

Gaoligongshania megalothyrsa (Hand.-Mazz.) D.Z.Li C.J.Hsueh & N.H.Xia. *Acta Phytotax. Sin.*, 33(6): 600 (1995).

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

TYPE from China. **Basionym or Replaced Name:** *Arundinaria megalothyrsa* Hand.-Mazz., *Symb. Sin.* 7(5): 1270–1271 (1936)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: Gaoligong Shan, 1600–2200 m.,

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 137).

Derivation (Clifford & Bostock 2007): Gk *me-gas*, large; *thyrsos*, ornamental wand. Inflorescence a large open panicle resembling the ornamented staff carried in procession by the devotees of Bacchus, in Roman mythology the God of Wine.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 200 cm long, 4 mm diam., woody. Culm-internodes terete. Lateral branches suffrutescent. Branch complement one, as thick as stem. Culm-sheaths present, persistent, auriculate, with 9 mm wide auricles, setose on shoulders. Culm-sheath blade lanceolate, spreading, 4 cm long. Leaves cauline, 5 per branch. Leaf-sheaths 10 cm long, keeled, glabrous on surface. Leaf-sheath oral hairs setose, 10 mm long, dark. Leaf-sheath auricles falcate. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.5–1 cm long. Leaf-blades lanceolate, 15–30 cm long, 30–57 mm wide, light green and glaucous, discolorous with last colour beneath. Leaf-blade venation with 18 secondary veins, with obscure cross veins. Leaf-blade surface papillose, rough abaxially. Leaf-blade margins scaberrulous. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, globose, effuse, 40 cm long, 40 cm wide. Primary panicle branches 1-nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 10–40 mm long.

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 linear, subterete, 20–40 mm long, 2–3 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 4 mm long, pubescent. Floret callus pubescent. Floret callus hairs 1 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 8 mm long, chartaceous, without keels, 5 -veined. Lower glume surface scabrous, rough above. Lower glume apex attenuate. Upper glume lanceolate, 8 mm long, chartaceous, without keels, 5 -veined. Upper glume surface scabrous, rough above. Upper glume apex acuminate, awned, 1 -awned, awn 4 mm long.

Florets. Fertile lemma ovate, 18 mm long, 3 mm wide, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface puberulous. Lemma margins ciliate. Lemma apex awned, 1 -awned. Principal lemma awn 5 mm long overall. Palea 1 length of lemma, chartaceous. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2 mm long, ciliate. Anthers 3. Stigmas 3. Ovary glabrous. Caryopsis with adherent pericarp.

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

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

Garnotia acutigluma (Steud.) Ohwi. *Bot. Mag., Tokyo*, 55: 393 (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), J.F.Veldkamp, Poaceae ms (*Flora Malesiana*) (& as *G. erecta*), W.D.Clayton & N.Snow, Key to Pacific Grasses (2010).

TYPE from Japan. **Basionym or Replaced Name:** *Urachne acutigluma* Steud., *Syn. Pl. Glumac.* 1: 121 (1854)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan: 1851, *Goering sect. II. nr. 141* (HT: P-STEUD; IT: US-1866079 (fragm. ex P-STEUD)).

Recent Synonyms: *Garnotia kengii* S.L. Chen, nom nov., *Bull. Bot. Res. North-East. Forest. Univ.*, 14(2): 140 (1994).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (284, Fig. 109), C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (430), C-C Hsu, *Taiwan Grasses* (1975), H.J.Noltie, *The Grasses of Bhutan* (2000) (751, Fig. 48), H.B.Gilliland, *Grasses of Malaya* (1971) (117, Fig. 21), W.L.Wagner et al., *Manual of the Flowering Plants of Hawai'i*, Vol. 2 (1990) (1549, Pl. 229), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 787).

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);.

Derivation (Clifford & Bostock 2007): *L. acuo*, sharpen; *gluma*, husk. Glumes tapering.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or geniculately ascending, 30–75 cm long. Culm-nodes pubescent. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane or a ciliolate membrane, 0.2–1.5 mm long. Collar pilose or bearded. Leaf-blades flat or convolute, 7–20 cm long, 2–6(–8) mm wide. Leaf-blade surface hispid, hairy adaxially or on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 6–15 cm long. Primary panicle branches bearing spikelets almost to the base. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present, unequal.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret 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, falling entire. Spikelet callus pilose, base obtuse. Spikelet callus hairs 0.3–1 mm long.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–4.5 mm long, 1.1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–7 mm long. Upper glume lanceolate, 2.8–4.2 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0.7 mm long.

Florets. Fertile lemma oblong, 2.8–4.2 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma surface glabrous or pubescent, hairy at base. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn straight or flexuous, 6–15(–20) mm long overall, without a column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

n = 10 (2 refs TROPICOS).

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

Country /Province /State. **China, Eastern Asia.** China South Central, China Southeast. Nansei-Shoto, Taiwan. **Indian Subcontinent, Indo-China, Malesia.** Bangladesh, Eastern Himalaya, India. Myanmar, Thailand, Vietnam. Java, Lesser Sunda Is, Malaya, Philippines. **North-central Pacific.** Hawaii (*).

Guangdong, Guangxi. Guizhou, Yunnan. Darjeeling, Bhutan, Sikkim. Assam, Meghalaya, Nagaland. West Bengal.

Garnotia arborum Stapf ex Woodrow. *Journ. Bomb. Nat. Hist.in Cooke, Fl. Bomb.* ii.1013 (1908).

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: T: *G.M. Woodrow* 30, 1 Oct 1898, India (US-1866078).

HT: *Woodrow s.n.*, India: Western Ghats, Nandgaon (K).

Illustrations (Books): G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Fig. 270).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Pl. 18).

Derivation (Clifford & Bostock 2007): *L. arbor*, tree. Woodland species.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Annual. Culms weak, 8–20 cm long. Culm-nodes bearded. Leaf-sheaths glabrous on surface or hispid. Ligule an eciliate membrane, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 3–7 cm long, 1.5–3 mm wide, membranous. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 3–8 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, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–2.8 mm long, falling entire. Spikelet callus pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2–2.8 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous. Lower glume apex acuminate, awned, 1 -awned, awn 3–6 mm long. Upper glume lanceolate, 2–2.8 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acuminate, awned, 1 -awned, awn 3–6 mm long.

Florets. Fertile lemma oblong, 2–2.8 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 16–22 mm long overall, with a straight or slightly twisted column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Karnataka. Maharashtra.

Garnotia arundinacea Hook. f. *Fl. Brit. Ind.* vii. 243 (1996).

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: T: *Heyne s.n.*, India: Madras, Nilgiri Hills (K).

Illustrations: None found.

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

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Culms decumbent or prostrate, weak, 40–90 cm long. Culm-nodes pubescent. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, pilose on abaxial surface. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 12–20 cm long, 13–30 mm wide. Leaf-blade surface glabrous or pubescent, sparsely hairy. Leaf-blade margins glabrous or ciliate.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 15–30 cm long. Primary panicle branches 4–8 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.5–3 mm long, falling entire. Spikelet callus glabrous, base obtuse.

Glumes. Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.5–3 mm long, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate, mucronate or awned, 1 -awned, awn 0–1 mm long. Upper glume lanceolate, 2.5–3 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acuminate, mucronate or awned, 1 -awned, awn 0–1 mm long.

Florets. Fertile lemma oblong, 2.5–3 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 6–12 mm long overall, without a column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.
Kerala, Karnataka. Tamilnadu.

Garnotia cheesemanii Hack. ex Cheesem. *Trans. Linn. Soc. Ser. II.* vi. 303. (1903).

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

TYPE from Cook Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Cheeseman s.n.*, Jun 1899, Cook Islands: Rarotonga (K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Thomas Frederick Cheeseman (1846–1926) English-born New Zealand botanist.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms slender, 30–45 cm long. Culm-nodes glabrous or pubescent. Leaf-sheath oral hairs lacking or pubescent. Ligule an eciliate membrane or a ciliate membrane, 1–1.5 mm long, erose or lacerate. Leaf-blades filiform, conduplicate or involute, 10–18 cm long, 1–3.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 9–15 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 lanceolate, laterally compressed, 3–3.5 mm long, falling entire. Spikelet callus glabrous or pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–7 mm long. Upper glume lanceolate, 3–3.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–4 mm long.

Florets. Fertile lemma oblong, 3–3.5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn flexuous, with thread-like crinkled tip, 7–12 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. South-central Pacific. Cook Is.

Garnotia ciliata Merrill. *Philipp. Journ. Sc., Bot.* xiii. 130. (1918).

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: Guangdong: Lofau Shan, thin earth over boulders along streams, 900–1000 m, 25 Aug. 1917, *E.D. Merrill 10701* (HT: PNH; IT: CAS, G, NYH, UC, US-2209373).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 786).

Derivation (Clifford & Bostock 2007): *L. cilium*, eyelid; -ata, possessing. Plant hairy overall or in part.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms geniculately ascending or decumbent, 20–70 cm long, without nodal roots or rooting from lower nodes. Culm-nodes bearded. Leaf-sheaths hispid, with tubercle-based hairs. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades flat or conduplicate, 5–12 cm long, 5–8 mm wide. Leaf-blade surface hispid, hairy on both sides, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 10–20 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 lanceolate, laterally compressed, 4.5–6 mm long, falling entire. Spikelet callus glabrous or pubescent, base obtuse.

Glumes. Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4.5–6 mm long, membranous, 1-keeled, 3 -veined. Lower glume surface pilose. Lower glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–2 mm long. Upper glume lanceolate, 4.5–6 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface pilose. Upper glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–2 mm long.

Florets. Fertile lemma oblong, 4.5–6 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex lobed, 2 -fid, with lobes 0.4–0.6 mm long, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 7–10 mm long overall, with twisted column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

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

Country /Province /State. **China.** China Southeast.
Guangdong.

Garnotia courtallensis (Arn. & Nees) Thw. *Enum. Pl. Zeyl.* 363. (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 India. **Basionym or Replaced Name:** *Miquelia courtallensis* Arn. & Nees, *Gramineae* 47–48 (1841)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Herb. Wight 2346*, 1835, India: Madras: Courtallum (K?).

Recent Synonyms: *Garnotia puchiparensis* Bor, *Indian Forest Rec.*, n. s. Bot., 2: 234. (1941).

Illustrations (Books): K.M.Matthew, *Flora Palni Hills* (1996) (833, Pl 833).

Derivation (Clifford & Bostock 2007): L. *-ensis*, denoting origin. From Courtallum, Madras State, India.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 15–60 cm long. Culm-nodes pubescent. Ligule a ciliolate membrane. Leaf-blades 2–8 cm long, 2–10 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 5–10 cm long. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, linear or oblong, 0.5–2 mm long, 0.2–0.8 length of fertile spikelet.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 2.5–3 mm long, falling entire. Spikelet callus pubescent, base obtuse, attached transversely.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 0.8 length of spikelet, membranous, without keels, 3 -veined. Lower glume surface scabrous, glabrous or pilose. Lower glume apex acute, mucronate. Upper glume lanceolate, 1 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume surface scabrous, rough on veins, glabrous or pilose. Upper glume apex acute, mucronate.

Florets. Fertile lemma oblong, 2.5–3 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, flexuous or geniculate, 3–4 mm long overall, without a column or with twisted column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Hilum punctiform.
n = 10 (1 ref TROPICOS).

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

Country /Province /State. **Indian Subcontinent.** India, Sri Lanka.
Kerala, Karnataka. Tamilnadu.

Garnotia depressa J. W. Moore. *Bull. Bishop Mus., Honolulu, No. 102*, 18 (1933).

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

TYPE from Society Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Society Islands: Raiatea, Mt. Temehani, in wet moss near the "hole", February 19, 1927, altitude 450 m., J.W. Moore 632B (HT: BISH; IT: K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. broad and dwarf the growth having taken place horizontally. With spreading geniculate culms.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms decumbent or prostrate, 5–17 cm long. Culm-nodes pubescent. Leaves cauline. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Leaf-sheath oral hairs lacking or ciliate. Leaf-sheath auricles erect. Ligule an eciliate membrane. Leaf-blades ascending, flat or conduplicate or involute, 2–6 cm long, 1–2.5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 2–7 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, without rhachilla extension. Spikelets of 1 fertile floret 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, falling entire. Spikelet callus pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–3 mm long. Upper glume lanceolate, 3–4 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute or acuminate.

Florets. Fertile lemma oblong, 3–4 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, muticous or awned, 1 -awned. Principal lemma awn straight, 0–5 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. South-central Pacific. Fiji. Society Is.

Garnotia divergens Swallen. *Journ. Arn. Arb. i.* 143 (1950).

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

TYPE from Fiji Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Fiji Islands: Vanua Levu: Mathuata, summit ridge of Mt. Numbuiloa, e. of Lambasa, 500–590 m, 6 Nov. 1947, B.E. Parham 2162 (HT: US(1939272); IT: BISH, GH, K, L, LE).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *divergo*, go in different directions.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, mat forming. Rhizomes elongated. Culms decumbent or prostrate, 35–50 cm long, wiry. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1–1.6 mm long, lacerate. Leaf-blades ascending, flat or conduplicate, 5–12 cm long, 1–3 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or ovate, 5–10 cm long, 3–5 cm wide. Primary panicle branches spreading, 1–2 -nate, simple or sparsely divided, bearing spikelets almost to the base. Spikelets solitary or in pairs. Fertile spikelets pedicelled. Pedicels present, unequal.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret 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 glabrous, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma oblong, 3 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn curved, 2–3 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. Southwestern Pacific. Fiji.

Garnotia elata (Arn. ex Miq.) Janowsky. *Fedde, Repert.* xvii. 86 (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) (& as *G. schmidii*).

TYPE from India. **Basionym or Replaced Name:** *Berghausia elata* Arn. ex Miq., *Verng. Konink. Nederl. Inst.* 3(4): 32 (1851)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Wight 2600*, India (E).

Illustrations (Books): K.M.Matthew, *Flora Palni Hills* (1996) (834, Pl 834).

Derivation (Clifford & Bostock 2007): L. tall. Culms taller than those of most species of the genus.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths glabrous or woolly. Culms erect, robust, 50–150 cm long. Leaves without demarcation between sheath and blade. Leaf-sheaths without keel or keeled, outer margin hairy. Leaf-sheath oral hairs lacking or ciliate. Ligule a ciliate membrane. Leaf-blades conduplicate or involute, 20–60 cm long, 2–4 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or lanceolate, 25–90 cm long. Primary panicle branches appressed, bearing spikelets almost to the base. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4–7 mm long, falling entire. Spikelet callus pilose, base obtuse. Spikelet callus hairs 0.5–1 mm long.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–7 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 4–7 mm long, 2 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute to setaceously acuminate.

Florets. Fertile lemma oblong, 2–4 mm long, cartilaginous, dark green or dark brown, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 5–8 mm long overall, with twisted column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Kerala, Karnataka. Tamilnadu.

Garnotia exaristata Gould. *Kew Bull.* 27(3): 558 (1972).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Sri Lanka. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Gould & Cooray 13777*, 10 May 1970, Sri Lanka: Horton Plains, meadow N of Farr Inn, 2300 m (K; IT: TAES, US-2618631).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. ex*, without; *arista*, bristle; *-ata*, possessing. Lemmas awnless or almost so.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths woolly. Culms 90–150 cm long. Leaves without demarcation between sheath and blade. Ligule a ciliolate membrane. Leaf-blades lanceolate, 20–60 cm long, 8–15 mm wide. Leaf-blade surface glabrous, hairless except near base.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 20–40 cm long, 5 cm wide. Primary panicle branches bearing spikelets almost to the base. Panicle branches stiff. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4–5 mm long, falling entire. Spikelet callus pilose, base obtuse. Spikelet callus hairs 0.5–1 mm long.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute or acuminate. Upper glume lanceolate, 4–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute or acuminate, muticous.

Florets. Fertile lemma oblong, 4–5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acute or acuminate, muticous. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India, Sri Lanka.

Kerala. Tamilnadu.

Garnotia fergusonii Trimen. *Journ. Bot.* xxvii. 170. (1889).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

TYPE from Sri Lanka. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Ferguson s.n.*, Sri Lanka: summit of Knuckles Mountains (PDA; IT: K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of William Ferguson (1820–1887) plant collector in Sri Lanka.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial. Culms decumbent or rambling, slender, 60–120 cm long. Culm-nodes glabrous or bearded. Leaf-sheaths glabrous on surface or hispid. Leaf-sheath oral hairs bearded, 1.5–4 mm long. Ligule an eciliate membrane. Leaf-blades 5–16 cm long, 3–8 mm wide, membranous. Leaf-blade surface glabrous or hirsute, hairy on both sides.

Inflorescence. Inflorescence a panicle. Panicle open or contracted, linear to elliptic, 4–15 cm long. Primary panicle branches bearing spikelets almost to the base. Panicle branches smooth. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present, smooth.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.6–5 mm long, falling entire. Spikelet callus pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.6–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume surface glabrous or hispid. Lower glume apex acuminate, awned, 1 -awned, awn 2–5 mm long. Upper glume lanceolate, 2.6–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume surface glabrous or hispid. Upper glume apex acuminate, awned, 1 -awned, awn 2–5 mm long.

Florets. Fertile lemma oblong, 2.6–5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight or curved, ascending or reflexed, flat below, 5–9 mm long

overall, without a column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

$2n = 20$ (1 ref TROPICOS).

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

Country /Province /State. **Indian Subcontinent.** Sri Lanka.

Karnataka. Tamilnadu.

Garnotia foliosa Swallen. *Journ. Arn. Arb.* i. 142 (1950).

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

TYPE from Fiji. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Fiji: Vanuja Levu: Mathuata, summit ridge of Mt. Numbuiloa, e. of Lambasa, in dense crest forest, 500–590 m, 6 Nov. 1947, A.C. Smith 6520 (HT: US(1939273); IT: BISH, GH, K).

Illustrations: None found.

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

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms slender, 60–90 cm long. Culm-nodes glabrous or pubescent. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5 mm long, erose. Leaf-blades 5–20 cm long, 6–12 mm wide. Leaf-blade surface hirsute, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 15–35 cm long. Primary panicle branches distant, 1 -nate, simple, 2–5 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4–4.5 mm long, falling entire. Spikelet callus glabrous or pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–4.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate, muticous or awned, 1 -awned, awn 0–3 mm long. Upper glume lanceolate, 4–4.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate, muticous or awned, 1 -awned, awn 0–3 mm long.

Florets. Fertile lemma oblong, 4–4.5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn straight, 4–9 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). **Continent.** Pacific.

Country /Province /State. **Southwestern Pacific.** Fiji.

Garnotia fuscata Thw. *Enum. Pl. Zeyl.* 363. (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Thwaites CP2756*, Sri Lanka: SAbarabamuva Prov. (PDA).

Illustrations: None found.

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

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 25–60 cm long, rooting from lower nodes. Culm-nodes glabrous. Leaf-sheaths glabrous on surface or pilose. Ligule an eciliate membrane. Leaf-blades 2–5 cm long, 2–4 mm wide. Leaf-blade surface pilose, sparsely hairy.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 2–5 cm long, bearing few spikelets. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 5 mm long, falling entire. Spikelet callus pilose, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous. Lower glume apex acuminate, muticous. Upper glume lanceolate, 5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acuminate, muticous.

