Montalban, flowers, fruit (K).

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): in honor of David Le Roy Topping (1881-) United States administrator who collected plants in the Philippines, Borneo, Hawaii and Siberia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or scandent, woody. Culm-internodes terete, thick-walled. Culm-nodes swollen. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths striately veined. Leaf-sheath oral hairs scanty. Ligule a ciliate membrane. Leaf-blade base broadly rounded or cordate, with a brief petiole-like connection to sheath, petiole 1–2 cm long. Leaf-blades lanceolate, 12–30 cm long, 15–30 mm wide, indurate. Leaf-blade venation with 12 secondary veins. Leaf-blade surface glabrous. Leaf-blade margins unthickened or cartilaginous, scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, 1–1.5 cm long, dense, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 1 fertile florets, with a barren 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, subacute, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 2–3 empty glumes, persistent, shorter than spikelet. Lower glume ovate, 2 mm long, chartaceous, without keels, 5–7 -veined. Lower glume apex acute. Upper glume ovate, 4 mm long, chartaceous, without keels, 5–7 -veined. Upper glume apex acute, mucronate.

Florets. Fertile lemma ovate, 5 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma margins convolute, covering most of palea. Lemma apex acute, mucronate. Palea tightly convolute around flower, 4–5 mm long, chartaceous, 5 -veined, without keels.

Flower and Fruit. Lodicules 2, ciliate. Anthers 6, 4 mm long, anther tip with extended connective and pubescent. Stigmas 3. Ovary with a steeple-like appendage. Caryopsis with free brittle pericarp, orbicular, 6 mm long, light brown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Philippines.

Cyrtococcum accrescens (Trin.) Stapf. *Hook. Ic. Pl. sub t.* 3096 (1922).

Regarded by K as a synonym (*C. patens*).

Accepted by: 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. **Basionym or Replaced Name:** *Panicum accrescens* Trin. *Sp. Gram.* 1: , pl. 88 (1828). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: India.

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (496), C-C Hsu, *Taiwan Grasses* (1975) (538, Pl. 1425), H.B. Gilliland, *Grasses of Malaya* (1971) (Pl. 8), H. Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (47, Fig. 36), E. Hafliger & E. Schultz, *Grass Weeds*, CIBA-GEIGY (1:36(1980)).

Images: H.B. Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);

Derivation (Clifford & Bostock 2007): *L. accresco*, grow. Spikelets growing larger after anthesis.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 20–100 cm long, rooting from lower nodes. Culm-nodes glabrous. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs, outer margin hairy. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, 2.5–10 cm long, 4–15 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, effuse, 10–25 cm long, 5–15 cm wide. Panicle branches capillary, straight or flexuous, smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 4–8 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 obovate, laterally compressed, compressed strongly, gibbous, 1.5 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.75 mm long, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume oblong, gibbous, 1 mm long, 0.75 length of spikelet, 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, oblong, 1.2 mm long, 1 length of spikelet, membranous, 5 -veined, obtuse. Fertile lemma obovate, laterally compressed, gibbous, 1.25 mm long, indurate, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

N = 18 (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia, Tropical Asia, Australasia.

Country /Province /State. China, Eastern Asia. Taiwan. Indian Subcontinent, Indo-China, Malesia, Papuasias. Thailand. Borneo, Java, Lesser Sunda Is, Moluccas, Sumatra, Sulawesi, Malaya, Philippines, Singapore. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Bismark Archipelago, Solomon Is. Australia. Queensland.

TDWG4. Uttah Pradesh, West Bengal.

Cyrtococcum bosseri A. Camus. *Bull. Mus. Hist. Nat., Paris, Ser. 2*, 24: 402 (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, Ankaizina: Bosser 2719 (K iso).

Illustrations (Books): J. Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (309, Fig 114).

Derivation (Clifford & Bostock 2007): in honor of Jean M. Bosser (1922-) French botanist.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual, caespitose, clumped loosely. Culms decumbent, 30–40 cm long, rooting from lower nodes. Ligule an eciliate membrane, truncate. Leaf-blades linear or lanceolate, 1.5–6 cm long, 4–8 mm wide. Leaf-blade surface pilose, sparsely hairy.