Florets. Fertile lemma oblong, 5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, flat below, 10 mm long overall, with a straight or slightly twisted column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Sri Lanka.

Garnotia gracilis Swallen. *Journ. Arn. Arb.* i. 142 (1950).

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

TYPE from Fiji Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Fiji Islands: Viti Levu, Mba, slopes of Mt. Nairosa, e. flank of Mt. Evans Range, on open summit, 700–1050 m, 14 May 1947, A.C. Smith 4413 (HT: US(1939262); IT: BISH, GH, K, L).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. slender. Culms or inflorescences slender.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms decumbent or prostrate, slender, 20–45 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Ligule a ciliate membrane, 0.3–0.5 mm long. Leaf-blades spreading or reflexed, 2–6 cm long, 1.5–3 mm wide. Leaf-blade surface glabrous or hirsute, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 3–8 cm long. Primary panicle branches appressed, 1–2 -nate, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–4 mm long, falling entire. Spikelet callus glabrous, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 3–4 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute to setaceously acuminate.

Florets. Fertile lemma oblong, 3–4 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn straight or flexuous, 4–9 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. Southwestern Pacific. Fiji.

Garnotia ledermannii Pilger. *Engl. Jahrb.* lii. 171 (1914).

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

TYPE from New Guinea. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Guinea: Kaiserin-Augusta-Fluss, 1400–1500 m, Bestände bildend an hoher, tiefend nasser Felswand, Aug. 1913, *Ledermann 12521* (HT: B).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Carl Ludwig Ledermann (1875–1958) Swiss-born West African plant collector.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, slender, 30–60 cm long, rooting from lower nodes. Ligule an eciliate membrane, 0.5 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 4–8 cm long, 3–7 mm wide. Leaf-blade surface hirsute, sparsely hairy, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–10 cm long. Primary panicle branches ascending, distant, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–3.5 mm long, falling entire. Spikelet callus glabrous or pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate, muticous or mucronate. Upper glume lanceolate, 3–3.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acuminate, muticous or mucronate.

Florets. Fertile lemma oblong, 3–3.5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn straight, with thread-like crinkled tip, 7–9 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

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

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

Garnotia linearis Swallen. *Journ. Arn. Arb.* i. 143 (1950).

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

TYPE from Fiji Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Fiji Islands: Kandavu: near Ndaku Village, 14 April 1944, *B.E. Parham 2964* (HT: GH; IT: K, US-1981052).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. linea*, linen thread; *-are*, pertaining to. Leaf-blades narrow.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending or decumbent, 45–90 cm long, without nodal roots or rooting from lower nodes. Culm-nodes pubescent. Leaf-sheaths pilose. Leaf-sheath oral hairs bearded. Ligule a ciliolate membrane, 0.3–0.8 mm long. Leaf-blades 13–20 cm long, 3–6 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 15–35 cm long. Primary panicle branches distant, 1 -nate, simple, 2–5 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4–5 mm long, falling entire. Spikelet callus glabrous or pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 4–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate,

muticous or awned, 1 -awned, awn 0–7 mm long. Upper glume lanceolate, 4–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate, muticous or awned, 1 -awned, awn 0–1 mm long.

Florets. Fertile lemma oblong, 4–5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn straight or flexuous, 8–14 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. Southwestern Pacific. Fiji.

Garnotia micrantha Thw. *Enum. Pl. Zeyl.* 363 (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Thwaites CP 945*, Sri Lanka (PDA; IT: BM, GH, K, US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): Gk. *mikros*, small; *anthos*, flower. Spikelets small.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Annual. Culms geniculately ascending or decumbent, 40–80 cm long. Culm-nodes pubescent. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane, 0.4–1 mm long. Collar pubescent. Leaf-blades 7–16 cm long, 3–10 mm wide, membranous. Leaf-blade surface scaberulous, hispid, sparsely hairy, hairy adaxially or on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 6–30 cm long. Primary panicle branches 5–9 cm long, bearing spikelets almost to the base. Panicle branches flexuous, terete or angular, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–3.2 mm long, falling entire. Spikelet callus glabrous, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2–3.2 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous. Lower glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–2 mm long. Upper glume lanceolate, 2–3.2 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous. Upper glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–2 mm long.

Florets. Fertile lemma oblong, 2–3.2 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex muticous or awned, 1 -awned. Principal lemma awn straight or flexuous, 3–6 mm long overall, without a column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. Sri Lanka.

Garnotia normanii V. Prakash & S.K. Jain. *Proc. Indian Acad. Sci., B*, 88(4): 327 (1979).

TYPE from Burma. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Shan States: Khalil (CAL holo).

Illustrations: None found.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Myanmar.

Garnotia panicoides Trimen. *Journ. Bot.* xxvii. 170 (1889).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

TYPE from Sri Lanka. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Ferguson s.n.*, Sri Lanka: Western Prov.: Kalutara, Culloden Estate (PDA; IT: K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): Gk. *-oides*, resembling. Resembling *Panicum*, usually with respect to form of the inflorescence or spikelet.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial. Culms 30–90 cm long. Culm-nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades 8–16 cm long, 12–14 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 20–30 cm long. Primary panicle branches spreading, 8–12 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.4–2.8 mm long, falling entire. Spikelet callus glabrous, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.4–2.8 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute, muticous. Upper glume lanceolate, 2.4–2.8 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute, muticous.

Florets. Fertile lemma oblong, 2.4–2.8 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acute, muticous. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

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

Country /Province /State. Indian Subcontinent. Sri Lanka.

Garnotia patula (Munro) Munro ex Benth. *Fl. Hongk.* 416. (1860).

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 *G. mutica*).

TYPE from China. **Basionym or Replaced Name:** *Berghausia patula* Munro, *Proc. Amer. Acad. Arts* 4: 362 (1860)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangdong: Hong Kong, *C. Wright s.n.* (HT: ?).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (fig. 785).

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

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–165 cm long. Culm-nodes pubescent. Leaf-sheaths glabrous on surface or pubescent. Ligule a ciliate membrane, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 20–60 cm long, 5–9(–12) mm wide. Leaf-blade surface glabrous or hirsute, sparsely hairy, with simple hairs or tubercle-based hairs.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 25–45(–60) cm long. Primary panicle branches ascending or spreading, 3–15 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–5 mm long, falling entire. Spikelet callus glabrous or pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute or

acuminate, muticous or awned, 1 -awned, awn 0–7 mm long. Upper glume lanceolate, 3–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–7 mm long.

Florets. Fertile lemma oblong, 3–5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex muticous or awned, 1 -awned. Principal lemma awn straight or flexuous, 0–15 mm long overall, without a column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

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

Country /Province /State. **China.** China South Central, Hainan, China Southeast. **Indo-China, Malesia.** Cambodia, Myanmar, Thailand, Vietnam. Malaya. Fujian, Guangdong, Guangxi. Yunnan.

Garnotia polypogonoides Munro ex Oliver. *Hook. Ic. Pl. t.* 1481 (1885).

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 *G. emodii*).

TYPE from Nepal. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nepal: Wallich 8884 (K holotype).

Illustrations (Books): H.J.Noltie, *The Grasses of Bhutan* (2000) (751, Fig. 48).

Derivation (Clifford & Bostock 2007): Gk. *-oides*, resembling. Habit creeping as with some *Polygonum* species.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms slender, 30–55 cm long. Culm-nodes glabrous. Leaf-sheaths hispid, with tubercle-based hairs. Ligule an eciliate membrane, 0.2–0.5 mm long, erose. Leaf-blades flat or involute, 8–18 cm long, 3–6 mm wide. Leaf-blade surface hispid, sparsely hairy, hairy on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear or lanceolate, 8–20 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, without rhachilla extension. Spikelets of 1 fertile floret 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, falling entire. Spikelet callus bearded, base obtuse. Spikelet callus hairs 1–2 mm long.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate, awned, 1 -awned, awn 6–15 mm long. Upper glume lanceolate, 3–3.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate, awned, 1 -awned, awn 6–15 mm long.

Florets. Fertile lemma oblong, 3–3.5 mm long, cartilaginous, dark brown, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 12–26 mm long overall, with twisted column. Lateral lemma awns present, arising on apex of lobes, 1–1.5 mm long. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. **Indian Subcontinent.** Assam, Eastern Himalaya.

Bhutan, Sikkim. Assam. Uttah Pradesh.

Garnotia raiateensis J. W. Moore. *Bull. Bishop Mus., Honolulu, No.* 102, 18 (1933).

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

TYPE from Society Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Society Islands: Raiatea, Mt. Temehani, in wet moss near the "hole", February 19, 1927, altitude 450 m., *J.W. Moore 623A* (HT: BISH).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Raiatea, French Polynesia.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, mat forming. Culms decumbent or prostrate, 15–30 cm long. Culm-internodes 3–4 cm long. Culm-nodes bearded. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 3–8 cm long, 2–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 4–8 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 lanceolate, laterally compressed, 3–3.5 mm long, falling entire. Spikelet callus pilose, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–3.5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate, awned, 1 -awned, awn 1.5–3 mm long. Upper glume lanceolate, 3–3.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex emarginate or acute, muticous or mucronate.

Florets. Fertile lemma oblong, 3–3.5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn curved, 4–6 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). **Continent.** Pacific.

Country /Province /State. South-central Pacific. Society Is.

Garnotia scoparia Thw. *Enum. Pl. Zeyl.* 363. (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Thwaites CP 943*, Sri Lanka (PDA; IT: BM, GH, K, US-1064537).

Illustrations: None found.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Butt sheaths papery, dull or glossy. Culms erect, robust, 100–150 cm long. Lateral branches lacking. Leaves without demarcation between sheath and blade. Leaf-sheaths keeled, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 0.3–1 mm long. Leaf-blades flat or conduplicate or involute, 20–60 cm long, 2–6 mm wide. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, 35–70 cm long. Primary panicle branches 8–20 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–5 mm long, falling entire. Spikelet callus pubescent, base obtuse. Spikelet callus hairs 0.3–0.5 mm long.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3–5 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acute to setaceously acuminate. Upper glume lanceolate, 3–5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acute to setaceously acuminate.

Florets. Fertile lemma oblong, 3–4 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, awned, 1 -awned.

Principal lemma awn curved, spreading or recurved at base of limb, 3.5–6 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

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

Country /Province /State. **Indian Subcontinent.** Sri Lanka.

Kerala, Karnataka.

Garnotia sechellensis C. E. Hubbard & Summerhayes. *Kew Bull.* 1928, 394. (1928).

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

TYPE from Seychelles. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *P. R. Dupont s.n.*, 1912, Seychelles: Mahe (K).

Illustrations: None found.

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

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, robust, 100–170 cm long. Culm-nodes bearded. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades 15–35 cm long, 10–22 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 15–25 cm long. Primary panicle branches 5–10 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 5–6 mm long, falling entire. Spikelet callus glabrous, base obtuse.

Glumes. Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–6 mm long, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate, muticous. Upper glume lanceolate, 5–6 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acuminate, muticous.

Florets. Fertile lemma oblong, 5–6 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex entire, acute, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 1–2 mm long overall, with twisted column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

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

Country /Province /State. **Western Indian Ocean.** Seychelles.

Garnotia spadicea Ohwi. *Bull. Tokyo Sci. Mus.*, No. 18, 9 (1947).

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

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *van Steenis 8479*, 31 Jan 1937, Sumatra: Atjeh. Mt. Losir, mountain heath, 2700–2800 m (BO; IT: K, L).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *spadix*, chestnut-brown; *-ea*, pertaining to. The spikelets and/or inflorescence branches are chestnut-brown.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial. Culms erect, 25–40 cm long. Culm-nodes bearded. Leaves mostly basal. Leaf-sheaths pilose. Ligule a ciliolate membrane. Leaf-blades involute, 3–12 cm long, 8 mm wide, coriaceous, stiff.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–10 cm long, bearing few spikelets. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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

both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 5–7 mm long, falling entire. Spikelet callus pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 5–7 mm long, 1.1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute or acuminate, muticous. Upper glume lanceolate, 4.5–6.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute or acuminate, muticous.

Florets. Fertile lemma oblong, 4.5–6.5 mm long, cartilaginous, dark brown, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex awned, 1 -awned. Principal lemma awn straight, 4–5 mm long overall, without a column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

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

Country /Province /State. **Malesia.** Sumatra.

Garnotia st-johnii J. W. Moore. *Bull. Bishop Mus., Honolulu*, No. 226, 1 (1963).

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

TYPE from Society Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Society Is., Raiatea: St. John 17298 (BISH holo, US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Harold St John (1892-) United States botanist especially concerned with the Pacific region.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 40–70 cm long. Culm-nodes glabrous. Leaves mostly basal. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 0.5 mm long, erose. Leaf-blades lanceolate, 2–9 cm long, 4–8 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 6–15 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 lanceolate, laterally compressed, 3.5–4 mm long, falling entire. Spikelet callus glabrous, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acuminate, muticous or mucronate. Upper glume lanceolate, 3.5–4 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute or acuminate.

Florets. Fertile lemma oblong, 3.5–4 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, muticous or awned, 1 -awned. Principal lemma awn straight, 0–1.8 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). **Continent.** Pacific.

Country /Province /State. **South-central Pacific.** Society Is.

Garnotia stricta Brongn. *Duperr. Voy. Coq. Bot.* 133. t. 21. (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), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)* (& as *G. mindanaensis*, *G.philippensis*), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from Tahiti. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tahiti: *Duperrey* (P holo).

Recent Synonyms: *Garnotia philippinensis* Santos, *J. Arnold Arbor.* 25: 94(1944).

Illustrations (Books): E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (98, Pl. 38 as *G. mezii*), 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. erect. Inflorescence branches erect.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial, short-lived. Culms erect or geniculately ascending or decumbent, 10–60 cm long, wiry, without nodal roots or rooting from lower nodes. Culm-nodes glabrous or bearded. Ligule a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades 3–40 cm long, 2–15 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–40 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.5–5 mm long, falling entire. Spikelet callus pubescent, base obtuse.

Glumes. Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2.5–5 mm long, 1 length of spikelet, membranous, 1-keeled, 3 -veined. Lower glume lateral veins ribbed. Lower glume apex acute, muticous or awned, 1 -awned, awn 0–4 mm long. Upper glume lanceolate, 2.2–4.5 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume lateral veins ribbed. Upper glume apex acute or acuminate, muticous or awned, 1 -awned, awn 0–4 mm long.

Florets. Fertile lemma oblong, 2–4.5 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, muticous or awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 1–2 mm long overall (when straight) or 6–14 mm long overall, without a column (when straight) or with twisted column. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

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

Country /Province /State. **Arabian Peninsula, Eastern Asia.** Oman. Kazan-retto, Nansei-Shoto. **Indian Subcontinent, Indo-China, Malesia, Papuasias.** Laos, Myanmar, Thailand. Borneo, Java, Lesser Sunda Is, Moluccas, Sumatra, Sulawesi, Philippines. New Guinea West Papua (Irian Jaya). New Guinea. **Australia.** Queensland. **South-central Pacific, Northwestern Pacific.** Fiji. Society Is. Caroline Is, Marianas. Hawaii.

North.

Garnotia tenella (Arn. ex Miq.) Janowsky. *Fedde, Repert.* xvii. 86 (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)* (& as *G.fragilis*, *G.pahangensis*).

TYPE from India. **Basionym or Replaced Name:** *Berghausia tenella* Arn. ex Miq., *Anal. Bot. Ind.* 2: 22 (1851)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India:, *Wight Cat.* 2599 (?).

Illustrations (Books): K.M.Matthew, *Illustrations on the Flora of Tamilnadu Carnatic* (1982) (Pl. 872 7 873), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 786), G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Fig. 271).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Pl. 18).

Derivation (Clifford & Bostock 2007): L. slender. Culms or inflorescence branches slender.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms geniculately ascending or decumbent, 15–60(–90) cm long, without nodal roots or rooting from lower nodes. Culm-nodes bearded. Leaf-sheaths outer margin glabrous or hairy. Ligule an eciliate membrane or a ciliolate membrane, 0.3–1.5 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 3–15 cm long, 4–15 mm wide. Leaf-blade surface glabrous or hispid, hairy adaxially or on both sides.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 5–15 cm long. Primary panicle branches appressed, bearing spikelets almost to the base. Panicle branches scabrous. Spikelets in pairs or in threes. Fertile spikelets pedicelled. Pedicels present, linear, angular, scabrous.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2–4 mm long, falling entire. Spikelet callus glabrous or pubescent, base obtuse. Spikelet callus hairs 0–0.5 mm long.

Glumes. Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 2–4 mm long, 1.1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate, muticous or awned, 1 -awned, awn 0–3 mm long. Upper glume lanceolate, 2–4 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous, rough below. Upper glume apex acuminate, muticous or awned, 1 -awned, awn 0–3 mm long.

Florets. Fertile lemma oblong, 2–4 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex entire or dentate, 2 -fid, acute, awned, 1 -awned. Principal lemma awn apical or from a sinus, geniculate, 7–13 mm long overall, with twisted column. Column of lemma awn 1–3 mm long. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

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

Country /Province /State. **China.** China South Central, China Southeast. **Indian Subcontinent, Indo-China, Malesia.** Eastern Himalaya, India, Nepal. Myanmar, Thailand, Vietnam. Java, Malaya. Guangdong, Yunnan. Darjeeling, Bhutan.

Garnotia thailandica Gould. *Kew Bull.* 27(3): 533. (1972).

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

TYPE from Thailand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Thailand: Kao Soi Dao, Trang, A. F. G. Kerr 19197 (HT: K; IT: BM, K).

Illustrations: None found.

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

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Culms of moderate stature or slender, 100–150 cm long. Culm-nodes bearded. Leaf-sheaths outer margin glabrous or hairy. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.3–1 mm long. Leaf-blades 20–40 cm long, 12–20 mm wide. Leaf-blade surface pilose, hairy on both sides, with tubercle-based hairs.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, 40–80 cm long, contracted about primary branches. Primary panicle branches 8–15 cm long, bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4.6–6 mm long, falling entire. Spikelet callus bearded, base obtuse. Spikelet callus hairs 0.2–0.6 mm long.

Glumes. Glumes similar, exceeding 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, 3 -veined. Lower glume surface scabrous, rough on veins. Lower glume apex acuminate, muticous or awned, 1 -awned, awn 0–7 mm long. Upper glume lanceolate, 4.6–6 mm long, 1.3 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume surface scabrous, rough on veins. Upper glume apex acuminate, muticous or awned, 1 -awned, awn 0–7 mm long.

Florets. Fertile lemma oblong, 3.5–4.5 mm long, cartilaginous, light brown, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, 10–15 mm long overall, with twisted column. Column of lemma awn 2–3 mm long. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. **Indo-China.** Thailand.

Garnotia villosa Swallen. *Journ. Arn. Arb.* i. 143 (1950).

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

TYPE from Fiji Islands. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Fiji Islands: Viti Levu: Namosi: Mt. Korombasambasanga, *B.E. Parham 2162* (HT: GH).

Illustrations: None found.