Inflorescence. Inflorescence a panicle. Panicle open, oblong or ovate, 7–15 cm long. Primary panicle branches ascending or spreading. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, 0.5–2 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 obovate, laterally compressed, compressed strongly, gibbous, obtuse, 1.2–1.4 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, 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 oblong, gibbous, 0.75 length of spikelet, membranous, without keels, 3 -veined. 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, membranous, 5 -veined, obtuse. Fertile lemma obovate, laterally compressed, gibbous, 1.2–1.4 mm long, indurate, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex acute, with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cyrtococcum capitis-york B.K. Simon. *Austrobaileya*, 3(4): 592 (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>: *vide* TROPICOS and Kew Synonymy Database: Australia: Queensland: Cook Dist.: 10.8 mi S of Batavia Downs on Peninsula Development Road, 21 Apr 1990, J. R. Clarkson & V. J. Nelder 8477 (HT: BRI-AQ463916; IT: B, BRI, DNA, NSW).

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Austrobaileya* (3:593, Fig.3 (1992)).

Derivation (Clifford & Bostock 2007): from Cape York, Queensland, Australia.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Perennial, mat forming. Culms prostrate, 15–30 cm long, 7–9 -noded, rooting from lower nodes. Culm-nodes glabrous. Lateral branches sparse. Leaf-sheaths mostly shorter than adjacent culm internode, ribbed. Ligule an eciliate membrane, 0.4 mm long. Leaf-blades lanceolate, 2.5–7 cm long, 3–5 mm wide. Leaf-blade surface pubescent, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 2–8 cm long. Primary panicle branches spreading, 4 cm long, bearing 10 fertile spikelets on each lower branch. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, 2–5 mm long, smooth.

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, compressed strongly, gibbous, 1.5–1.7 mm long, 0.8–1 mm wide, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.6–0.8 mm long, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume surface scabrous, pilose, with tubercle-based hairs. Lower glume apex acute. Upper glume obovate, gibbous, 1.5 mm long, 0.75 length of spikelet, membranous, without keels, 3 -veined. Upper glume surface pilose, with tubercle-based hairs. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, obovate, 1.5–1.7 mm long, 1 length of spikelet, membranous, pilose, obtuse or acute. Fertile lemma obovate, laterally compressed, gibbous, 1.4 mm long, indurate, pallid, without keel. Lemma margins involute. Lemma apex obtuse, with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3, 1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Queensland.

TDWG4. North.

Cyrtococcum chaetophoron (Roem. & Schult.) Dandy. *Journ. Bot.* 69: 55 (1931).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

Basionym or Replaced Name: *Panicum chaetophorum* Roem. & Schult. *Syst. Veg.* 2: 884 (1817). T:<Type of Basionym>: *vide* TROPICOS and Kew Synonymy Database: HT: *P. Beauvois 117*, Benin (Z?; IT: P).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (253, Fig. 183), W. Robyns (1929 and 1934). Flora Agrostologique du Congo Belge et du Ruanda-Urundi, I. Maydees et Andropogonees and II. Panicees. Bruxelles, Goemaere (231, Pl. 41), R.M.Polhill, F.T.E.A., *Gramineae* (3(1982):501, Fig.122), R.Pilger, *Die Natürlichen Pflanzenfamilien 14e* (1940) (34, Fig. 18).

Derivation (Clifford & Bostock 2007): Gk. chaete, bristle; phero, bear. Pedicels beset with long silky hairs.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 30–100 cm long, rooting from lower nodes. Leaf-sheaths wider than blade at the collar. Ligule an eciliate membrane, 1 mm long. Leaf-blades lanceolate, 5–15 cm long, 5–15 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle open, obovate, effuse, 10–25 cm long. Primary panicle branches profusely divided. Panicle branches capillary, with scattered hairs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 2–10 length of fertile spikelet, scaberulous, glabrous or villous.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, compressed strongly, gibbous, 1.5–2 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.7 length of spikelet, membranous, without keels, 3–5 -veined. Lower glume surface puberulous. Lower glume apex acute. Upper glume oblong, gibbous, 0.8–0.9 length of spikelet, membranous, without keels, 5 -veined. Upper glume surface hispidulous. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, membranous, 3–5 -veined, hispidulous, acute. Fertile lemma obovate, laterally compressed, gibbous, hemispherical, 1.3–1.8 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface punctate. Lemma margins involute. Lemma apex obtuse, with a little green crest. Palea reflexed at apex, involute, coriaceous, 2 -veined. Palea keels winged, narrowly winged.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, ovoid, laterally compressed, plano-convex.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West tropical Africa, West-central tropical Africa, Northeast tropical Africa, East tropical Africa, South tropical Africa. Ghana, Ivory Coast, Nigeria, Senegal, Sierre Leone. Gabon, DRC. Sudan. Tanzania, Uganda. Angola.

Cyrtococcum deccanense Bor. *Kew Bull* 1956, 255 (1956).

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: Ceylon: Hakgala, gully near Botanic Garden, 1800 m, 30 Dec 1950, in damp jungle, *F. Ballard 1341* (HT: K).

Illustrations (Books): K.M.Mathew, *Flora Palni Hills* (1996) (808, Pl 808).

Derivation (Clifford & Bostock 2007): L. -ense, denoting origin. From the Deccan region of India.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual. Culms decumbent, 15–50 cm long, rooting from lower nodes. Culm-nodes glabrous or bearded. Leaf-sheaths pilose, with tubercle-based hairs, outer margin hairy. Ligule an eciliate membrane. Leaf-blades lanceolate or elliptic, 1–8 cm long, 2–6 mm wide. Leaf-blade surface glabrous or hirsute. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, effuse, 2–15 cm long, bearing few spikelets. Primary panicle branches spreading. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1–20 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 obovate, laterally compressed, compressed strongly, gibbous, 2–2.5 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1.5–2 mm long, 0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume oblong, gibbous, 2 mm long, 0.75 length of spikelet, 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, oblong, 1.5–2 mm long, 1 length of spikelet, membranous, 7 -veined, obtuse. Fertile lemma obovate, laterally compressed, gibbous, 1.5–2 mm long, indurate, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3, 1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India, Sri Lanka.

TDWG4. Kerala. Tamilnadu.

Cyrtococcum deltoideum (Hackel) A. Camus. *Bull. Soc. Bot. France*, 77: 640 (1931).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online.

TYPE from Madagascar. **Basionym or Replaced Name:** *Panicum deltoideum* Hack. *J. Linn. Soc., Bot.* 29: 64 (1891). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *G.F. Scott Elliot 2009B*, no date, Madagascar: Manandona Valley (US-80758 (fragm.)).

Illustrations (Books): J.Bosser, *Graminees des Paturage et des Cultures a Madagascar* (1969) (309, Fig 114).

Derivation (Clifford & Bostock 2007): Gk. delta, shaped like a river delta; -oidea, resembling. Spikelets ovate-lanceolate.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual, mat forming. Culms prostrate, 7–25 cm long, rooting from lower nodes. Culm-nodes bearded. Ligule an eciliate membrane, truncate. Leaf-blade base asymmetrical. Leaf-blades lanceolate or ovate, 1–4 cm long, 4–13 mm wide. Leaf-blade surface glabrous or pilose. Leaf-blade margins glabrous or tuberculate-ciliate, hairy at base. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, 2–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 1.5–4 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 obovate, laterally compressed, compressed strongly, gibbous, acute, 1.5–2 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume oblong, gibbous, 0.75 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1 length of spikelet, membranous, 5 -veined, ciliolate on margins, fringed above, acute. Fertile lemma obovate, laterally compressed, gibbous, 1.5–2 mm long, indurate, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex acute, with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa, Australasia.

Country /Province /State. Western Indian ocean. Madagascar. Australia.

Cyrtococcum humbertianum A. Camus. *Bull. Soc. Bot. France*. 104: 161 (1957).

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, Antanimoro: Humbert & Capuron 28878 (P holo).

Illustrations (Books): No illustration found (BKS).