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: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 45–60 cm long, 5–10 -noded. Culm-nodes glabrous. Leaf-sheaths hirsute. Leaf-sheath oral hairs bearded. Ligule a ciliolate membrane. Leaf-blades lanceolate, tapering towards tip, 10–16 cm long, 5–10 mm wide. Leaf-blade margins ciliate.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 15–25 cm long. Primary panicle branches appressed, 4–8 cm long, bearing spikelets almost to the base. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present, unequal, 1–6 mm long.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3.5–4 mm long, falling entire. Spikelet callus glabrous or pubescent, base obtuse.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma. Lower glume lanceolate, 3.5–4 mm long, 1 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume surface asperulous. Lower glume apex acute or acuminate, muticous or mucronate. Upper glume lanceolate, 3.5–4 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume apex acute or acuminate, muticous or mucronate.

Florets. Fertile lemma lanceolate, 3.5–4 mm long, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma margins involute, interlocking with palea keels. Lemma apex acuminate, muticous or awned, 1 -awned. Principal lemma awn straight or curved, 0–5.5 mm long overall. Palea with auriculate flaps, 1 length of lemma, cartilaginous, 2 -veined. Palea keels winged (below), narrowly winged.

Flower and Fruit. Lodicules 2, cuneate, fleshy.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. Southwestern Pacific. Fiji.

Garnotia yunnanensis B.S.Sun. *J. Yunnan Univ.* 21(2):96 (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: Menglian, roadsides among rocks, ca. 1400 m.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Yunnan Province, China.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Arundinellinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect, 20–60 cm long, 1–1.5 mm diam. Culm-nodes glabrous. Lateral branches lacking or sparse. Leaf-sheaths mostly shorter than adjacent culm internode, smooth, glabrous on surface. Ligule an eciliate membrane or a ciliolate membrane, 0.7 mm long. Leaf-blades linear, 5–13 cm long, 3–6 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 6–23 cm long. Primary panicle branches appressed, 3–4 -nate, 4–8 cm long, bearing spikelets almost to the base. Spikelets in pairs. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 3–5 mm long, falling entire.

Glumes. Glumes similar, exceeding apex of florets, thinner than fertile lemma. Lower glume lanceolate, 1 length of spikelet, membranous, 1-keeled, 3 -veined. Lower glume surface scabrous, rough on

veins. Lower glume apex obtuse, mucronate or awned, 1 -awned, awn 0.5–3 mm long. Upper glume lanceolate, 1 length of spikelet, membranous, 1-keeled. Upper glume surface scabrous, rough on veins. Upper glume apex obtuse, mucronate or awned, 1 -awned, awn 0.5–3 mm long.

Florets. Fertile lemma oblong, cartilaginous, without keel, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma margins involute, interlocking with palea keels. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, straight or geniculate, 9–11 mm long overall, without a column or with a straight or slightly twisted column. Column of lemma awn 2 mm long. Palea cartilaginous.

Distribution (TDWG). Continent. Temperate Asia.

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

Gastridium phleoides (Nees & Meyen) C. E. Hubbard. *Kew Bull.* 1954, 375 (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), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), N.Tsvelev, *Grasses of the Soviet Union* (1983).

TYPE from Chile. **Basionym or Replaced Name:** *Lachnagrostis phleoides* Nees & Meyen, *Nov. Act. Nat. Cur.* 19. *Suppl.* 1: 146 (1843). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Valparaíso: *Meyen* (B holo, LE).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 2 Pooideae (2012) (261), R.M.Phillips, F.T.E.A., *Gramineae* (1(1970):101, Fig.34), L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (96, Fig 67), G.E.Gibbs Russell et al, *Grasses of Southern Africa* (1990) (172, Fig 99), S.Phillips, *Poaceae* (Gramineae) in I.Hedberg & S.Edwards, *Flora of Ethiopia and Eritrea* (1995) (43, Fig 20), L.Boulos, *Flora of Egypt* 4 (2005) (175, Pl. 49), N.L.Bor, *Gramineae* in K.H.Rechinger, *Flora Iranica*. No. 70/30 (1970) (Tab. 48), N.L.Bor, *Gramineae* in *Flora of Iraq* (1968) (305, Pl. 110), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (221, Fig 167), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (499, Fig 97), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (2008) (269), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (241, Fig 34), 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) (677).

Derivation (Clifford & Bostock 2007): Gk. *-oides*, like. Inflorescence a spike-like panicle as for *Phleum*.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, culms solitary or caespitose. Culms erect or decumbent, 10–60 cm long. Ligule an eciliate membrane, 2–7 mm long. Leaf-blades 2.5–15 cm long, 1–4 mm wide. Leaf-blade surface scaberulous, rough on both sides.

Inflorescence. Inflorescence a panicle. Panicle spiciform, lanceolate to oblong, 5–18 cm long, 0.5–1.5 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, scaberulous, tip pyriform.

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, 5–7.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, saccate, 1.1–1.5 length of upper glume, 1 length of spikelet, membranous, 1-keeled, keeled above, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, saccate, 4–5 mm long, 3 length of adjacent fertile lemma, membranous, much thinner above, 1-keeled, keeled above, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex attenuate.

Florets. Fertile lemma oblong, 1.3–1.5 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, hairy all along. Lemma apex erose, truncate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.8 way up back of lemma, geniculate, 5–7 mm long overall, not or scarcely exerted from spikelet, with twisted column. Palea 1 length of lemma, cartilaginous, 2 -veined. Rhachilla extension 0.5 length of fertile floret, pilose.

Flower and Fruit. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum punctiform.

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

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

Country /Province /State. : GB Aliens (Ryves et al). : Portugal. : Turkey Europe. **Northern Africa, Macaronesia, Northeast Tropical Africa, East Tropical Africa, Southern Africa** (*). Algeria, Egypt, Libya, Morocco. Madeira. Eritrea, Ethiopia (inc. Eritrea), Socotra, Sudan. Kenya. Western Cape. **Caucasus, Western Asia, Arabian Peninsula.** Cyprus, Iran, Iraq, Lebanon-Syria, Palestine, Israel & Jordan, Turkey. Oman. **Australia** (*). Western Australia (*), South Australia (*), New South Wales (*), Victoria (*). **North-central Pacific. Subarctic America, Northwest USA, Southwestern USA, Southeastern USA.** Oregon. Arizona, California. South Carolina. **Southern South America.** Chile North, Chile Central, Chile South, Juan Fernandez Is.

South-West. Southern. Tablelands. Atacama. Coquimbo, Valparaiso, Santiago, O'Higgins, Maule, Biobio, La Araucania. Los Lagos.

Gastridium ventricosum (Gouan) Schinz & Thellung. *Viertelj. Nat. Ges. Zurich* 58:39 (1913).

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), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from France. **Basionym or Replaced Name:** *Agrostis ventricosa* Gouan, *Hort. Monsp.* 39, 547 [Apr-June] (1762). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: France, *Puy de St Loup*: Coll?.

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (312), T. Cope & A. Gray, *Grasses of the British Isles* (109), G.Hegi, *Flora von Mitteleuropa* 1 (1909) (as *G. lendigerum*), H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (190, Fig. 112), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 275 & 276 as *G. scabrum*), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (149, Pl. 45), 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) (1549, Pl. 229), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (184, Fig. 50).

Illustrations (Journals): *Ruizia* (13:197, Fig 21e-g (1993)).

Derivation (Clifford & Bostock 2007): *L. venter*, belly; *-osa*, abundance. Spikelets inflated.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, culms solitary or caespitose. Culms erect or decumbent, 10–60 cm long. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades 2–10 cm long, 2–4 mm wide. Leaf-blade surface scaberulous, rough on both sides.

Inflorescence. Inflorescence a panicle. Panicle spiciform, lanceolate to oblong, 2–10 cm long, 0.5–1.2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, 0.5–2 mm long, scaberulous, tip pyriform.

Fertile Spikelets. Spikelets comprising 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 3–4.8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, firmer than fertile lemma, shiny. Lower glume lanceolate, saccate, 1.3 length of upper glume, 1 length of spikelet, scarious, 1-keeled, keeled above, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, saccate, 2.25–3.5 mm long, 2–3 length of adjacent fertile lemma, scarious, much thinner above, 1-keeled, keeled above, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma orbicular, 1 mm long, cartilaginous, without keel, 5 -veined, more than 3-veined. Lemma surface glabrous or pubescent, hairy in the middle (on flanks). Lemma apex erose, truncate, muticous or awned, 1 -awned. Principal lemma awn dorsal, arising 0.8 way up back of lemma, geniculate, 0–4 mm long overall, not or scarcely exerted from spikelet, with twisted column. Palea 1 length of lemma, cartilaginous, 2 -veined.

Flower and Fruit. Anthers 3, 0.6–0.8 mm long. Caryopsis with adherent pericarp. Hilum punctiform.

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

Region. Northern Europe, Southwestern Europe, Southeastern Europe.

Country /Province /State. : Great Britain. : Balears, Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Greece, Italy, Crete, Romania, Sicily, Turkey Europe, Yugoslavia. **Northern Africa, Macaronesia.** Algeria, Libya, Morocco, Tunisia. Azores, Canary Is, Cape Verde, Madeira, Selvagens. **Caucasus, Western Asia.** Iran. **Australia (*)**, **New Zealand (*)**. Tasmania (*). New Zealand North I, New Zealand South I. **South-central Pacific, North-central Pacific.** Cook Is (*). **Northwest USA, Northeast USA, Southwestern USA, South-central USA, Mexico.** Northwest Mexico. **Western South America, Southern South America.** Peru. Juan Fernandez Is.

Baja California.

Gaudinia coarctata (Link) Th. Dur. & Schinz. *Consp. Fl. Afr.* v. 1894 845 (1895).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, T.G.Tutin et al, *Flora Europaea* 5 (1980).

TYPE from Germany. **Basionym or Replaced Name:** *Arthrostachya coarctata* Link, *Hort. Berol.* 1: 151 (1827). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Germany, Cult. at Berlin: Coll?.

Illustrations: None found.

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 15–30 cm long. Ligule an eciliate membrane. Leaf-blades 1–6.5 cm long, 0.6–4 mm wide. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, bilateral, 6–15 cm long. Rhachis fragile at the nodes, flattened. Spikelet packing broadside to rhachis. Rhachis internodes linear, falling with spikelet above. Spikelets appressed, 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 cuneate, laterally compressed, 8–10 mm long, falling entire, deciduous with accessory branch structures. Rhachilla internodes eventually visible between lemmas.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 5.5–7 mm long, 0.8–0.9 length of upper glume, herbaceous, 1-keeled, 3 -veined. Lower glume apex acute. Upper glume oblong, 6.5–9 mm long, 1.2 length of adjacent fertile lemma, herbaceous, 1-keeled, 5–7 -veined. Upper glume lateral veins ribbed. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4–6 mm long, coriaceous, much thinner on margins, keeled, lightly keeled, 7–9 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, geniculate, 10–15 mm long overall, with twisted column. Palea 0.9 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 2.5–2.75 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, oblong, 1.5 mm long. Hilum punctiform. Endosperm liquid.

$n = 7$ (1 ref TROPICOS). $2n = 14$ (2 refs TROPICOS).

Distribution (TDWG). Continent. Europe, Africa.

Region. Southwestern Europe.

Country /Province /State. Macaronesia. Azores.

Gaudinia fragilis (L.) Beauv. *Agrost.* 95. (1812).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), N.Tsvelev, *Grasses of the Soviet Union* (1983).

TYPE from Spain & Portugal. **Basionym or Replaced Name:** *Avena fragilis* L. *Sp. Pl.* 80 (1753).
T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain, Portugal: *Herb. Linn.* 43.19 (S lecto).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 2 Pooideae (2012) (252), T. Cope & A. Gray, *Grasses of the British Isles* (70), N.Feinbrun-Dothan, *Flora Palaestina* 4 (1986) (Pl. 254), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (223, Fig. 168), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (453, Fig. 88), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (162, Fig 24), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (733), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (232, Fig. 70), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (139, Fig. 36), B.Rosengurt, *Gramineas Uruguayas I* (1970).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. weak. Inflorescences readily disarticulating.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual. Culms erect or geniculately ascending, 10–33 cm long. Leaf-sheaths hirsute. Ligule an eciliate membrane, 0.5–0.7 mm long, truncate. Leaf-blades 1–6.5 cm long, 0.6–4 mm wide. Leaf-blade surface hirsute. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, bilateral, 6–15 cm long. Rhachis fragile at the nodes, flattened. Spikelet packing broadside to rhachis. Rhachis internodes linear, falling with spikelet above. Spikelets appressed, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 3–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 7–18 mm long, falling entire, deciduous with accessory branch structures. Rhachilla internodes 2–3 mm long, eventually visible between lemmas.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 3.2–5 mm long, 0.5–0.6 length of upper glume, herbaceous, 1-keeled, 3 -veined. Lower glume surface smooth or scabrous, glabrous or villous. Lower glume apex acute. Upper glume oblong, 5–10 mm long, 1.2 length of adjacent fertile lemma, herbaceous, 1-keeled, 5–7 -veined. Upper glume lateral veins ribbed. Upper glume surface smooth or scabrous, rough on veins, glabrous or villous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 4.3–8 mm long, coriaceous, much thinner on margins, keeled, lightly keeled, 7–9 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66–0.75 way up back of lemma, geniculate, 10–15 mm long overall, with twisted column. Palea 0.9 length of lemma, 2 -veined. Palea keels ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 2.5–5 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, oblong, 0.5–3 mm long. Hilum punctiform. Endosperm liquid.

$n = 7$ (2 refs TROPICOS). $2n = 14$ (2 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, Ireland. : Switzerland. : Balears, Corsica, France, Portugal, Sardinia, Spain. : Albania, Bulgaria, Italy, Crete, Sicily, Turkey Europe, Yugoslavia. Krym. **Northern Africa, Macaronesia.** Algeria, Libya, Morocco, Tunisia. Azores, Canary Is, Madeira. **Caucasus, Western Asia.** North Caucasus. East Aegean Is, Lebanon-Syria, Palestine, Israel & Jordan, Turkey. **Australia** (*). South Australia (*), Victoria (*), Tasmania (*). **Southwestern USA, Southeastern USA.** California. Alabama. **Southern South America.** Argentina Northeast.

Southern. Buenos Aires.

Gaudinia hispanica C.A. Stace & T.G. Tutin. *Bot. J. Linn. Soc.*, 76(4): 353 (1978).

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

TYPE from Spain. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Spain: near Ermito del Rocio, SW of Sevilla, Huelva, 25 May 1967, *Chater, Moore & Tutin s.n.* (HT: LTR; IT: K, SEV).

Illustrations: None found.

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, 10–25 cm long. Leaf-sheaths hirsute. Ligule an eciliate membrane. Leaf-blades 2–5 cm long, 1 mm wide. Leaf-blade surface hirsute. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, bilateral, 5–10 cm long. Rhachis fragile at the nodes, flattened. Spikelet packing broadside to rhachis. Rhachis internodes linear, falling with spikelet above. Spikelets appressed, solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 6–9 mm long, falling entire, deciduous with accessory branch structures. Rhachilla internodes sparsely hairy.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume lanceolate, 2.5 mm long, 0.5–0.6 length of upper glume, herbaceous, without keels, 3 -veined. Lower glume surface pubescent. Lower glume apex acute. Upper glume oblong, 4.5–5 mm long, 0.8 length of adjacent fertile lemma, herbaceous, without keels, 5–7 -veined. Upper glume lateral veins ribbed. Upper glume surface pubescent. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate, 5.5–6.4 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex acute, muticous. Palea 0.9 length of lemma, 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 3 mm long. Hilum punctiform. Endosperm liquid.

$n = 7$ (1 ref TROPICOS). $2n = 14$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Europe.

Region. Southwestern Europe.

Country /Province /State. : Spain.

Gaudinia maroccana Trab. ex Pirard. *Explor. Sc. Maroc., Bot.* 117 (1912).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Morocco. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Morocco, Casablanca: Coll?.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating location. From Morocco.

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Annual, caespitose, clumped loosely. Culms geniculately ascending, 8–30 cm long. Leaf-sheaths longer than adjacent culm internode, striately veined, outer margin hairy. Ligule an eciliate membrane, 1 mm long. Leaf-blades linear or lanceolate, 4–8 cm long, 3–5 mm wide. Leaf-blade surface hirsute, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous, ciliate. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence composed of racemes, embraced at base by subtending leaf. Racemes 1, single, unilateral, 4–8 cm long. Rhachis fragile at the nodes, angular. Spikelet packing broadside to rhachis, 2 -rowed. Rhachis internodes clavate, falling with spikelet above. Spikelets appressed, solitary. Fertile spikelets sessile.

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 lanceolate, laterally compressed, 10–20 mm long, falling entire, deciduous with accessory branch structures. Rhachilla internodes obscured by lemmas.

Glumes. Glumes dissimilar, shorter than spikelet, thinner than fertile lemma. Lower glume oblong, 4–5 mm long, 0.5–0.66 length of upper glume, chartaceous, much thinner on margins, 1-keeled, 5–7 -veined. Lower glume lateral veins ribbed. Lower glume surface scabrous, glabrous or villous. Lower glume apex obtuse. Upper glume oblong or obovate, 6–9 mm long, 0.8–1.1 length of adjacent fertile lemma,

chartaceous, with membranous margins, 1-keeled, 7–11 -veined. Upper glume lateral veins ribbed. Upper glume surface scabrous, glabrous or villous. Upper glume apex emarginate or obtuse.

Florets. Fertile lemma oblong, 7–8 mm long, cartilaginous, much thinner on margins, keeled, 5 -veined, more than 3-veined. Lemma surface glabrous or villous. Lemma apex acute, awned, 1 -awned. Principal lemma awn dorsal, arising 0.66 way up back of lemma, straight or curved, ascending or spreading, 2–4 mm long overall, clearly exerted from spikelet or not or scarcely exerted from spikelet. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 2.5–3 mm long. Ovary pubescent all over. Caryopsis with adherent pericarp, oblong, 2–2.2 mm long, hairy at apex. Embryo 0.33 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. Africa.

Country /Province /State. Northern Africa. Morocco.

Gelidocalamus albopubescens W.T. Lin & Z.J. Feng. *Acta Phytotax. Sin.*, 30(6): 561 (1992).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangdong: Guangning, Wuhe, 26 April 1990, Z.J. Feng 37002 (HT: SCAC).

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200–300 cm long, 80–150 mm diam., woody. Culm-internodes terete, solid, 9–28 cm long, distally pubescent. Culm-nodes pubescent. Lateral branches suffrutescent. Branch complement many (13–19). Culm-sheaths present, deciduous, pubescent, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 1 mm high, ciliolate. Culm-sheath blade linear or lanceolate, spreading or reflexed. Leaves cauline, 1 per branch. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 10–20 cm long, 15–30 mm wide. Leaf-blade venation with 14 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China Southeast.

Gelidocalamus annulatus T.H. Wen. *J. Bamboo Res.*, 7(1): 27 (1988).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Chishui: Chou Cs82525 (ZJFI holo).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 168).

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 100–250 cm long, 10–15 mm diam., woody. Culm-internodes terete, thick-walled, 20–30 cm long, distally pubescent, with tubercle-based hairs. Culm-nodes swollen. Lateral branches suffrutescent. Branch complement several or many. Culm-sheaths present, persistent, coriaceous, green and white, distinctly mottled with last colour, glabrous or hispid, with tawny hairs, glabrous on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 1 mm high, ciliolate. Culm-sheath blade linear, erect. Leaves cauline, 1–2(–4) per branch. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 16–27 cm long, 17–25 mm wide. Leaf-blade venation with 10–12 secondary veins, with distinct cross veins. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

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

Guizhou.

Gelidocalamus dongdingensis C.F. Huang & C.D. Dai. *Wuyi Sci. J.* 8: 173–176, f. 2. 1991.

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

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

Country /Province /State. **China.** China Southeast.
Fujian.

Gelidocalamus kunishii (Hayata) P.C. Keng & Wen. *J. Bamboo Res.*, 2(1): 20 (1983).

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

TYPE from China. **Basionym or Replaced Name:** *Arundinaria kunishii* Hayata, *Icon. Pl. Formosan.* 6: 136–137, f. 47 (1916)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Taiwan: Nanto Rinkihō et Rosuiko, *B. Hayata*.

Illustrations (Books): C-C Hsu, *Flora of Taiwan*, Vol 5 (1978).

Derivation (Clifford & Bostock 2007): In honor of Kunish, Japanese botanist.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 600 cm long, 20 mm diam., woody. Culm-internodes terete, thick-walled, distally glabrous. Lateral branches suffrutescent. Branch complement three. Culm-sheaths present, deciduous, purple, hairy on margins, truncate at apex, without auricles, setose on shoulders. Culm-sheath ligule ciliate. Culm-sheath blade triangular, 5 cm long, 4 mm wide, acuminate. Leaves cauline, 3–10 per branch. Leaf-sheaths 5–10 cm long. Leaf-sheath oral hairs setose, erect or curly. Ligule an eciliate membrane, 1 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5–0.7 cm long. Leaf-blades linear or lanceolate, 15–24 cm long, 20–35 mm wide. Leaf-blade venation with 14–22 secondary veins, with distinct cross veins. Leaf-blade apex acuminate. Flowering specimens unknown.

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

Country /Province /State. **China, Eastern Asia.** Taiwan.

Gelidocalamus latifolius Q.H. Dai & T. Chen. *J. Bamboo Res.*, 4(1): 53 (1985).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangxi: Rong-shui, hardwood forests on low hills, ca. 200 m, 19 Oct. 1983, *T.H. Dai et al.* 8322 (HT: GXFI).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. latus*, broad; *folium*, leaf. Leaf-blades broad or relatively broad with respect to related species.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, nodding at the tip, 100–300 cm long, 8–15 mm diam., woody. Culm-internodes terete, 30–35 cm long, distally glabrous or hispid. Culm-nodes glabrous. Lateral branches suffrutescent. Branch complement several. Culm-sheaths present, hispid, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule ciliate. Culm-sheath blade linear, scabrid. Leaves cauline. Leaf-sheaths obsolete on upper internodes. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long. Leaf-blades lanceolate or ovate, 14–22 cm long, 45–60 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex attenuate. Flowering specimens unknown.

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

Country /Province /State. **China.** China Southeast.
Guangxi.

Gelidocalamus longiinternodus T.H. Wen & S.C. Chen. *J. Bamboo Res.*, 5(2): 24 (1986).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Hunan: Jingnan, lowlands, S.C. Chen CX84517 (HT: XJFI).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 167).

Derivation (Clifford & Bostock 2007): *L. longus*, long; *inter*, between; *nodus*, knot. The rhizome has long internodes.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 500 cm long, 30 mm diam., woody. Culm-internodes terete, thick-walled, 50–70 cm long, distally glabrous or hispid. Culm-nodes flush with internodes. Lateral branches suffrutescent. Culm-sheaths present, persistent, 22 cm long, 3 times as long as wide, coriaceous, hispid, with dark brown hairs, hairy on margins, without auricles, setose on shoulders. Culm-sheath ligule 2 mm high, ciliolate. Culm-sheath blade linear. Leaves cauline. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 28–40 cm long, 45–55 mm wide. Leaf-blade venation with 10–22 secondary veins, with distinct cross veins. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China Southeast.
Hunan.

Gelidocalamus monophyllus (Yi & Yang) Yang. *Nat. Sci. J. Hunan Norm. Univ.* 12:338 (1989).

Accepted by: U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from China. **Basionym or Replaced Name:** *Yushania monophylla* T.P. Yi & B.M. Yang, *J. Bamboo Res.* 5(1): 50, f. 18 (1986)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Hunan: Ningyuan Xian, 1250 m, 4 Sept. 1979, B.M. Yang 06325 (HT: Herb. Forestry School of Sichuan Province).

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Gelidocalamus multifolius B.M. Yang. *Nat. Sci. J. Hunan Norm Univ.* 9(3): 4–6, f. 2 (1986).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Hunan: Ningyuan, 12 Nov. 1984, B.M. Yang 06500 (HT: HNTC).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. multus*, many; *folium*, leaf. Culms bearing many leaves widely separated.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150 cm long, 10 mm diam., woody. Culm-internodes terete, 10–26 cm long, mid-green, distally pubescent. Culm-sheaths present, green, pubescent, hairy at the base, without auricles, setose on shoulders, shoulders with straight hairs. Culm-sheath ligule 1 mm high, purple, ciliolate. Culm-sheath blade lanceolate, reflexed, glabrous on surface. Leaves cauline, 3–5 per branch. Leaf-sheaths ribbed, glabrous on surface. Leaf-sheath oral hairs lacking. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1.5 mm long, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 8–14 cm long, 15–25 mm wide. Leaf-blade venation with 8–12 secondary veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 10–15 cm long, 5–7 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, subterete, 8–14 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Lower glume lanceolate. Upper glume lanceolate.

Florets. Fertile lemma lanceolate, chartaceous, without keel, more than 3-veined. Lemma apex acuminate. Palea 1 length of lemma. Palea keels eciliate.

Flower and Fruit. Lodicules 3, obovate, ciliate. Anthers 3. Stigmas 2. Ovary glabrous. Caryopsis obovoid, 3 mm long, grey.

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

Country /Province /State. **China.** China Southeast.
Hunan.

Gelidocalamus rutilans T.H. Wen. *J. Bamboo Res.*, 2(1): 66 (1983).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Zhejiang: Jianshan, Y.F. Chan 80608 (HT: ZJFI).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 168).

Derivation (Clifford & Bostock 2007): *L. rutilo*, make reddish. Culms and leaf-sheaths are reddish-orange when young.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 100 cm long, 3–6 mm diam., woody. Culm-internodes terete, 10–15 cm long, antrorsely scabrous, distally glabrous or pubescent. Culm-nodes pubescent. Lateral branches suffrutescent. Branch complement three or several (3–8). Culm-sheaths present, 20 cm long, red, glabrous or pubescent, with red hairs, glabrous on margins, truncate at apex or convex at apex, without auricles, glabrous on shoulders. Culm-sheath ligule 1 mm high, ciliolate. Culm-sheath blade linear, 13–22 cm long. Leaves cauline, 1 per branch. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–0.5 cm long. Leaf-blades lanceolate or oblong, 18–27 cm long, 20–30 mm wide. Leaf-blade venation with 12–16 secondary veins, with distinct cross veins. Leaf-blade margins scabrous. Leaf-blade apex acute or acuminate. Flowering specimens unknown.

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

Country /Province /State. **China.** China Southeast.
Zhejiang.

Gelidocalamus solidus C.D.Chu & C.S.Chao. *J. Nanjing Inst. Forest.*, 1984(2): 75 (1984).

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: Guangxi: Rongshui, C.D. Chu et al. (HT: NFU).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 167).

Derivation (Clifford & Bostock 2007): *L. solid*. Culms solid.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200 cm long, 10 mm diam., woody. Culm-internodes terete, solid, 33–42 cm long, distally pubescent. Culm-nodes swollen. Lateral branches suffrutescent. Branch complement several. Culm-sheaths present, persistent, hispid, with dark brown hairs, hairy on margins, auriculate, setose on shoulders, shoulders with straight hairs, shoulders with 3–5 mm long hairs. Culm-sheath ligule ciliolate. Culm-sheath blade linear or lanceolate, erect, 2.5 cm long. Leaves cauline, 1–2(–3) per branch. Leaf-sheaths longer than adjacent culm internode, pubescent. Leaf-sheath oral hairs setose. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5–1 cm long. Leaf-blades lanceolate, 12–23 cm long, 25–45 mm wide, mid-green and glaucous, discolourous with last colour beneath. Leaf-blade venation with 12–14 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.
Country /Province /State. China. China Southeast.
Guangxi.

Gelidocalamus stellatus T.H. Wen. *J. Bamboo Res.*, 1(1): 22 (1982).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Jiangxi: Chingkang Shan, P.F. Lu & H.L. Wang 81189 (HT: ZJFI).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig.166).

Derivation (Clifford & Bostock 2007): L. star-shaped. Hairs at the base of the spikelet spreading stellately at maturity.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200 cm long, 8 mm diam., woody. Culm-internodes terete, 25–30 cm long, distally glabrous. Lateral branches suffrutescent. Branch complement several or many (7–12). Culm-sheaths present, persistent, 12 cm long, 6 times as long as wide, glabrous, without auricles, setose on shoulders. Culm-sheath ligule ciliolate. Culm-sheath blade linear. Leaves cauline, 1 per branch. Leaf-sheaths obsolete on upper internodes. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 12–17 cm long, 13–22 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 12–19 cm long, 7–9 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 5–7 mm long, 1 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate. Upper glume lanceolate.

Florets. Fertile lemma lanceolate, 3 mm long, chartaceous, without keel, 5 -veined, more than 3-veined. Lemma apex acuminate. Palea 1.1 length of lemma, 2-keeled. Palea apex truncate.

Flower and Fruit. Lodicules 3, ovate. Anthers 3. Stigmas 1–2. Ovary glabrous.

2n = 48 (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China Southeast.
Hunan, Jiangxi.

Gelidocalamus subsolidus W.T. Lin & Z.J. Feng. *Guihaia*, 10(1): 18 (1990).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangdong: Xinyi, Dawuling, 1200 m, Z.J. Feng 36531 (HT: SCAC).

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 150–250 cm long, 8–10 mm diam., woody. Culm-internodes terete, solid, 12–20 cm long, distally glabrous or pubescent. Culm-nodes flush with internodes, pubescent. Lateral branches suffrutescent. Branch complement many. Culm-sheaths present, deciduous, brown, concolorous, pubescent, with white hairs, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 1 mm high, ciliolate. Culm-sheath blade linear, erect. Leaves cauline, 1–2 per branch. Leaf-sheaths 8.5–11 cm long. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 13–24 cm long, 20–35 mm wide. Leaf-blade venation with 12–14 secondary veins, with distinct cross veins. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China Southeast.
Guangdong.

Gelidocalamus tessellatus T.H. Wen & C.C. Chang. *J. Bamboo Res.*, 1(1): 24 (1982).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guigzhou: Lipo, *Chang* 78–24 (HT: ZJFI).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 169).

Derivation (Clifford & Bostock 2007): *L. tessela*, little tile; -*ata*, possessing. Pattern of veins tile-like on the leaf-sheath.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, woody. Culm-internodes terete. Lateral branches suffrutescent. Culm-sheaths present. Leaves cauline. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades oblong, 18–23 cm long, 23–30 mm wide. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Panicle open, pyramidal, 13–20 cm long, 8–14 cm wide, contracted about primary branches. Primary panicle branches bearing spikelets almost to the base. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 5–7 mm long.

Fertile Spikelets. Spikelets comprising 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, subterete, 6–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2 mm long, chartaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4 mm long, chartaceous, without keels, 5 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 4 mm long, chartaceous, without keel, 7 -veined, more than 3-veined. Palea 1 length of lemma. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, veinless. Anthers 3. Stigmas 2. Caryopsis with adherent pericarp.

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

Country /Province /State. China. China South Central, China Southeast.
Guangxi. Guizhou.

Gelidocalamus velutinus W.T. Lin. *Acta Phytotax. Sin.*, 26(3): 233 (1988).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guangdong: Yunan, Songkou, 14 Aug 1963, *S.H. Tan*, 42078 (HT: SCAC).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. velvety*. Plant in whole or in part covered with dense short hairs.

Classification. Subfamily Bambusoideae. Tribe: Arundinarieae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes elongated, leptomorph. Butt sheaths absent. Culms erect, 200–250 cm long, 5–8 mm diam., woody. Culm-internodes terete, 18–27 cm long, distally hispid. Culm-nodes pubescent. Lateral branches suffrutescent. Branch complement many (14–16). Culm-sheaths present, deciduous, hispid, hairy on margins, auriculate, with obtuse auricles, pubescent on shoulders. Culm-sheath ligule 0.5 mm high, ciliolate. Culm-sheath blade linear, spreading or reflexed. Leaves cauline, 1 per branch. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate or oblong, 14–25 cm long, 20–50 mm wide. Leaf-blade venation with 12–18 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

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

Country /Province /State. China. China Southeast.

Geochloa decora (Nees) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 324 (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 decora* Nees, *Fl. Afr. Austr.* 332 (1841). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: South Africa, Cape: Drege.

Merxmuellera decora (Nees) Conert, *Mitt. Bot. Staatssamml. Munchen.* 10: 306 (1971).

Illustrations (Books): L.K.A. Chippindall, *Grasses and Pastures of South Africa* (1955) (245, Fig.216A, as *Danthonia zeyheriana* var. *trichostachya*).

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

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths thickened and forming a bulb, woolly, persistent and investing base of culm, with fibrous dead sheaths. Culms 25–70 cm long. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades convolute, 10–20 cm long, 1–1.5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong or ovate, interrupted, 5–13 cm long. 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 cuneate, laterally compressed, 18–25 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, 15–22(–25) mm long, 1 length of upper glume, membranous, yellow or light brown, without keels, 5–7 -veined. Lower glume surface glabrous or pubescent. Lower glume apex acuminate. Upper glume lanceolate, 15–22(–25) mm long, 1.5 length of adjacent fertile lemma, membranous, yellow or light brown, without keels, 5–7 -veined. Upper glume surface glabrous or pubescent. Upper glume apex attenuate.

Florets. Fertile lemma oblong, 9–15 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent, hairy below, with a transverse fringe of hair. Lemma hairs 3 mm long. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned. Principal lemma awn from a sinus, geniculate, adnate to lemma lobes at base, 12–20 mm long overall, with twisted column. Palea keels pubescent. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, membranous, ciliate. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

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

Geochloa lupulina (L.f.) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 324 (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:** *Avena lupulina* Thunb., *Prodr. Pl. Cap.* 23 (1794)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Thunberg s.n.*, South Africa, Cape of Good Hope (lecto UPS 2604, iso S).

Merxmuellera lupulina (L.f.) Conert, *Mitt. Bot. Staatssamml. Munchen.* 10: 306 (1971).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. lupus*, wolf; *-ula*, diminutive; *-ina*, belonging to.

Classification. Subfamily Danthonioideae. Tribe: Danthonieae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths thickened and forming a bulb, woolly, persistent and investing base of culm. Culms 40 cm long. Ligule a fringe of hairs. Leaf-blades 7.5–15 cm long, 2–3 mm wide.

Inflorescence. Inflorescence a panicle. Panicle capitate, ovate or globose, 2–3.5 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 2–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the

upper sterile. Spikelets cuneate, laterally compressed, 7–10 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, 7–10 mm long, 1 length of upper glume, membranous, without keels, 1(–3) -veined. Lower glume apex obtuse. Upper glume lanceolate, 7–10 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 1(–3) -veined. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 6–8 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent, hairy below, with a transverse row of hair tufts, bearing 6 hair tufts in all. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 1 -awned or 3 -awned. Principal lemma awn from a sinus, straight, adnate to lemma lobes at base, 4–8 mm long overall, without a column. Lateral lemma awns absent or present, arising on apex of lobes, 0–0.5 mm long. Palea keels pubescent. Palea surface pubescent or pilose, hairy on back or on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, cuneate, fleshy, ciliate. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

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

Geochloa rufa (Nees) N.P.Barker & H.P.Linder. *Ann. Mo. Bot. Gard.* 97 (3): 324 (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 rufa* Nees, *Fl. Afr. Austral. Ill.* 330 (1841)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: T: *Drege* 2559, South Africa. *Merxmüllera rufa* (Nees) Conert, *Mitt. Bot. Staatssamml. München*, 10: 306 (1971).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. reddish. Inflorescence purple to red.

Classification. Subfamily Danthonioidae. Tribe: Danthoniaceae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths thickened and forming a bulb, woolly, persistent and investing base of culm. Culms 20–40 cm long. Leaf-sheath oral hairs woolly. Ligule a fringe of hairs. Leaf-blades 10–20 cm long, 2–4.5 mm wide.

Inflorescence. Inflorescence a panicle. Panicle capitate, ovate, 3–7 cm long, 1.5–3 cm wide. 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 cuneate, laterally compressed, 10–18 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, 10–18 mm long, 1 length of upper glume, membranous, without keels, 3–5 -veined. Lower glume apex acuminate. Upper glume lanceolate, 10–18 mm long, 1.5 length of adjacent fertile lemma, membranous, without keels, 3–5 -veined. Upper glume apex acuminate.

Florets. Fertile lemma oblong, 7–12 mm long, chartaceous, without keel, 9 -veined, more than 3-veined. Lemma surface pubescent, hairy below, with a transverse fringe of hair. Lemma apex lobed, 2 -fid, incised 0.5 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, 6–12 mm long overall, with twisted column. Lateral lemma awns present, 1 mm long. Palea keels ciliate. Palea surface pilose, hairy on flanks. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, oblong, membranous, ciliate. Anthers 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Africa.

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

Germainia capitata Balansa & Poitrass. *Bull. Soc. Hist. Nat. Toul.* vii. 344 (1873).

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)*.

TYPE from Vietnam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Vietnam, Saigon: *Germain*.

Illustrations (Books): E.E.Henty, *A Manual of the Grasses of New Guinea* (1969) (99, Pl. 39), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002), J.C.Tothill, & J.B.Hacker. *The grasses of southern Queensland* (1983) (250), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 838).

Derivation (Clifford & Bostock 2007): *L. caput*, head; *-ata*, possessing. Inflorescence condensed to a sphere-like structure.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous or pubescent or woolly. Culms erect, 30–90 cm long, 3–5 -noded. Lateral branches lacking. Ligule a ciliolate membrane, 1–1.5 mm long. Leaf-blades flat or involute, 7–38 cm long, 3–9 mm wide. Leaf-blade surface glabrous or pubescent. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, erect, oblong, 2–3.5 cm long, bearing few fertile spikelets, bearing 3–7 fertile spikelets on each. Rhachis obsolete (raceme capitate). Spikelets in pairs. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, 5–7 mm long.

Sterile Spikelets. Basal sterile spikelets well-developed, 1–4 in number, forming an involucre about the fertile, subsessile, male, 16–23 mm long, larger than fertile. Basal sterile spikelet glumes coriaceous, glabrous or pilose.

Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 16–23 mm long, longer than fertile, persistent. Companion sterile spikelet glumes coriaceous, 7–9 -veined, glabrous or pilose, entire or dentate, emarginate, 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, subterete, 8–11 mm long, falling entire. Spikelet callus oblong, 1–1.3 mm long, base pungent, attached obliquely.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 8–11 mm long, 1.2 length of upper glume, 1 length of spikelet, chartaceous, without keels, 3 -veined. Lower glume apex truncate or obtuse. Upper glume lanceolate, 7–9 mm long, chartaceous, without keels, 3 -veined. Upper glume apex truncate or obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 60–90 mm long overall, with twisted column. Column of lemma awn 40–60 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 2.

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

Country /Province /State. **China.** China South Central, China Southeast. **Indo-China, Malesia, Papuasia.** Laos, Thailand, Vietnam. New Guinea West Papua (Irian Jaya). New Guinea. **Australia.** Queensland.

Guangdong, Yunnan. North.

Germainia grandiflora (S. T. Blake) Chaianan. *Thai Forest Bull., Bot.*, 6: 44 (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. **Basionym or Replaced Name:** *Sclerandrium grandiflorum* S. T. Blake, *Austral. Journ. Bot.* 2: 108 (1954). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia, Hayes Creek: *Blake 16405*.

Illustrations (Books): D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Derivation (Clifford & Bostock 2007): *L. grandis*, large; *flos*, flower. Spikelets with more florets than those of related species.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous. Culms 50–100 cm long, 4–5 -noded. Lateral branches lacking. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs bearded.

Ligule a ciliate membrane, 0.5–1 mm long. Leaf-blades erect, 7–30 cm long, 2–5 mm wide. Leaf-blade surface scabrous, glabrous or pubescent.

Inflorescence. Inflorescence composed of racemes. Racemes 2–4, paired or digitate, erect, linear, 3.5–7 cm long, bearing many spikelets, bearing 10–15 fertile spikelets on each. Rhachis tough, angular, ciliate on margins. Rhachis internodes linear, 3 mm long. Spikelets in pairs. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, 1.7–2 mm long, pubescent.

Sterile Spikelets. Basal sterile spikelets absent or well-developed, 2 in number, subsessile, larger than fertile. Basal sterile spikelet glumes coriaceous.

Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 6.5–12 mm long, longer than fertile, persistent. Companion sterile spikelet glumes coriaceous, 7 -veined (lower), pubescent (at apex), erose, truncate, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes, 6–12 mm long, entire or dentate, muticous or 1-awned, with 0–2.5 mm long awn.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, subterete, 4–7 mm long, falling entire. Spikelet callus linear, 0.5–1 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs red.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 4–7 mm long, 1.2 length of upper glume, 1 length of spikelet, coriaceous, without keels, 3–5 -veined. Lower glume apex truncate or obtuse. Upper glume oblong, 3–6 mm long, coriaceous, without keels, 3 -veined. Upper glume apex truncate or obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3.5–4.8 mm long, hyaline, truncate. Fertile lemma hyaline, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 25–53 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 2, 4.5 mm long.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. Australia. Northern Territory, Queensland. North.

Germainia khasyana Hack. *Oest. Bot. Zeitschr.* 41: 50 (1891).

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

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Khasia, Pooriung: Clarke 42558 (K iso) ; India, Khasia, Nartung: Clarke 44830 (K iso).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating location. From the Khasia Hills, India.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Perennial. Butt sheaths glabrous. Culms 25–40 cm long, 10–20 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades lanceolate, 2.5–4 cm long, 2–3 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, oblong, 1–1.5 cm long, bearing few fertile spikelets, bearing (2–)3(–4) fertile spikelets on each. Rhachis obsolete (raceme capitate). Spikelets in pairs. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, 2.5–4 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 15–17 mm long, longer than fertile, persistent. Companion sterile spikelet glumes coriaceous, 7–9 -veined (lower), entire, emarginate or truncate, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes, 14 mm long, entire, 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, subterete, 6 mm long, falling entire. Spikelet callus linear, 1–1.2 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs red, 1.5 mm long.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 6 mm long, 1.2 length of upper glume, 1 length of spikelet, coriaceous, without keels, 0–5 -veined. Lower glume apex truncate. Upper glume oblong, 5 mm long, coriaceous, without keels, 0–3 -veined. Upper glume primary vein absent or distinct. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2.5–3 mm long, hyaline, entire or lobed, 2 -fid, truncate. Fertile lemma hyaline, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 35–55 mm long overall, with twisted column. Column of lemma awn 25–40 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Lodicles absent. Anthers 2. Caryopsis with adherent pericarp, 3.2 mm long.
 $n = 7$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Myanmar, Thailand. Meghalaya.

Germainia lanipes Hook. f. *Fl. Brit. Ind.* 8: 163. (1896).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.L.Bor, *Grasses of Burma, Ceylon, India and Pakistan* (1960).

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Tenasserim: Helfer (K holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): leaf-sheaths woolly at the base.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Perennial. Butt sheaths woolly, with white hairs. Culms 20–45 cm long, 3–5 -noded. Ligule a fringe of hairs. Leaf-blades 20–30 cm long, 2–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 1–2, single or paired, appressed back to back, erect, oblong, 1.5–2.5 cm long, bearing few fertile spikelets, bearing 4–11 fertile spikelets on each. Rhachis obsolete (raceme capitate). Spikelets in pairs. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, 2–3 mm long.

Sterile Spikelets. Basal sterile spikelets well-developed, 2 in number, forming an involucre about the fertile, subsessile. Basal sterile spikelet glumes coriaceous.

Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 10–15 mm long, longer than fertile, persistent. Companion sterile spikelet glumes coriaceous, 7–9 -veined (lower), glabrous, entire, emarginate or truncate, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes, 9–10 mm long, entire, 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, 5–7 mm long, falling entire. Spikelet callus linear, 0.5–1 mm long, base pungent, attached obliquely.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 5–7 mm long, 1.2 length of upper glume, 1 length of spikelet, chartaceous, without keels, 3–5 -veined. Lower glume apex obtuse. Upper glume lanceolate, 5–6 mm long, chartaceous, without keels, 3 -veined. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 2.8–3.2 mm long, hyaline. Fertile lemma linear, hyaline, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 30–50 mm long overall, with twisted column. Column of lemma awn 15–25 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Lodicles absent. Anthers 2, 2 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Myanmar, Thailand.

Germainia pilosa Chaianan. *Thai Forest Bull., Bot.*, 6: 39 (1972).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Thailand. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Thailand, Sakon Nakhon: Chantana muck 224 (BFK holo, BK, K, L).

Illustrations: None found.

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: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Annual, caespitose. Butt sheaths pilose. Culms 5–15 cm long, 5–10-noded. Lateral branches ample. Leaf-sheaths pilose, with tubercle-based hairs. Ligule an eciliate membrane, 0.4–0.8 mm long. Leaf-blades lanceolate, 1–2 cm long, 2–2.5 mm wide. Leaf-blade surface pilose, with tubercle-based hairs.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, oblong, 0.6–0.7 cm long, bearing few fertile spikelets, bearing 1 fertile spikelets on each. Rhachis obsolete (raceme capitate). Spikelets in threes. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 2 in the cluster. Pedicels present, 1–1.3 mm long, ciliate, hairy above.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 4.5–6.5 mm long, longer than fertile, persistent. Companion sterile spikelet glumes chartaceous, 7–9-veined (lower), erose, truncate, muticous. Companion sterile spikelet lemmas 1, enclosed by glumes, 4–5 mm long, entire, 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, 4.5–5.5 mm long, falling entire. Spikelet callus linear, 1 mm long, pilose, base pungent, attached obliquely. Spikelet callus hairs red.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 4.5–5.5 mm long, 1.2 length of upper glume, 1 length of spikelet, membranous, without keels, 3-veined. Lower glume apex obtuse or acute. Upper glume lanceolate, 3.5–5 mm long, 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 oblong, 3 mm long, hyaline. Fertile lemma linear, hyaline, without keel, 1-veined, 0–3-veined, one-veined. Lemma apex entire, awned, 1-awned. Principal lemma awn geniculate, 30–45 mm long overall, with twisted column. Column of lemma awn 10–25 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 2, 2–3.5 mm long.

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

Country /Province /State. Indo-China. Thailand.

Germainia schmidiana A. Camus. *Bull. Mus. Hist. Nat., Paris, Ser. 2*, xxix. 186 (1957).

TYPE from Vietnam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Vietnam, Ba-Ngoi: Schmid 2349.

Illustrations: None found.

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: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Annual. Culms 70–90 cm long, 4–5 mm diam. Culm-internodes smooth, distally glabrous. Culm-nodes pubescent. Lateral branches lacking. Leaf-sheaths striately veined, smooth, pilose. Ligule an eciliate membrane. Leaf-blades erect, flat or conduplicate, 22–28 cm long, 5 mm wide, stiff. Leaf-blade midrib keeled beneath. Leaf-blade surface pilose. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Peduncle 14–15 cm long, widened at apex. Racemes 1, single, oblong, 1.8–2 cm long, bearing few fertile spikelets, bearing 1 fertile spikelets on each. Rhachis obsolete (raceme capitate). Spikelets in threes. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 2 in the cluster. Pedicels present.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 17–18 mm long, longer than fertile, persistent. Companion sterile spikelet glumes coriaceous, 17–18 mm long, inconspicuously veined, glabrous, dentate (teeth obtuse), truncate, muticous. Companion sterile spikelet lemmas 2, enclosed by glumes, 17–18 mm long, entire, 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, 11–12 mm long, falling entire. Spikelet callus linear, 1.8–2 mm long, pilose, base pungent, attached obliquely.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate, 11–12 mm long, 1 length of spikelet, coriaceous, without keels. Lower glume surface pilose. Lower glume apex obtuse. Upper glume lanceolate, coriaceous, without keels. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile florets female. Fertile lemma linear, hyaline, without keel. Lemma apex entire, awned, 1 - awned. Principal lemma awn geniculate, 60–70 mm long overall, with twisted column. Column of lemma awn hirtellous. Palea absent or minute.

Flower and Fruit. Lodicules absent.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Germainia tenax (Balansa) Chaunan. *Thai Forest Bull., Bot.*, 6: 35 (1972).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Laos. **Basionym or Replaced Name:** *Lophopogon tenax* Balansa, Morot, *Journ. de Bot.* 4: 83 (1890). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Laos, Bassao R.: Harmand 29 (K iso).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. holding firmly together, persistent. Densely tufted.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Perennial, caespitose. Stolons present. Butt sheaths glabrous. Culms 15–30 cm long. Lateral branches lacking. Leaf-sheaths glabrous on surface. Ligule a ciliate membrane, 0.5 mm long. Leaf-blades lanceolate, 2–4 cm long, 1–3 mm wide. Leaf-blade surface glabrous or pubescent, hairy adaxially.

Inflorescence. Inflorescence composed of racemes. Racemes 2(–3), paired or digitate, linear, 1–2 cm long, bearing many spikelets, bearing 6–14 fertile spikelets on each. Rhachis internodes filiform, 1 mm long. Spikelets in pairs. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, 1–2 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 3.2–4.5 mm long, longer than fertile, persistent. Companion sterile spikelet glumes chartaceous, 5(–6) - veined (lower), erose, truncate, muticous. Companion sterile spikelet lemmas 1–2, enclosed by glumes, 3.2–4.5 mm long, entire, 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, 2.5–3 mm long, falling entire. Spikelet callus brief, pilose, base obtuse. Spikelet callus hairs dark brown.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 2.2–2.7 mm long, 0.9 length of upper glume, 0.9 length of spikelet, chartaceous, without keels, 0 -veined. Lower glume lateral veins absent. Lower glume surface pilose. Lower glume hairs dark brown. Lower glume apex obtuse. Upper glume oblong, 2.5–3 mm long, chartaceous, without keels, 0 -veined. Upper glume primary vein absent. Upper glume lateral veins absent. Upper glume surface pilose. Upper glume hairs dark brown. Upper glume apex obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong or ovate, 2.2–2.7 mm long, hyaline, entire or dentate, 2 -fid, obtuse. Fertile lemma linear, hyaline, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 3–4.7 mm long overall, with twisted column. Column of lemma awn 1.9–2.5 mm long, pubescent. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 2, 2.5 mm long. Caryopsis with adherent pericarp, 1.2 mm long. Embryo 0.5 length of caryopsis.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Laos, Thailand.

Germainia thailandica (Bor) Chaianan. *Thai Forest Bull. Bot.*, 6: 37 (1972).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Thailand. **Basionym or Replaced Name:** *Chumsriella thailandica* Bor, *Dansk Bot. Arkiv*, 23: 467 (1968). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Thailand, Doi Intanon: Boongoheng 1436 (K holo, BFK, BM, AAU).

Illustrations: None found.

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

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Annual, caespitose. Lateral branches ample. Ligule a fringe of hairs. Leaf-blades 1–2 cm long, 2–3 mm wide. Leaf-blade surface pilose, densely hairy, hairy on both sides, with tubercle-based hairs.

Inflorescence. Inflorescence composed of racemes, subtended by an inflated leaf-sheath, embraced at base by subtending leaf. Racemes 2, paired, oblong, 1–1.5 cm long, bearing few fertile spikelets, bearing 3–4 fertile spikelets on each. Rhachis subterete, glabrous on margins. Spikelets in pairs. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, linear, terete, 1–1.5 mm long, tip discoid.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas, oblong, 3.5–4.5 mm long, as long as fertile, persistent. Companion sterile spikelet glumes chartaceous, distinctly veined, 7–9 -veined, dentate (3–4 teeth), truncate, muticous. Companion sterile spikelet lemmas 1–2, 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, 4–4.3 mm long, falling entire. Spikelet callus pilose, base obtuse, attached transversely.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, chartaceous, dark brown, without keels, 3 -veined. Lower glume surface pilose. Lower glume hairs yellow. Lower glume apex dentate, 2 -fid. Upper glume elliptic, 2.8–3.2 mm long, chartaceous, dark brown, without keels, 3 -veined. Upper glume surface pilose. Upper glume hairs yellow. Upper glume apex dentate, 2 -fid.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1–1.7 mm long, hyaline, 0 -veined, without midvein, without lateral veins, acute. Fertile lemma linear, 2 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, awned, 1 -awned. Principal lemma awn bigeniculate, 25–45 mm long overall, with twisted column. Column of lemma awn hirtellous. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 2. Caryopsis with adherent pericarp, ellipsoid, biconvex. Embryo 0.75 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Thailand.

Germainia thorelii A. Camus. *Bull. Mus. Hist. Nat. Paris*, xxv. 287. (1919).

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

TYPE from Laos. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Laos, Ubon: Thorel.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Clovis Thorel (1833–1911) French botanist.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Annual. Butt sheaths glabrous or pubescent. Culms slender, 30–50 cm long, 5–11 -noded. Leaf-sheaths glabrous on surface or pubescent. Ligule an eciliate membrane, 1 mm long. Leaf-blades lanceolate, 1.5–2.5 cm long, 2–3 mm wide. Leaf-blade surface scabrous, pilose, hairy adaxially.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, oblong, 1–1.3 cm long, bearing few fertile spikelets, bearing 1 fertile spikelets on each. Rhachis obsolete (raceme capitate). Spikelets in

threes. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 2 in the cluster. Pedicels present, 3–3.2 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong, dorsally compressed, 10–11 mm long, longer than fertile, persistent. Companion sterile spikelet glumes coriaceous, 7–9 -veined (lower), dentate (lateral teeth 1–3.5 mm long), truncate, muticous. Companion sterile spikelet lemmas 1, enclosed by glumes, 8–10 mm long, entire, 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. Spikelet callus linear, 2 mm long, base pungent, attached obliquely.

Glumes. Glumes similar, reaching apex of florets, firmer than fertile lemma. Lower glume lanceolate or ovate, 6–7 mm long, 1.2 length of upper glume, 1 length of spikelet, chartaceous, without keels, 3 -veined. Lower glume apex truncate or obtuse. Upper glume lanceolate or ovate, 5–6.5 mm long, chartaceous, without keels, 3 -veined. Upper glume apex truncate or obtuse.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline. Fertile lemma linear, hyaline, without keel. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 65 mm long overall, with twisted column. Column of lemma awn pubescent. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 2.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Laos, Thailand.

Germainia truncatiglumis (F. v. M. ex Benth.) Chaunan. *Thai Forest Bull., Bot.*, 6: 45 (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), J.F.Veldkamp, *Poaceae ms (Flora Malesiana)*.

TYPE from Australia. **Basionym or Replaced Name:** *Ischaemum truncatiglume* F. Muell. ex Benth., *Fl. Austral.* 7: 518 (1878). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia, Arnhem Land: *Mueller* (K iso).

Illustrations (Books): C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (303, Pl. 88, as *Sclerandrium*), J.R.Wheeler et al, *Flora of the Kimberley Region* (1992) (1175, Fig 332), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Illustrations (Journals): *Hooker's Icones Plantarum* (t.3262 (1934) as *Sclerandrium*).

Derivation (Clifford & Bostock 2007): *L. trunco*, shorten by cutting off; *gluma*, scale. The apex of the lower spikelet is truncate.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Germainiinae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths glabrous. Culms 100–150 cm long, 4–5 -noded. Lateral branches lacking. Ligule a ciliate membrane, 1–2 mm long. Leaf-blades 10–50 cm long, 2–10 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 3–6, digitate, 5–12 cm long. Rhachis angular, ciliate on margins. Spikelets in pairs. Fertile spikelets pedicelled, 1 in the cluster. Companion sterile spikelets sessile, 1 in the cluster. Pedicels present, 1–2 mm long, ciliate.

Sterile Spikelets. Companion sterile spikelets well-developed, male, elliptic, dorsally compressed, 5–6.5 mm long, longer than fertile, persistent. Companion sterile spikelet glumes coriaceous, 7 -veined, setose on margins, entire or dentate, truncate, 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, subterete, 3.2–4 mm long, falling entire. Spikelet callus cuneate, 0.5 mm long, base acute, attached obliquely.

Glumes. Glumes similar, exceeding apex of florets, firmer than fertile lemma. Lower glume lanceolate, 3.2–4 mm long, 1 length of upper glume, 1 length of spikelet, chartaceous, without keels, 3–5 -veined. Lower glume surface pilose, hairy above. Lower glume margins ciliate. Lower glume hairs white. Lower glume apex truncate. Upper glume oblong, chartaceous, without keels, 1–3 -veined. Upper glume apex truncate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile lemma linear, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma apex entire, awned, 1 -awned. Principal lemma awn geniculate, 15–25 mm long overall, with twisted column. Column of lemma awn ciliate. Palea absent or minute.

Flower and Fruit. Lodicules absent. Anthers 2.

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

Country /Province /State. **Malesia, Papuaia.** New Guinea. **Australia.** Western Australia, Northern Territory.

Kimberley, Darwin & Gulf, Victoria R & Barkly Tableland.

Gerritea pseudopetiolata F.O. Zuloaga, O. Morrone & T. Killeen. *Novon*, 3(2): 213 (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 Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bolivia, Nor Yungas: Killeen 2632 (ISC hlo, F, LPB).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (513, Fig 115).

Illustrations (Journals): *Novon* (3:214, Fig.1 (1993)).