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual. Culms decumbent, 20–35 cm long, rooting from lower nodes. Culm-internodes distally glabrous. Culm-nodes black. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined, glabrous on surface. Ligule an eciliate membrane, 1.5–1.8 mm long, truncate. Leaf-blades lanceolate or ovate, 4–5 cm long, 12–13 mm wide, flaccid. Leaf-blade venation prominent, with 4 secondary veins, with distinct cross veins. Leaf-blade margins scaberulous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 10–13 cm long, 2.5–3.5 cm wide. Primary panicle branches appressed. Panicle branches capillary. 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 obovate, laterally compressed, compressed strongly, gibbous, obtuse, 1.2–1.4 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume oblong, gibbous, 0.75 length of spikelet, membranous, without keels, 3 -veined. Upper glume surface puberulous, hairy above. Upper glume apex acute.

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, obtuse. Fertile lemma obovate, laterally compressed, gibbous, 1–1.2 mm long, indurate, without keel. Lemma margins involute. Palea involute, indurate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cyrtococcum longipes (Hook.f.) A. Camus. *Bull. Mus. Hist. Nat. Paris*, 27: 118 (1921).

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:** *Panicum longipes* Wight & Arn. ex Hook. f. *Fl. Brit. India* 7(21): 58 (1897) [1896]

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: Heyne, India: "Nilghiri and Pulney Hills, ..." Heyne in Herb. Rottler & in Wall. Cat.; Wall Cat. n. 8741 - Panicum.

ST: *Lawson*, India: "Karkun Ghat, alt 200 ft. ...".

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): *L. longus*, long; pes, foot. Spikelets borne on long pedicels.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending or rambling, 50–120 cm long, rooting from lower nodes. Culm-nodes glabrous or bearded. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blades lanceolate or elliptic, 6–25 cm long, 5–20 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, 5–35 cm long. Primary panicle branches 4–8 in number, drooping. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, 5–25 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 obovate, laterally compressed, compressed strongly, gibbous, 1.5–2 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate or ovate, 1.2 mm long, 0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acuminate. Upper glume oblong, gibbous, 1.5–2 mm long, 1 length of spikelet, membranous, without keels, 5–7 -veined. Upper glume apex cuspidate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1.5–2 mm long, 1 length of spikelet, membranous, 5 -veined, ciliolate on margins, fringed above, cuspidate. Fertile lemma obovate, laterally compressed, gibbous, 1.5–2 mm long, indurate, shiny, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3, 0.5–1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Assam. Myanmar.

TDWG4. Kerala, Karnataka. Tamilnadu.

Cyrtococcum multinode (Lam.) W.D. Clayton. *Kew Bull.*, 33(1): 22 (1978).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Mauritius. **Basionym or Replaced Name:** *Panicum multinode* Lam. *Encycl.* 4: 747 (1796). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. Commerson s.n.*, Mauritius (P fragm., US-80767) (K photo)).

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): *L. multus*, many; nodus, knot. Culms many-noded.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Perennial, mat forming. Culms rambling, 30–100 cm long, rooting from lower nodes. Ligule an eciliate membrane. Leaf-blades lanceolate, 5–20 cm long, 8–25 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 8–22 cm long. Primary panicle branches profusely divided. Panicle branches capillary, glabrous or pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, 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 obovate, laterally compressed, compressed slightly, gibbous, 1.2–1.5 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex obtuse or acute. Upper glume elliptic, gibbous, 0.66–0.75 length of spikelet, membranous, without keels, 3 -veined. Upper glume surface glabrous or puberulous, hairy above. 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, membranous, 5 -veined, glabrous or puberulous, hairy above, obtuse. Fertile lemma ovate, laterally compressed (weakly), gibbous, 1–1.2 mm long, coriaceous, dark brown, shiny, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex obtuse, with a little green crest or with a green spot. Palea reflexed at apex, involute, coriaceous, 2 -veined.

Distribution (TDWG). Continent. Africa.

Country /Province /State. East tropical Africa, Western Indian ocean. Tanzania, Uganda. Mauritius, Madagascar.

Cyrtococcum muricatum (Retz.) Bor. *Grasses Burma, Ceyl., Ind. & Pakist.* 291 (1960).

Regarded by K as a synonym (*C.patens*).

Accepted by: N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

Basionym or Replaced Name: *Panicum muricatum* Retz. *Observ. Bot.* 4: 18 (1786). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: "Misit Cel. Kvnig.",.

Illustrations (Books): No illustration found (BKS).