Derivation (Clifford & Bostock 2007): Gk. *pseudos*, false; L. *petiolus*, little leg; -*ata*, possessing. Leaf-blade tapering to sheath.

Classification. Subfamily Panicoideae. Tribe: Paspaleae. Subtribe Paspalinae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm, with compacted dead sheaths or fibrous dead sheaths. Culms decumbent, 60–120 cm long. Culm-internodes terete, 4–9 cm long, mid-green or purple, distally pilose. Lateral branches ample, arising from upper culm. Leaves cauline. Leaf-sheaths 4–17 cm long, longer than adjacent culm internode, glabrous on surface or pilose, with tubercle-based hairs, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliolate membrane, 0.3–0.6 mm long, pilose on abaxial surface. Collar glabrous or pubescent. Leaf-blade base with a false petiole, petiole 1–2 cm long. Leaf-blades deciduous at the ligule, linear or lanceolate, 11–27 cm long, 7–15 mm wide. Leaf-blade surface pilose, sparsely hairy. Leaf-blade margins scaberulous, glabrous or ciliate, hairy at base. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Peduncle 5–10 cm long. Panicle open, pyramidal, effuse, 14–30 cm long, 4–12 cm wide. Primary panicle branches ascending or spreading. Panicle axis hispid. Panicle branches capillary, scabrous, hispid, pubescent in axils. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, terete, flexuous, 4–8 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, laterally compressed, compressed slightly, 1.8–2.2 mm long, 0.5 mm wide, falling entire, readily shedding fertile florets. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, reaching apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.4–1.9 mm long, 0.75–1 length of spikelet, 3 -veined. Lower glume margins tuberculately ciliate. Lower glume hairs 5–7 mm long. Lower glume apex acuminate. Upper glume lanceolate, 1.8–2 mm long, 1 length of spikelet, herbaceous, without keels, 3 -veined. Upper glume margins tuberculate, villous. Upper glume hairs 5–7 mm long. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret lanceolate, 1.6–1.7 mm long, 1 length of spikelet, membranous, 3 -veined, glabrous, acute. Palea of lower sterile floret 0.7–1 mm long. Fertile lemma elliptic, 1.3–1.5 mm long, 0.4 mm wide, membranous, pallid, without keel, 3 -veined, 0–3 -veined. Lemma margins flat. Lemma apex acute. Palea separating from lemma above, 1 length of lemma, membranous, 2 -veined.

Flower and Fruit. Lodicules 2, 0.2 mm long, truncate. Anthers 3, 0.6–0.7 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

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

Gigantochloa achmadii E.A. Widjaja. *Reinwardtia*, 10(3): 373 (1987).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: Achmad 854, 16 Jan 1919, Indonesia: Sumatra: Aceh, Simaloer (A, BRI, K, L, PNH, SING).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Achmadi (fl. 1917–20) Indonesian plant collector.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–2000 cm long, 50–90 mm diam., woody. Culm-internodes terete, 25–35 cm long, light green, distally pubescent. Lateral branches dendroid. Buds or branches absent from lower part of culm. Branch complement several, with 1 branch dominant. Culm-sheaths present, deciduous, 25–27 cm long, hispid, with dark brown hairs, auriculate, with 6 mm high auricles, ciliate on shoulders, shoulders with 2–4 mm long hairs. Culm-sheath ligule 2–3 mm high, fimbriate. Culm-sheath blade ovate, reflexed, 7–9 cm long, 10–20 mm wide. Leaf-sheath oral hairs lacking. 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, 20–30 mm wide.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in compact unilateral clumps, 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 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, 14–15 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Upper glume ovate. Upper glume margins ciliate. Upper glume hairs tawny. Upper glume apex acuminate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 10–12 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate, hairy above. Lemma hairs tawny. Lemma apex cuspidate. Palea 8–11 mm long, 12 -veined, 2-keeled. Palea keels ciliate. Palea apex entire, acute. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules 3, 2–3 mm long, ciliate. Anthers 6, 6–8 mm long, yellow, anther tip with extended connective or pubescent. Filaments united in a tube, united for 1 of their length. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa albociliata (Munro) Kurz. *For. Fl. Brit. Burma*, ii. 555 (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).

TYPE from India. **Basionym or Replaced Name:** *Oxytenanthera albociliata* Munro, *Trans. Linn. Soc. London* 26(1): 129 (1868)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Brandis 19*, Hab. in India or. Pegu ("Wapyoogle" incolis)

ST: *Falconer 27*, India: Moulmein.

Recent Synonyms: *Pseudotenanthera albociliata* (Munro) R.B. Majumdar, in S. Karthikeyan et al., *Fl. Ind. Enumerat. - Monocot.*: 280 (1989).

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. 46).

Derivation (Clifford & Bostock 2007): *L. albus*, white; *cilium*, hair; *-ata*, possessing. Invested in part or total with white hairs.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 600–1000 cm long, 12–25 mm diam., woody. Culm-internodes terete,

thick-walled, 15–38 cm long, grey, distally hispid. Lateral branches dendroid. Culm-sheaths present, 10–20 cm long, 0.66–1.3 length of internode, pubescent, with appressed hairs, with tawny hairs. Culm-sheath ligule 12–25 mm high, dentate. Culm-sheath blade lanceolate, 10–20 cm long, acuminate. Leaf-sheaths smooth. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 2 cm long. Leaf-blades lanceolate, 15–20 cm long, 12–25 mm wide. Leaf-blade venation with 12–16 secondary veins, without cross veins. Leaf-blade margins scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1–2 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, straight or curved, laterally compressed, 12–20 mm long, 5 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 1–2 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate. Upper glume margins ciliate. Upper glume hairs white. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Fertile florets increasing in size upwards. Fertile lemma elliptic, 8–10 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs white. Lemma apex acute. Palea ovate, 2-keeled but the uppermost without keels. Palea keels ciliate. Apical sterile florets 1 in number, barren.

Flower and Fruit. Lodicules absent. Anthers 6, yellow, anther tip apiculate or pubescent. Filaments united in a tube. Stigmas 2. Ovary umbonate, pubescent all over. Caryopsis with adherent pericarp, oblong.

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

Country /Province /State. China. China South Central. **Indian Subcontinent, Indo-China.** Assam, India. Laos, Myanmar, Thailand. Yunnan.

Gigantochloa albopilosa K.M. Wong. *Bamboos Penins. Malaysia (Malayan Forest Rec., 41):* 124 (1995).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Perlis, Ngulang: Wong FRI 32145 (KEP holo, K, SAN).

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Malaya.

Gigantochloa albovestita (Holtum) K.M. Wong. *Bamboos Penins. Malaysia (Malayan Forest Rec., 41):* 125 (1995).

Basionym or Replaced Name: *Gigantochloa scortechinii* var. *albovestita* Holtum in *Gard. Bull. Sing.* 16:124 (1958). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Alor Star to Pokok Sena: *Holtum K11* (K holo, SING).

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Distribution (TDWG). Continent. Tropical Asia.

Gigantochloa apus (Schult.) Kurz. *Tijdschr. Nederl. Ind.* xxvii. 226. (1864).

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

TYPE from Indonesia. **Basionym or Replaced Name:** *Bambusa apus* Schult. & Schult. f., *Syst. Veg.* 7: 1353 (1830)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *Unknown s.n.*, Indonesia: Java, Jawa Barat, Bogor (L).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7*, Bamboos (1995).

Derivation (Clifford & Bostock 2007): a contraction of *pring apus*, the vernacular name of the species in Java, Indonesia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 800–2200 cm long, 40–130 mm diam., woody. Culm-internodes terete, thick-walled, 20–60 cm long, grey, distally pruinose. Lateral branches dendroid. Buds or branches absent from lower part of culm. Branch complement several, with 1 branch dominant. Culm-sheaths present, persistent, 7–35 cm long, 1–1.3 times as long as wide, brown, hispid, with black hairs, truncate at apex, auriculate, with 1–3 mm high auricles, glabrous on shoulders or ciliate on shoulders, shoulders with 4–7 mm long hairs. Culm-sheath ligule 2–4 mm high, dentate. Culm-sheath blade triangular, deciduous, spreading or reflexed, 3–10 cm long, 20–50 mm wide, pubescent, acuminate. Leaf-sheaths outer margin hairy. Leaf-sheath auricles erect, 1–2 mm long. Ligule a ciliolate membrane, 1–2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–1.1 cm long. Leaf-blades lanceolate, 13–49 cm long, 20–90 mm wide. Leaf-blade surface glabrous or puberulous, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 13–22 mm long, 2–3 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 5–13 mm long. Upper glume apex acute, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 13–20 mm long, 4–8 mm wide, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs dark brown. Lemma apex apiculate. Palea 5–18 mm long, 8–13 -veined, 2-keeled. Palea apex acute. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 9–11 mm long, red, anther tip with extended connective or pubescent. Filaments united in a tube, united for 1 of their length. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, lanceolate, sulcate on hilar side, 12 mm long, hairy at apex.

$2n = 70$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia, South America.

Country /Province /State. Indo-China, Malesia. Myanmar. Java. Mesoamerica, Caribbean, Brazil. Costa Rica, Guatemala.

Distrito Federal. Sao Paulo.

Gigantochloa asper (Schult. & Schult. f.) Kurz. *Indian Forester* 1: 221 (1875).

TYPE from Indonesia. **Basionym or Replaced Name:** *Bambusa aspera* Schult. & Schult. f., *Syst. Veg.* 7(2): 1352–1353 (1830)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indonesia, Amboina: Coll?.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. rough. Plants with rough pedicels or leaf-blades.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–2000 cm long, 40–90 mm diam., woody. Culm-internodes terete, thin-walled, 25–45 cm long, distally pubescent. Lateral branches dendroid. Buds or branches absent from lower part of culm. Culm-sheaths present, 25 cm long, hispid, with dark brown hairs, convex at apex, auriculate, with 1–2 mm high auricles, ciliate on shoulders. Culm-sheath ligule 3–5 mm high, dentate. Culm-sheath blade lanceolate, narrower than sheath, deciduous, reflexed, 4.5–18 cm long, 20–60 mm wide, pubescent. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate, obtuse. Ligule a ciliolate membrane,

2–3 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.7–1.2 cm long. Leaf-blades lanceolate, 9–40 cm long, 15–75 mm wide, dark green or light green, discolorous with last colour beneath. Leaf-blade surface puberulous, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 15–20 mm long, 3.5–4.5 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 4–5 empty glumes, persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 15–17 mm long, chartaceous, without keel, more than 3-veined. Lemma surface puberulous, hairy above. Lemma margins ciliate, hairy above. Lemma hairs dark brown. Lemma apex acute. Palea 8–13 -veined, 2-keeled. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 8 mm long. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, 10–12 mm long, hairy at apex.

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

Country /Province /State. China, Eastern Asia. China Southeast. Taiwan. Indian Subcontinent, Indo-China, Malesia. India, Sri Lanka. Andaman Is, Myanmar, Thailand, Vietnam. Borneo, Java, Malaya.

Gigantochloa atrovioleacea E.A. Widjaja. *Reinwardtia*, 10(3): 323 (1987).

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 Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Java, Nagasari: Ramlanto (BO holo, K).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Derivation (Clifford & Bostock 2007): *L. ater*, dark; *violaceum*, violet. Culms purplish.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped loosely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 600–1200 cm long, 60–80 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, thin-walled, 40–50 cm long, purple, distally pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, 16–20 cm long, hispid, with appressed hairs, with dark brown hairs, auriculate, with 3–5 mm high auricles, ciliate on shoulders, shoulders with 3–7 mm long hairs. Culm-sheath ligule 2 mm high, dentate. Culm-sheath blade ovate, spreading or reflexed, 4–9 cm long. Leaf-sheaths pubescent, hairs white. Leaf-sheath auricles erect, 1 mm long. Ligule an eciliate membrane, 2 mm long, erose. 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, 20–28 cm long, 2–5 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acute.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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 or ovate, laterally compressed, 8–11 mm long, 3 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Upper glume ovate, 3–5 mm long. Upper glume surface pubescent. Upper glume hairs tawny. Upper glume apex acute, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 6–10 mm long, chartaceous, without keel, 8–10 -veined, more than 3-veined. Lemma apex acuminate. Palea 2-keeled. Palea apex entire, acute. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 4–5 mm long, yellow, anther tip with extended connective or pubescent. Filaments united in a tube. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Java.

Gigantochloa atter (Hassk.) Kurz. *Tijdschr. Nederl. Ind.* xxvii. 226 (1864).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. **Basionym or Replaced Name:** *Bambusa thouarsii* var. *atter* Hassk., *Pl. Jav. Rar.* 41 (1848)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Java: Kurz (K neo).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Derivation (Clifford & Bostock 2007): a contraction of awi atter the Sudanese vernacular name of the species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–2200 cm long, 50–100 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, thin-walled, 40–50 cm long, light green, distally hispid. Lateral branches dendroid. Culm-sheaths present, deciduous, 21–36 cm long, hispid, with black hairs, truncate at apex, auriculate, with 3–7 mm high auricles, ciliate on shoulders, shoulders with 4–6 mm long hairs. Culm-sheath ligule 3–6 mm high, dentate. Culm-sheath blade narrowly ovate, deciduous, reflexed. Leaf-sheath auricles erect, 1 mm long. Ligule an eciliate membrane, 2 mm long. 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 or oblong, 20–44 cm long, 30–90 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

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 or ovate, laterally compressed, 9–12 mm long, 3–4 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 3–6 mm long. Upper glume margins ciliate. Upper glume apex acute, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 6–9 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs tawny. Lemma apex acuminate. Palea 5–8 mm long, 7–10 -veined, 2-keeled. Palea keels ciliate. Palea apex entire, obtuse. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 5 mm long. Filaments united in a tube. Ovary umbonate. Caryopsis with adherent pericarp.

$2n = 70$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia, Papuasia. Borneo, Java, Philippines, Sulawesi, Sumatra. New Guinea.

Gigantochloa aya Widjaja & Astuti. *Reinwardtia* 12: 201 (2004).

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

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bangli, Panglipuran, E.A. Widjaja 7499 (BO- holotype, K - Isotype).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): From the vernacular name of the species in the Bangli District, Bali, Indonesia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500 cm long, 80–100 mm diam., woody. Culm-internodes terete, 40–45 cm long, mid-green, distally hispid. Lateral branches dendroid. Culm-sheaths present, glabrous, auriculate, with 3 mm high auricles. Culm-sheath ligule 4 mm high, entire. Culm-sheath blade triangular, as wide as sheath at base, erect. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect, 3 mm long. Ligule an eciliate membrane, 4 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades oblong, 21–35 cm long, 32–60 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–3 fertile florets, with diminished florets at 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, 10–18 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 4 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 3–10 mm long. Upper glume margins ciliate. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 13–15 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute. Palea 10–13 mm long, 2-keeled. Palea keels ciliate.

Flower and Fruit. Lodicules absent. Anthers 6, 7 mm long, brown or red, anther tip pubescent. Filaments united in a tube. Ovary pubescent on apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Lesser Sunda Is.

Gigantochloa baliana Widjaja & Astuti. *Reinwardtia* 12: 202 (2004).

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

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Bali, Botanical Garden Ekakarya, *E.A. Widjaja 7498* (BO -holotype, K - Isotype).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating connection. From Bali Island, Indonesia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000 cm long, 18–26 mm diam., woody. Culm-internodes terete, 27.5–40 cm long, glaucous, distally hispid. Lateral branches dendroid. Culm-sheaths present, glabrous, auriculate, with 2 mm high auricles. Culm-sheath ligule 2 mm high. Culm-sheath blade lanceolate, erect. Leaf-sheaths pubescent, hairs dark brown. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect, 2 mm long. Ligule an eciliate membrane, 2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades oblong, 21–40 cm long, 25–75 mm wide. Leaf-blade surface pilose, sparsely hairy, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 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, 16–18 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 5–10 mm long. Upper glume margins ciliate. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 12–15 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute. Palea 11–14 mm long, 2-keeled. Palea keels ciliate.

Flower and Fruit. Lodicules absent. Anthers 6, 6 mm long, brown or red, anther tip apiculate. Filaments united in a tube. Ovary pubescent on apex. Caryopsis with adherent pericarp, oblong, 14 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Lesser Sunda Is.

Gigantochloa balui K.M. Wong. *Forest. Dep. Occas. Pap., Brunei*, 1: 2 (1990).

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 Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Borneo: Wong 756 (K iso).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Derivation (Clifford & Bostock 2007): Bornean word for the species, and also the name of a river in Sarawak where the species is cultivated.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–1200 cm long, 60–80 mm diam., woody. Culm-internodes terete, thin-walled, 20–40 cm long, light green, distally pubescent. Lateral branches dendroid. Bud complement 1. Branch complement one or two or three. Culm-sheaths present, pubescent, with appressed hairs, with white hairs, auriculate, with 2.5 mm high auricles, ciliate on shoulders. Culm-sheath ligule 4 mm high. Culm-sheath blade lanceolate, spreading or reflexed. Leaf-sheath auricles erect, 1 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 lanceolate, glaucous. Leaf-blade surface pubescent, hairy adaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 12 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 3–5 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate. Upper glume apex cuspidate.

Florets. Fertile florets recurved at tip, increasing in size upwards. Fertile lemma ovate, 7–9 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins ciliate. Lemma hairs white. Lemma apex cuspidate. Palea 2-keeled. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate, 9–10 mm long.

Flower and Fruit. Lodicules absent. Anthers 6, 4–4.5 mm long, anther tip pubescent or with extended connective. Filaments united in a tube. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Borneo.

Gigantochloa bastareana H.B.Naithani & R.C.Pal. *Indian Forester* 136: 1276 (2010).

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Dandak Gupha, Kanger Valley Nat. Park, Bastar: Naithani 4298 (DD holo).

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 600–1000 cm long, 50 mm diam., woody. Culm-internodes terete, thick-walled, 28 cm long. Culm-nodes pubescent. Lateral branches dendroid. Bud complement 1. Branch complement one. Culm-sheaths present, 22–32 cm long, 0.5–0.66 length of internode, yellow, pilose, with tawny hairs,

auriculate, with 1–2 mm high auricles, with 20 mm wide auricles, glabrous on shoulders or ciliate on shoulders. Culm-sheath ligule 10 mm high, fimbriate. Culm-sheath blade triangular, 8–12 cm long, 40–50 mm wide, with ciliate margins. Leaf-sheaths glabrous on surface. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base broadly rounded, asymmetrical, with a brief petiole-like connection to sheath, petiole 0.2 cm long. Leaf-blades lanceolate or ovate, 5–30 cm long, 10–30 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 12–18 secondary veins, without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent.

Gigantochloa calcicola Widjaja. *Reinwardtia* 11(2): 84 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Sipirok: *Widjaja 3934* (BO holo, K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. calx*, lime; *-cola*, dweller. Growing on limestone.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, pendulous at the tip, 1000 cm long, 10–20 mm diam., woody. Culm-internodes terete, thick-walled, 20–35 cm long, mid-green or mid-green and yellow, striped (lower internodes), distally glabrous or pubescent. Lateral branches dendroid. Buds or branches absent from lower part of culm. Branch complement several. Culm-sheaths present, deciduous, hispid, with dark brown hairs, auriculate, with 2 mm high auricles, setose on shoulders, shoulders with 7 mm long hairs. Culm-sheath ligule 2 mm high, dentate. Culm-sheath blade triangular, reflexed, pubescent. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect. Ligule an eciliate membrane, 2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 17–35.5 cm long, 26–30 mm wide, fleshy. Leaf-blade surface puberulous, sparsely hairy, hairy abaxially. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malaysia. Sumatra.

Gigantochloa cochinchinensis A.Camus. *Bull. Mus. Hist. Nat. Paris*, 26: 567 (1920).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indochina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indochina: Chevalier.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. -ense*, denoting origin. From Cochinchina, now included in Laos and Cambodia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500–600 cm long, 30–40 mm diam., woody. Culm-internodes terete, thin-walled, 35 cm long. Lateral branches dendroid. Culm-sheaths present, 15 cm long, 1.5 times as long as wide, glabrous, truncate at apex. Culm-sheath blade lanceolate, 3.5 cm long, 10 mm wide. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane, 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, 11–13 cm long, 15 mm wide, glaucous. Leaf-blade venation with 8–12 secondary veins, with distinct cross veins. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins scabrous, ciliate, hairy at base. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, 7–8 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 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, 22–23 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Lower glume 2.5 mm long. Upper glume ovate, 7.5 mm long. Upper glume margins ciliate (above). Upper glume apex acuminate, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 8–10 mm long, chartaceous, without keel, 15–19 -veined, more than 3-veined. Lemma margins ciliate, hairy above. Lemma hairs tawny or purple. Lemma apex acute. Palea oblong, 2-keeled. Palea keels ciliate, adorned above. Apical sterile florets 1 in number, barren.

Flower and Fruit. Lodicules absent. Anthers 6, 6 mm long, anther tip with extended connective or pubescent. Filaments united in a tube. Stigmas 1. Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Gigantochloa compressa R. N. Parker. *Indian Forester*, liv. 98. (1928).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Myanmar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: Parker 2624, Burma

ST: Parker 2629, Burma

ST: Parker 2633, Burma

ST: Parker 2641, Burma

ST: Parker 2726, Burma.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. comprimo*, squeeze together. Culms flattened.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped loosely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1200–1800 cm long, 100 mm diam., woody. Culm-internodes terete, thin-walled, 60 cm long, mid-green, distally pruinose. Lateral branches dendroid. Culm-sheaths present, persistent, 0.5 length of internode, hispid, with black hairs, auriculate. Culm-sheath ligule ciliate. Culm-sheath blade lanceolate, reflexed. Leaf-sheaths striately veined, pubescent. Ligule a ciliolate membrane, 1–2 mm long. Collar with external ligule, pubescent. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.5 cm long. Leaf-blades lanceolate, 20–45 cm long, 35–75 mm wide, glaucous. Leaf-blade venation with 14–28 secondary veins. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex filiform, antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, pubescent on internodes, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–4 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, 20–25 mm long, 5–6 mm wide, breaking up at maturity, disarticulating above glumes but not between florets.

Glumes. Glumes several, 3–4 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate. Upper glume margins ciliate. Upper glume hairs black. Upper glume apex acute, mucronate.

Florets. Fertile lemma ovate, 15–20 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs black. Lemma apex acuminate, mucronate. Palea 15–18 mm long, 7–8 -veined, 2-keeled. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6–7, 9–13 mm long, anther tip with extended connective. Filaments united in a tube. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Myanmar.

Gigantochloa densa (E.G. & A. Camus) Nguyen To Quyen. *Bot. Zhurn.*, 75(2): 224: (1990).

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

TYPE from India. **Basionym or Replaced Name:** *Oxytenanthera thwaitesii* var. *densa* E.G. Camus, *Bambusees* 147, et Atlas pl. 91, f. C (1913)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Pierre 6661*, India: Monts Tamir, Cambodge

ST: *Lefevre 337*, Forêts entre Tay nink et Relim

ST: India: Monts Nilgiris Bababudan, Karnul, etc.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): dense. Growing in large clumps.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms 300–600 cm long, woody. Culm-internodes terete. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths striately veined, hirsute. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 5–12 cm long, 10 mm wide. Leaf-blade surface pilose, hairy adaxially. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, 2.5–3.5 cm long, 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, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, laterally compressed, 10–12 mm long, breaking up at maturity, disarticulating above glumes but not between florets.

Glumes. Glumes several, 3–4 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 2–5 mm long. Upper glume margins ciliate. Upper glume apex acute, mucronate.

Florets. Fertile lemma ovate, 9 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma apex acute, mucronate. Palea 8 mm long, without keels. Palea apex truncate.

Flower and Fruit. Lodicules absent. Anthers 6, 5 mm long, anther tip with extended connective or pubescent. Filaments united in a tube. Stigmas 1. Ovary umbonate. Caryopsis with adherent pericarp.

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

Country /Province /State. Indo-China. Cambodia, Laos, Vietnam.

Gigantochloa dinhensis (A. Camus) Nguyen To Quyen. *Bot. Zhurn.*, 75(2): 224: (1990).

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

TYPE from Indochina. **Basionym or Replaced Name:** *Oxytenanthera dinhensis* A. Camus, Lecomte, *Fl. Gen. Indo-Chine*, 7: 620 (1922). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indochina, Mt. Dinh: Pierre.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Mt Dinh, near Baria, Vietnam.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete. Lateral branches dendroid. Culm-sheaths present. Ligule an eciliate membrane, 1 mm long, 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 lanceolate, 11 cm long, 15 mm wide. Leaf-blade venation with 16–18 secondary veins. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, 1–1.5 cm long, 1–5 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 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 lanceolate, laterally compressed, 7–9 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 3–5.5 mm long. Upper glume margins ciliate. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma lanceolate or ovate, 5–7 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma apex acuminate. Palea 2-keeled but the uppermost without keels.

Flower and Fruit. Lodicules absent. Anthers 6. Filaments united in a tube. Stigmas 1. Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Gigantochloa felix (Keng) Keng f. *J. Bamboo Res.* 3(1): 24 (1984).

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:** *Oxytenanthera felix* Keng, *J. Wash. Acad. Sci.* 30(10): 425 (1940). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Yunnan: between Muang Hai and Keng Hung, riversides, valleys, 1260–1350 m, 15–17 Feb. 1922, *J.F. Rock* 2462 (HT: US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. fruit-bearing. Known in fruit.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 900 cm long, woody. Culm-internodes terete, thin-walled, 6–16 cm long. Lateral branches dendroid. Branch complement one. Culm-sheaths present, glabrous. Leaf-sheaths 12 cm long, keeled, glabrous on surface or pubescent. Ligule an eciliate membrane, 3–4 mm long. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–0.7 cm long, petiole glabrous or pubescent. Leaf-blades lanceolate, 30–45 cm long, 45–60 mm wide. Leaf-blade venation with 20–26 secondary veins, with obscure cross veins or with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scaberrulous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, 4–5 cm long, 15 cm between clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters, 250 cm long overall.

Fertile spikelets sessile.

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, 16–20 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes one the lower absent or obscure or two or several, 1–3 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 3 mm long. Lower glume lateral veins with cross-veins. Lower glume margins eciliate or ciliate. Lower glume apex acute. Upper glume ovate, 9 mm long. Upper glume lateral veins with cross-veins. Upper glume margins eciliate or ciliate. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 11–17 mm long, chartaceous, without keel, more than 3-veined. Lemma margins eciliate or ciliate, hairy above. Lemma apex acuminate, mucronate. Palea 11–15 mm long, 2-keeled but the uppermost without keels. Palea keels puberulous. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 4–7 mm long, anther tip apiculate and penicillate. Filaments united in a tube. Stigmas 1. Ovary pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Temperate Asia.

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

Gigantochloa hasskarliana (Kurz) Backer ex K. Heyne. *Nutt. Pl. Ned. Ind. ed. 2, i. 299* (1927).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. **Basionym or Replaced Name:** *Schizostachyum hasskarlianum* Kurz, *Indian Forester* 1: 352 (1876)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Java: Kurz (L lecto).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Justus Karl Hasskarl (1811–1894) German-born Dutch botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500–600 cm long, 30–50 mm diam., woody. Culm-internodes terete, thin-walled, mid-green, distally pubescent. Lateral branches dendroid. Buds or branches absent from lower part of culm. Culm-sheaths present, hairy on margins, auriculate. Culm-sheath ligule 2–4 mm high, ciliate. Culm-sheath blade lanceolate, narrower than sheath, spreading or reflexed, pubescent. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate. Ligule an eciliate membrane, entire or erose. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.5 cm long. Leaf-blades lanceolate, 15–40 cm long, 20–45 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 20–25 mm long, 4 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 20 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs dark brown. Lemma apex acute. Palea 10–12 -veined, 2-keeled. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 7 mm long, anther tip penicillate. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China, Malesia. Myanmar, Thailand. Malaya, Singapore.

Gigantochloa hayatae (A. Camus) T.Q. Nguyen. *Bot Zhurn.* 75(2): 224 (1990).

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

TYPE from Indochina. **Basionym or Replaced Name:** *Oxytenanthera hayatae* A.Camus, *Bull. Mus. Hist. Nat. Paris*, 28: 444 (1922). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indochina, Annam, Bellevue: Hayata 728.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Bunzt Hayata (1874–1934) Japanese botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete, distally pubescent. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths hirsute. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3 cm long, petiole pubescent. Leaf-blades lanceolate, 5–15 cm long, 12 mm wide. Leaf-blade venation with 10–12 secondary veins. Leaf-blade surface pubescent, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, 1–1.6 cm long, 2 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 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 lanceolate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 3–4 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 2.5–5.5 mm long. Upper glume margins ciliolate. Upper glume apex obtuse, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 7 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliolate. Lemma apex acute, mucronate. Palea 7 mm long, 2-keeled. Palea keels ciliate. Palea apex obtuse.

Flower and Fruit. Lodicules absent. Anthers 6, 4.5 mm long, anther tip apiculate. Filaments united in a tube. Stigmas 1. Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Gigantochloa hirtinoda Widjaja. *Reinwardtia*, 11(2): 86 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Tanah Putih: *Widjaja 3990* (BO holo).

Illustrations: None found.

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, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–2000 cm long, 60–80 mm diam., woody. Culm-internodes terete, thick-walled, 45–55 cm long, mid-green. Culm-nodes glabrous or pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, 17 cm long, 3 times as long as wide, hispid, with dark brown hairs, auriculate, with obtuse auricles, with 1–2 mm high auricles, setose on shoulders, shoulders with 6–9 mm long hairs. Culm-sheath ligule ciliolate. Culm-sheath blade lanceolate, narrower than sheath, reflexed, 12.5–14.5 cm long, 20–25 mm wide. Leaf-sheaths pilose, hairs tawny, outer margin hairy. Leaf-sheath oral hairs setose, 5–7 mm long. Leaf-sheath auricles falcate, 0.5–1 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 lanceolate, 17.5–32 cm long, 28–40 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 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, 14 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 2–6 mm long. Lower glume apex acuminate. Upper glume ovate, 2–6 mm long. Upper glume apex acuminate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 8–12 mm long, chartaceous, without keel, more than 3-veined. Lemma surface glabrous. Lemma apex acuminate. Palea 7–9 mm long, 2-keeled. Palea keels ciliolate. Palea apex dentate, 2-fid. Apical sterile florets 1 in number, barren (without palea), lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6 mm long, yellow. Filaments united in a tube. Stigmas 1, pubescent. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa holttumiana K.M. Wong. *Malaysian Forester*, 45(3): 346 (1982).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: K.M. Wong *KEP FRI 32245*, 26 Aug 1981, Malaysia: Malaya: Pahang: Fraser's Hill, 1189 m (L).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Richard Eric Holttum (1895–1990) English botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–1500 cm long, 30–55 mm diam., woody. Culm-internodes terete, thin-walled, 50–60 cm long, mid-green, distally pubescent. Lateral branches dendroid. Buds or branches absent from lower part of culm. Branch complement several, with 1 branch dominant. Culm-sheaths present, auriculate, with 0.5–2.5 mm high auricles, ciliate on shoulders. Culm-sheath ligule 10–25 mm high, dentate. Culm-sheath blade lanceolate, spreading or reflexed. Leaf-sheaths pubescent, hairs tawny. Leaf-sheath oral hairs ciliate, 5–12 mm long, dark. Leaf-sheath auricles erect, 1.5 mm long. Ligule a ciliate membrane, 4–8 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 15–30 cm long, 25–35 mm wide. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 12–18 mm long, 3–5 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 11–12 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins ciliolate. Lemma hairs white. Lemma apex acute. Palea 1 length of lemma, 11 -veined, 2-keeled. Palea apex obtuse. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules 3, 1.5–2 mm long, ciliate. Anthers 6, 7–8 mm long, yellow, anther tip apiculate. Filaments united in a tube, united for 1 of their length. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Malaya.

Gigantochloa hosseusii (Pilger) Nguyen To Quyen. *Bot. Zhurn.*, 75(2): 224: (1990).

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

TYPE from Thailand. **Basionym or Replaced Name:** *Oxytenanthera hosseusii* Pilger, Fedde, *Repert. Nov. Sp.* 3: 116 (1906). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Thailand, Nakontai: Hosseus 723a.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Carl Curt Hossius (1878–1950) German-born botanist and traveller who in later life lived in Argentina.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths glabrous on surface. 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 lanceolate, 13–17 cm long, 20 mm wide. Leaf-blade venation indistinct, without cross veins. Leaf-

blade surface pilose, sparsely hairy, hairy on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafy between clusters or leafless between clusters.

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 one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15–17 mm long, breaking up at maturity, disarticulating above glumes but not between florets.

Glumes. Glumes two, persistent, shorter than spikelet. Upper glume ovate. Upper glume margins ciliate. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret elliptic, 12–14 mm long, ciliate on margins, mucronate. Palea of lower sterile floret 10–12 mm long, pilose, adorned on keels. Fertile lemma lanceolate, 14–15 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate, hairy above. Lemma apex acute. Palea without keels.

Flower and Fruit. Lodicules absent. Anthers 6, anther tip with extended connective or pubescent. Filaments united in a tube. Stigmas 1. Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Laos, Vietnam.

Gigantochloa kuring Widjaja. *Reinwardtia* 11(2): 86 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Batang Hari district: *Widjaja 4075* (BO holo, K, L, US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): The vernacular name of the species in Sumatra, Indonesia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 2000–2500 cm long, 20–70 mm diam., woody. Culm-internodes terete, thick-walled, 30–50 cm long, mid-green and yellow or purple, striped, distally pruinose and pilose (when young). Lateral branches dendroid. Culm-sheaths present, persistent, 10.5–16 cm long, hispid, with appressed hairs, with black hairs, convex at apex, auriculate, with obtuse auricles, with 4 mm high auricles, setose on shoulders, shoulders with 7 mm long hairs. Culm-sheath ligule 2–3 mm high, dentate. Culm-sheath blade ovate, narrower than sheath, reflexed, 4.5–14.5 cm long, 15–35 mm wide, pubescent (sparsely). Leaf-sheath oral hairs setose, 3 mm long. Leaf-sheath auricles falcate, 1–2 mm long. Ligule a ciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 12–24 cm long, 16–22 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 10–17 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, 6–8 mm long. Lower glume margins ciliate. Lower glume hairs tawny. Lower glume apex acuminate, mucronate. Upper glume ovate, 6–8 mm long. Upper glume margins ciliate. Upper glume hairs tawny. Upper glume apex acuminate, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 9–13 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs tawny. Lemma apex acuminate. Palea 8–12 mm long, 2-keeled. Palea keels ciliate. Palea apex dentate, 2-fid. Apical sterile florets 1 in number, barren (without palea), lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 5–6 mm long, red. Filaments united in a tube. Stigmas 1, pubescent. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa latifolia Ridley. *Fl. Mal. Penins.* v. 262 (1925).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Kuala Teku: Seimund 368 (K holo).

Illustrations: None found.

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);.

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 erect, 600–900 cm long, 20–40 mm diam., woody. Culm-internodes terete, thick-walled, 20–37 cm long, distally pilose (dark brown). Lateral branches dendroid. Buds or branches absent from lower part of culm. Culm-sheaths present, 9–15 cm long, 2 times as long as wide, pilose, with dark brown hairs, convex at apex, auriculate, with 1 mm high auricles, glabrous on shoulders. Culm-sheath ligule 15 mm high, lacerate. Culm-sheath blade lanceolate, narrower than sheath, indistinctly demarcated from sheath, erect, 10–18 cm long, 40–45 mm wide. Leaf-sheath oral hairs scanty or lacking. Ligule an eciliate membrane, 3–4(–8) mm long, bilobed. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.3 cm long. Leaf-blades lanceolate, 15–27 cm long, 37–60 mm wide, glaucous. Leaf-blade surface puberulous, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, dense, with spathaceous subtending bracts, bracts 15 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 9–12 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs white. Lemma apex acute. Palea 5–11 -veined, 2-keeled. Palea keels ciliate, adorned above. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6–8 mm long. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Malaya.

Gigantochloa levis (Blanco) Merrill. *Am. Journ. Bot.* iii. 61 (1916).

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

TYPE from Philippines. **Basionym or Replaced Name:** *Bambusa levis* Blanco, *Fl. Filip.* ed. 50: 272 (1837). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Philippine Is., Luzon, Tayabas: Blanco 310 (K holo, BM, BO, L).

Recent Synonyms: *Dendrocalamus curranii* Gamble, *Philipp. Journ. Sci.* Y. 271 (1910).

Illustrations (Books): C-C Hsu, *Taiwan Grasses* (1975) (771, Pl. 1514), S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);.

Derivation (Clifford & Bostock 2007): *L. levis*, smooth. Lacking hairs or roughness, usually of leaf-blades or lemmas.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–2000 cm long, 100 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, thin-walled, 20–45 cm long, dark green, distally glabrous or pubescent. Lateral branches dendroid. Buds or branches absent from lower part of culm. Culm-sheaths present, 15–30 cm long, hispid, with dark brown hairs, truncate at apex, auriculate, with 7–12 mm high auricles, setose on shoulders, shoulders with 10–15 mm long hairs. Culm-sheath ligule 15–20 mm high, fimbriate. Culm-sheath blade lanceolate, narrower than sheath, reflexed, pubescent. Leaf-sheath oral hairs ciliate, 4 mm long. Leaf-sheath auricles erect, 7 mm long. Ligule an eciliate membrane, erose. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 15–30 cm long, 20–40 mm wide. Leaf-blade surface puberulous, hairy abaxially.

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 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, 10–15 mm long, 4 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 6–10 mm long, chartaceous, without keel, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface puberulous. Lemma margins ciliate. Lemma apex acute. Palea 5–8 -veined, 2-keeled. Palea keels ciliate. Palea surface puberulous, hairy on back or on flanks. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 4–6 mm long, anther tip penicillate. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

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

Country /Province /State. China, Eastern Asia. China South Central. Taiwan (+). Indo-China, Malesia. Vietnam. Borneo, Malaya, Philippines.

Yunnan.