Derivation (Clifford & Bostock 2007): L. rough. Glumes bear short hard points.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual. Culms prostrate or rambling, 10–75 cm long, rooting from lower nodes. Culm-nodes glabrous. Leaf-sheaths outer margin hairy. Ligule an eciliate membrane, truncate. Leaf-blades lanceolate or elliptic or ovate, 1–10 cm long, 4–18 mm wide. Leaf-blade surface hirsute, with tubercle-based hairs. Leaf-blade margins ciliate, hairy at base. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, 5–20 cm long. 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 obovate, laterally compressed, compressed strongly, gibbous, 1.5–2 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–1.5 mm long, 0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume oblong, gibbous, 1–1.75 mm long, 1 length of spikelet, membranous, without keels, 3 -veined. Upper glume surface tuberculate, pubescent. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1–1.75 mm long, 1 length of spikelet, membranous, 5 -veined, tuberculate, pubescent, acute. Fertile lemma obovate, laterally compressed, gibbous, 1.5–2 mm long, indurate, without keel, 5–7 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3, 0.5–1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China, Malesia. Thailand. Malaya.

Cyrtococcum nossibeense A. Camus. *Bull. Soc. Bot. France*, 99: 144 (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, Nossibe: Boivin.

Illustrations (Books): No illustration found (BKS).

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Perennial. Culms prostrate, 40–50 cm long. Lateral branches ample. Leaf-sheaths pilose, with tubercle-based hairs. Ligule an eciliate membrane. Leaf-blades lanceolate, 5–7 cm long, 5–8 mm wide. Leaf-blade surface puberulous (above) or pilose (below). Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 6–7 cm long, 3 cm wide. Primary panicle branches appressed. Panicle branches capillary, glabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–3 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 obovate, laterally compressed, compressed strongly, gibbous, obtuse, 2 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.9–1 mm long, 0.5 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume oblong, gibbous, 1.6–1.7 mm long, 0.75 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, oblong, 1 length of spikelet, membranous, 5 -veined, prominently veined, obtuse. Fertile lemma obovate, laterally compressed, gibbous, 1.5 mm long, indurate, yellow, without keel. Lemma margins involute. Palea involute, indurate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cyrtococcum oxyphyllum (Steud.) Stapf. *Hook. Ic. Pl. sub t.* 3096 (1922).

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), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from India. **Basionym or Replaced Name:** *Panicum oxyphyllum* Hochst. ex Steud., *Syn. Pl. Glumac.* 1: 65 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, *Hrbr. Hohenack Ind. or.* 627.

Illustrations (Books): K.M.Mathew, *Further Illustrations on the Flora of Tamilnadu Carnatic* (1988) (Pl. 742), H.J.Noltie, *The Grasses of Bhutan* (2000) (699, Fig. 39), H.B.Gilliland, *Grasses of Malaya* (1971) (Pl. 6), E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (58, Pl. 18), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 722), E.Hafliger & E.Schultz, *Grass Weeds*, CIBA-GEIGY (1:37(1980)).

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);.

Derivation (Clifford & Bostock 2007): Gk. oxys, sharp; phyllon, leaf. Tips of leaf-blades finely acuminate or pungent.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual, mat forming. Culms prostrate, 20–60 cm long, rooting from lower nodes. Culm-nodes glabrous or pubescent. Ligule a ciliolate membrane, 0.7–1.1 mm long. Leaf-blades lanceolate or elliptic, 2–20 cm long, 5–15 mm wide. Leaf-blade surface glabrous or hirsute. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 5–20 cm long. Primary panicle branches appressed or ascending. Panicle branches scabrous, glabrous or pilose, pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear.

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, compressed strongly, gibbous, 1.25–2 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 1–1.5 mm long, 0.75 length of spikelet, membranous, without keels, 3 -veined. Lower glume apex acute. Upper glume oblong, gibbous, 1.5–2 mm long, 1 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1.25–2 mm long, 1 length of spikelet, membranous, 5 -veined, acute. Fertile lemma obovate, laterally compressed, gibbous, 1–1.5 mm long, indurate, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3, 0.5–1 mm long. Caryopsis with adherent pericarp.

N = 18 (1 ref TROPICOS).

Distribution (TDWG). Continent. Africa, Temperate Asia, Tropical Asia, Australasia, Pacific.

Country /Province /State. Western Indian ocean. Madagascar, Seychelles. **China.** China South Central, Hainan, China Southeast. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Assam, Eastern Himalaya, India, Sri Lanka. Andaman Is, Laos, Myanmar, Thailand, Vietnam. Borneo, Java, Lesser Sunda Is, Malaya, Singapore, Moluccas, Sulawesi, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is. **Australia.** Queensland. **Southwestern Pacific, South-central Pacific, Northwestern Pacific.** Fiji, Niue, New Caledonia, Samoa, Tonga, Vanuatu, Wallis-Futuna Is. Cook Is, Society Is.

TDWG4. Guangdong, Guangxi. Yunnan. Darjeeling, Bhutan. Andhra Pradesh, Bihar, Goa, Kerala, Karnataka. Madhya Pradesh, Maharashtra, Tamilnadu, West Bengal. North.

Cyrtococcum patens (L.) A. Camus. *Bull. Mus. Hist. Nat. Paris*, 27: 118 (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), 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 India. **Basionym or Replaced Name:** *Panicum patens* L. *Sp. Pl.* 1: 58 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: India.

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (314, Fig 120), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (498), C-C Hsu, *Taiwan Grasses* (1975), K.M.Matthew, *Flora Palni Hills* (1996) (809, Pl. 809), H.J.Noltie, *The Grasses of Bhutan* (2000) (699, Fig. 39), H.B.Gilliland, *Grasses of Malaya* (1971), H.Duistermaat, *Field Guide to the Grasses of Singapore* (2005) (47, Fig. 37), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 721 & Fig. 722 as *Cyrtococcum patens* var. *patens* and *C. patens* var. *latifolium*), E.Hafliger & E.Schultz, Grass Weeds, CIBA-GEIGY (1:38(1980)).

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);

Derivation (Clifford & Bostock 2007): L. pateo, lie open. Panicle branches spreading or reflexed or habit open.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Perennial, mat forming. Culms prostrate, 10–80 cm long, rooting from lower nodes. Culm-nodes glabrous. Leaf-sheaths glabrous on surface or hirsute, outer margin hairy. Ligule an eciliate membrane, 0.5–0.7 mm long, acute. Leaf-blade base asymmetrical. Leaf-blades lanceolate or ovate, 1–8 cm long, 3–15 mm wide. Leaf-blade surface glabrous or hirsute. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, 3–20 cm long. Primary panicle branches spreading. 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 obovate, laterally compressed, compressed strongly, gibbous, 1.3–2 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.75 length of spikelet, membranous, without keels, 3–5 -veined. Lower glume apex acute. Upper glume oblong, gibbous, 1–1.5 mm long, 0.75 length of spikelet, membranous, without keels, 5 -veined. Upper glume surface pubescent. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret similar to upper glume, oblong, 1.5–2 mm long, 1 length of spikelet, membranous, 5 -veined, pubescent, obtuse. Fertile lemma obovate, laterally compressed, gibbous, 1.5–2 mm long, indurate, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex with a little green crest. Palea reflexed at apex, involute, indurate, 2 -veined.

Flower and Fruit. Anthers 3, 1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Temperate Asia, Tropical Asia, Australasia, Pacific.

Country /Province /State. China, Eastern Asia. China South Central, Hainan, China Southeast, Tibet. Nansei-Shoto, Ogosawara-shoto, Taiwan. **Indian Subcontinent, Indo-China, Malesia, Papuasia.** Assam, Bangladesh, Eastern Himalaya, India, Nepal, Sri Lanka. Andaman Is, Laos, Myanmar, Thailand, Vietnam. Borneo, Java, Lesser Sunda Is, Malaya, Moluccas, Philippines, Sulawesi, Sumatra. New Guinea PNG, or West Papua (Irian Jaya). New Guinea, Solomon Is. **Australia.** Queensland. **South-central Pacific, Northwestern Pacific.** New Caledonia, Samoa (*). Caroline Is, Marianas.

TDWG4. Fujian, Guangdong, Guangxi, Hunan, Jiangxi. Guizhou, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim. Kerala. Tamilnadu, Uttah Pradesh, West Bengal.

Cyrtococcum tamatavense A. Camus. *Bull. Soc. Bot. France*, 104: 282 (1957).

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, Tamatave: Martin 7560.

Illustrations (Books): No illustration found (BKS).

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Annual. Culms erect. Culm-internodes striate, distally glabrous. Culm-nodes black. Leaf-sheaths striately veined, pilose. Ligule an eciliate membrane. Leaf-blades lanceolate, 7–10 cm long, 9–10 mm wide. Leaf-blade venation with 4–6 secondary veins, with distinct cross veins. Leaf-blade surface pilose, sparsely hairy. Leaf-blade margins scaberulous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 12–20 cm long, 3–4 cm wide. Primary panicle branches appressed, whorled at lower nodes, 8–10 cm long. Panicle axis glabrous. Panicle branches capillary. 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 obovate, laterally compressed, compressed strongly, gibbous, obtuse, 1.5–1.6 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5 mm long, 0.33 length of spikelet, membranous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, gibbous, 0.9–1 mm long, 0.75 length of spikelet, membranous, without keels, 3 -veined. Upper glume apex acute.

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, obtuse. Fertile lemma obovate, laterally compressed, gibbous, 1.5–1.6 mm long, indurate, without keel. Lemma margins involute. Lemma apex obtuse. Palea involute, indurate.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Western Indian ocean. Madagascar.

Cyrtococcum trigonum (Retz.) A. Camus. *Bull. Mus. Hist. Nat. Paris*, 27: 118 (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), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*, N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from India. **Basionym or Replaced Name:** *Panicum trigonum* Retz. *Observ. Bot.* 3: 9 (1783). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Kvnig s.n.*, India (LD; IT: BM).

IT: *J.G. Konig s.n.*, Sri Lanka (L).

Illustrations (Books): K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 839 & 340).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3096 (1922)).

Derivation (Clifford & Bostock 2007): L. tria, three; gonum, angle. Grain obtusely three-sided.

Classification. Subfamily Panicoideae. Tribe: Paniceae. Subtribe MICROCALAMINAE.

Habit, Vegetative Morphology. Perennial, mat forming. Culms rambling, 5–15 cm long, rooting from lower nodes. Ligule an eciliate membrane. Leaf-blades lanceolate, 1–4(–7) cm long, 2–6(–10) mm wide, membranous.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, dense, 1–5 cm long, contracted about primary branches. Primary panicle branches appressed or spreading. Panicle branches glabrous or pilose (rarely). Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, angular, smooth or scaberulous, glabrous or ciliate (rarely).

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. 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, compressed strongly, gibbous, 1.5–2 mm long, falling entire.

Glumes. Glumes similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 0.5–0.66 length of spikelet, membranous, without keels, 3 -veined. Lower glume surface pubescent or hispid, with tubercle-based hairs. Lower glume apex acute. Upper glume oblong, gibbous, 0.75 length of spikelet, membranous, without keels, 3 -veined. Upper glume surface pubescent or hispid, with tubercle-based hairs. 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, membranous, 3 -veined, pubescent or hispid, with tubercle-based hairs, obtuse. Fertile lemma orbicular, laterally compressed, gibbous, 1.3–1.8 mm long, coriaceous, dark brown, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma margins involute. Lemma apex obtuse, with a little green crest. Palea reflexed at apex, involute, coriaceous, 2 -veined.

Distribution (TDWG). Continent. Africa, Tropical Asia, Australasia, Pacific, South America.

Country /Province /State. East tropical Africa, Western Indian ocean. Kenya, Tanzania. Madagascar, Seychelles. Indian Subcontinent, Indo-China, Malesia, Papuasias. Bangladesh, India, Sri Lanka. Andaman Is. Borneo, Java, Lesser Sunda Is, Malaya, Philippines. New Guinea PNG. New Guinea. **Australia.** Queensland. **Southwestern Pacific, South-central Pacific.** Fiji, Samoa, Tonga, Vanuatu. Cook Is. **Mesoamerica** (*), **Caribbean** (*). Jamaica (& as *Panicum*), Trinidad-Tobago.

TDWG4. Andhra Pradesh, Goa, Kerala. Tamilnadu, West Bengal.