Gigantochloa ligulata Gamble. *Ann. Bot. Gard. Calc.* vii. 67 (1896).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Kuala Wok: Wray 845 (K holo, CAL, L).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Derivation (Clifford & Bostock 2007): *L. ligula*, small tongue; -ata, possessing. Ligule conspicuous.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 600–900 cm long, 20–40 mm diam., woody. Culm-internodes terete, thick-walled, 20–37 cm long, mid-green or mid-green or light green, concolorous or striped, distally pilose (dark brown). Lateral branches dendroid. Buds or branches absent from lower part of culm. Culm-sheaths present, 14–22 cm long, pilose, with dark brown hairs, convex at apex, auriculate, with 1 mm high auricles, glabrous on shoulders. Culm-sheath ligule 10–20 mm high, lacerate. Culm-sheath blade lanceolate, narrower than sheath, indistinctly demarcated from sheath, erect, 10–18 cm long, 40–45 mm wide. Ligule an eciliate membrane, 20–30 mm long, bilobed. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.3 cm long. Leaf-blades lanceolate, 15–27 cm long, 37–60 mm wide. Leaf-blade surface glabrous or puberulous, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, dense, with spathaceous subtending bracts, bracts 15 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 12–15 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 9–12 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs dark brown. Lemma apex acute. Palea 5–11 -veined, 2-keeled. Palea keels ciliate, adorned above. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6–8 mm long. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China, Malesia. Thailand. Malaya, Singapore.

Gigantochloa longiprophylla Widjaja. *Reinwardtia* 11(2): 90 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Musi-Banyuasin district: *Widjaja 4081* (BO holo, K, L).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. longus*, long. Prophylls exceptionally long.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 2000 cm long, 60–80 mm diam., woody. Culm-internodes terete, thick-walled, 30–40 cm long, mid-green, distally glabrous or pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, hispid, with black hairs, concave at apex, auriculate, with obtuse auricles, with 2–3 mm high auricles, setose on shoulders, shoulders with 19 mm long hairs. Culm-sheath ligule 2 mm high, entire. Culm-sheath blade triangular, narrower than sheath, reflexed, 23.5–28.5 cm long, 4.7 mm wide, pubescent (sparsely). Leaf-sheaths puberulous. Leaf-sheath oral hairs scanty, 7–12 mm long. Leaf-sheath auricles falcate, 1 mm long. 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 lanceolate, 13–34 cm long, 18–35 mm wide. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, dense, with spathaceous subtending bracts, bracts 7–9 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–3 fertile florets, with diminished florets at 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, 7–14 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets. Floret callus pilose.

Glumes. Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 6–9 mm long. Lower glume margins ciliate. Lower glume hairs white. Lower glume apex acuminate, mucronate. Upper glume ovate, 9 mm long. Upper glume margins ciliate. Upper glume hairs white. Upper glume apex acuminate, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 10–11 mm long, chartaceous, without keel, more than 3-veined. Lemma surface glabrous. Lemma apex acuminate. Palea 8–9 mm long, 2-keeled. Palea keels eciliate. Palea apex dentate, 2 -fid. Apical sterile florets 1 in number, barren (without palea), lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6–7 mm long, yellow. Filaments united in a tube. Stigmas 1, pubescent. Ovary pubescent all over. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.
Country /Province /State. Malesia. Sumatra.

Gigantochloa luteostriata Widjaja. *Reinwardtia* 11(2): 92 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Kalimantan, Madang: *Widjaja 4834* (BO holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. luteus*, golden; *striatus*, striped. Leaves striped when young.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000 cm long, 20–50 mm diam., woody. Culm-internodes terete, thick-walled, 30–40 cm long, mid-green, distally glabrous or pubescent. Lateral branches dendroid. Culm-sheaths present, persistent, 12–12.5 cm long, hispid, with dark brown hairs or black hairs, auriculate, with obtuse auricles, with 2–3 mm high auricles, glabrous on shoulders. Culm-sheath ligule 2–2.5 mm high, entire. Culm-sheath blade lanceolate, narrower than sheath, deciduous, reflexed, 6.3–7 cm long, 12–15 mm wide, pubescent (sparsely). Leaf-sheath oral hairs ciliate, 1–2 mm long. Leaf-sheath auricles falcate, obtuse. 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 lanceolate, 12–28 cm long, 29–48 mm wide, mid-green and yellowish green, variegated (striped). Leaf-blade surface pilose, sparsely hairy, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 9–21 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 4 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 7 mm long. Lower glume apex acuminate, mucronate. Upper glume ovate, 16 mm long. Upper glume margins ciliate. Upper glume apex acuminate, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 17–21 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma apex acuminate. Palea 14–18 mm long, 2-keeled. Palea keels ciliate. Palea apex dentate, 2-fid. Apical sterile florets 1 in number, barren (without palea), lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 9 mm long, red. Filaments united in a tube. Stigmas 1, pubescent. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Borneo.

Gigantochloa macrostachya Kurz. *Journ. As. Soc. Beng.* xlii. II. 251. (1873).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Myanmar. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma, Tenasserim: Kurz (K iso).

Illustrations: None found.

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 erect, 1000–1600 cm long, 6–10 mm diam., woody. Culm-internodes terete, thin-walled, 40–80 cm long, dark green or glaucous. Culm-nodes pubescent. Lateral branches dendroid. Culm-sheaths present, 12–20 cm long, 0.5 times as long as wide, hispid, with appressed hairs, with black hairs, hairy on margins, truncate at apex, auriculate, ciliate on shoulders. Culm-sheath ligule entire or

dentate. Culm-sheath blade ovate, narrower than sheath, pubescent, acute. Leaf-sheaths keeled, pubescent. Leaf-sheath oral hairs scanty, deciduous. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 15–40 cm long, 12–15 mm wide. Leaf-blade midrib evident. Leaf-blade venation with 10–26 secondary veins. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex antrorsely scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, 5–7 cm long, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 25–50 mm long, 2.5 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 7.5–15 mm long. Upper glume surface hispid. Upper glume margins ciliate. Upper glume hairs black. Upper glume mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma lanceolate, 12–25 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute, mucronate. Palea linear, 1 length of lemma, 2-keeled. Palea keels ciliate. Apical sterile florets 1 in number, barren, rudimentary.

Flower and Fruit. Lodicules absent. Anthers 6, 10–12 mm long, purple, anther tip apiculate. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, linear, hairy at apex.

$2n = 72$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. Myanmar.

Gigantochloa magentea Widjaja. *Reinwardtia* 11(2): 94 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Kurotidur: *Widjaja 4722* (BO holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. magenteus*, magenta. Anthers magenta-colored.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 800–1000 cm long, 50–60 mm diam., woody. Culm-internodes terete, thick-walled, 35–40 cm long, mid-green. Culm-nodes glabrous or pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, 12–13 cm long, hispid, with appressed hairs, with dark brown hairs, auriculate, with obtuse auricles, with 2 mm high auricles, setose on shoulders, shoulders with 3–4 mm long hairs. Culm-sheath ligule 1–2 mm high, entire. Culm-sheath blade lanceolate, narrower than sheath, reflexed, 2.5 cm long, 8 mm wide, glabrous on surface. Leaf-sheaths pilose, hairs dark brown, outer margin hairy. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate, 0.5 mm long, obtuse. Ligule an eciliate membrane, 0.5–1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 15–25 cm long, 19–22 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters or untidy tufts, 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 3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes one the lower absent or obscure, persistent, shorter than spikelet. Upper glume ovate, 4 mm long. Upper glume margins ciliate. Upper glume hairs dark brown. Upper glume apex acuminate, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 7–10 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs dark brown. Lemma apex acuminate. Palea 5–10 mm long, 2-keeled. Palea keels eciliate. Palea apex dentate, 2 -fid. Apical sterile florets 1 in number, barren (without palea), lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 3 mm long, red. Filaments united in a tube. Stigmas 1, pubescent. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa manggong E.A. Widjaja. *Reinwardtia*, 10(3): 365 (1987).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Java, Meru Betiri: Widjaja 1793 (BO holo, K, L).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Derivation (Clifford & Bostock 2007): vernacular name for the species in Java, Indonesia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–1500 cm long, 50–70 mm diam., woody. Culm-internodes terete, thick-walled, 31–35 cm long, light green or mid-green, smooth. Lateral branches dendroid. Buds or branches absent from lower part of culm. Branch complement several, with 1 branch dominant. Culm-sheaths present, tardily deciduous, 30–33 cm long, yellow, hispid, with appressed hairs, with dark brown hairs, truncate at apex, auriculate, with 2–4 mm high auricles, glabrous on shoulders. Culm-sheath ligule 5 mm high, dentate. Culm-sheath blade triangular, deciduous, erect, 18–25 cm long, 90–110 mm wide. Leaf-sheaths deciduous, hispid. Leaf-sheath auricles erect, 1 mm long. Ligule an eciliate membrane, 1 mm long, erose. 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, 27–29 cm long, 30–40 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 7–15 mm long, 2–3 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Upper glume ovate, 5–6 mm long. Upper glume margins ciliate. Upper glume hairs 0.5–1 mm long. Upper glume apex acute, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 10–14 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acuminate. Palea 9–11 mm long, 1 length of lemma, 7–11 -veined, 2-keeled. Palea keels ciliolate. Palea apex dentate, 2 -fid. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6 mm long, red, anther tip with extended connective or pubescent. Filaments united in a tube, united for 1 of their length. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Malesia. Java.

Gigantochloa maxima (Poir.) Kurz. *Tijdschr. Nederl. Ind.* 27: 226 (1864).

TYPE from Cambodia. **Basionym or Replaced Name:** *Arundo maxima* Lour., non Forsk. (1775), *Fl. Cochinch.* 58 (1790) ; *Bambusa maxima* Poir., *Encyc.* 8: 704 (1808) . T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Arundo maxima* Lour ; Cambodia: Coll?.

Illustrations: None found.

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);.

Derivation (Clifford & Bostock 2007): *L. greatest*. Culms very tall.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–2000 cm long, 50–100 mm diam., woody. Culm-internodes terete, thick-walled, mid-green or mid-green or yellow, concolorous or striped, distally glabrous or pubescent. Lateral branches dendroid. Buds or branches absent from lower part of culm. Culm-sheaths present, 15–30 cm long, hispid, with dark brown hairs, truncate at apex, auriculate, with 2–3 mm high auricles, glabrous on shoulders. Culm-sheath ligule 3 mm high. Culm-sheath blade lanceolate, narrower than sheath, reflexed, 25 cm long, 5 mm wide. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 25 cm long, 25 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 16–18 mm long, 3–4 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 10–12 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs purple. Lemma apex acute. Palea 7–9 -veined, 2-keeled. Palea keels ciliate. Palea surface puberulous. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6–8 mm long. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

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

Country /Province /State. **Malesia.** Malaya.

Gigantochloa membranoidea Widjaja. *Reinwardtia* 11(2): 94 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Musi-Banyuasin district: *Widjaja 4085* (BO holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. membrana*, membrane; *Gk -oidea*, resembling. Apex of culm-sheath papery.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 800–1000 cm long, 30–50 mm diam., woody. Culm-internodes terete, thick-walled, 30–40 cm long, mid-green, distally pruinose (when young). Lateral branches dendroid. Culm-sheaths present, deciduous, 17 cm long, glabrous, auriculate, with obtuse auricles, with 5 mm high auricles, setose on shoulders, shoulders with 15–20 mm long hairs. Culm-sheath ligule 2 mm high, dentate. Culm-sheath blade lanceolate, narrower than sheath, erect, 10–14 cm long, 15–20 mm wide. Leaf-sheath oral hairs setose, 7 mm long. Leaf-sheath auricles falcate, 0.5 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 lanceolate, 15–29 cm long, 25–30 mm wide. Leaf-blade surface pubescent, hairy abaxially.

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 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, 10–12 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 11 mm long. Lower glume apex acuminate. Upper glume ovate, 11 mm long. Upper glume apex acuminate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 13 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acuminate. Palea 7 mm long, 2-keeled. Palea apex dentate, 2-fid. Apical sterile florets 1 in number, barren (without palea), lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6 mm long, yellow. Filaments united in a tube. Stigmas 1, pubescent. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa multiculmis A.Camus. *Bull. Soc. Bot. France*, lxxvi. 769. (1929).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Laos. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Laos, Pakse to Pakson: Poilane 16009.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. multus*, many; *culmus*, stalk. Plants densely caespitose.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000 cm long, 30 mm diam., woody. Culm-internodes terete, thin-walled, 40–50 cm long, smooth, distally glabrous. Lateral branches dendroid. Culm-sheaths present, 26–28 cm long, 1 times as long as wide, pilose. Culm-sheath blade lanceolate, 4–6 cm long, 12–15 mm wide. Leaf-sheaths striately veined, glabrous on surface or pilose. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, glaucous. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scaberrulous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 3–4 cm long, glabrous on internodes, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between branches.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, subterete, 12 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 3–4 empty glumes, persistent, similar, shorter than spikelet, shiny. Lower glume ovate, 2 mm long. Lower glume surface glabrous. Lower glume apex acute. Upper glume ovate, 7 mm long. Upper glume surface glabrous. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 9–12 mm long, chartaceous, shiny, without keel, more than 3-veined. Lemma surface glabrous. Lemma apex obtuse, mucronate. Palea 7–8 mm long, 2-keeled. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6 mm long, yellow, anther tip apiculate and penicillate. Filaments united in a tube. Stigmas 1. Ovary pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Laos.

Gigantochloa multifloscula H.N. Nguyen, N.H. Xia & V.T. Tran. *Adansonia* série 3, 34 (1): 56, f. 1–2 (2012).

TYPE from Vietnam. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Prov.Dong Nai, Cat Tien, 145 km on road Saigon to Dalat, 25.1.1953, *Schmidt 1506* (holo, P).

Illustrations (Journals): *Adansonia* (55, Fig.1, 57, Fig.2 (2012)).

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 400–800 cm long, 30–50 mm diam., woody. Culm-internodes terete, thin-walled, 20–30 cm long. Culm-nodes swollen. Lateral branches dendroid. Branch complement three, with subequal branches. Culm-sheaths present, deciduous but leaving a persistent girdle, 13–15 cm long, 1.4 times as long as wide, hispid, with appressed hairs, with dark brown hairs or black hairs, hairy on margins, auriculate, with 2 mm high auricles, with 1 mm wide auricles. Culm-sheath ligule 1–2 mm high. Culm-sheath blade triangular, erect, 8–10 cm long, 25–35 mm wide, hispid. Leaves 5 per branch. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3 cm long. Leaf-blades oblong or ovate, 24–28 cm long, 30–35 mm wide. Leaf-blade venation with 18–20 secondary veins. Leaf-blade surface pilose, hairy adaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, subterete, 10 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate or orbicular, 8–9 mm long.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate or orbicular, 8–9 mm long, 8–9 mm wide, coriaceous, without keel, 36–40 -veined, more than 3-veined. Lemma margins pilose, hairy below. Lemma apex obtuse, mucronate. Palea lanceolate or oblong, 5–7 mm long, 1 length of lemma, 2-keeled. Palea surface pilose, hairy on margins. Palea apex dentate, 2 -fid.

Flower and Fruit. Lodicules absent. Anthers 6. Filaments united in a tube. Stigmas 1, plumose. Ovary pubescent on apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Gigantochloa nigrociliata (Buse) Kurz. *Tijdschr. Nederl. Ind.* xxvii. 226 (1864).

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

TYPE from Indonesia. **Basionym or Replaced Name:** *Bambusa nigrociliata* Buse, *Miq. Pl. Jungh.* 389 (1854). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Java, Tjibeureum: Junghuhn (L holo, K).

Recent Synonyms: *Oxytenanthera nigrociliata* (Buse) Munro, *Trans. Linn. Soc.* 24: 128. (1868).

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. 46).

Derivation (Clifford & Bostock 2007): *L. niger*, black; *cilium*, hair; -*ata*, possessing. Internodes with dark hairs on the upper parts.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped loosely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–2000 cm long, 30–60 mm diam., woody. Culm-internodes terete, thin-walled, 20–35 cm long, light green, distally pubescent. Lateral branches dendroid. Culm-sheaths present, tardily deciduous, 11–18.5 cm long, hispid, with appressed hairs, with dark brown hairs, auriculate, with 2–4 mm high auricles. Culm-sheath ligule 2–3 mm high, dentate. Culm-sheath blade triangular, erect or spreading, 6–10 cm long, 20–35 mm wide, acute. Leaf-sheath auricles erect, 1 mm long.

Ligule a ciliolate membrane, 1–2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.6 cm long. Leaf-blades lanceolate, 19.5–35 cm long, 25–45 mm wide. Leaf-blade surface puberulous, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or ovate, laterally compressed, 15–22 mm long, 3–4 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Upper glume ovate, 4–19 mm long. Upper glume apex acute, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 8–20 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliolate, hairy above. Lemma hairs dark brown. Lemma apex acuminate, mucronate. Palea 7–9 -veined, 2-keeled. Palea keels ciliolate. Palea apex dentate, 2 -fid. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 4–6 mm long, red, anther tip with extended connective or pubescent. Filaments united in a tube. Stigmas 1–2. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, lanceolate, 15 mm long, hairy at apex.

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

Country /Province /State. **China.** China South Central, China Southeast. **Indian Subcontinent, Indo-China, Malesia.** Bangladesh, India. Andaman Is, Myanmar, Thailand. Java.

Hong Kong. Yunnan. Meghalaya. Orissa.

Gigantochloa papyracea Widjaja. *Reinwardtia* 11(2): 96 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Batang Palupuh Nature Reserve: *Widjaja* 3959 (BO holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. papyrus*, paper; *-aceus*, indicating resemblance. Culm-sheaths with a papery margin.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500 cm long, 50–80 mm diam., woody. Culm-internodes terete, thin-walled, 40–55 cm long, mid-green, distally glabrous or pilose. Lateral branches dendroid. Branch complement several. Culm-sheaths present, deciduous, 20 cm long, 1 times as long as wide, hispid, with appressed hairs, with dark brown hairs or black hairs, concave at apex, auriculate, with 2–4 mm high auricles, setose on shoulders, shoulders with 12 mm long hairs. Culm-sheath ligule 2 mm high, dentate. Culm-sheath blade narrowly ovate, reflexed, 20–25 cm long, 50–60 mm wide, pubescent. Leaf-sheath oral hairs scanty, 1–2 mm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 27.3–30.7 cm long, 22–37 mm wide, fleshy. Leaf-blade surface puberulous, sparsely hairy, hairy abaxially. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. **Malesia.** Sumatra.

Gigantochloa parviflora (Keng f.) P.C. Keng. *J. Bamboo Res.*, 3(1): 24: (1984).

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:** *Oxytenanthera parviflora* P. C. Keng, *Acta Phytotax. Sin.* 6: 358 (1957). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Nan-chiao Hsien: Wang 75259 (NAS iso).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 47).

Derivation (Clifford & Bostock 2007): *L. parvus*, small; *flos*, flower. Spikelets small or with few florets.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, woody. Culm-internodes terete, thin-walled. Lateral branches dendroid. Branch complement many. Culm-sheaths present. Leaves 8 per branch. Leaf-sheaths 7 cm long, glabrous on surface. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 3 mm long, truncate. Collar with external ligule. Leaf-blade base cuneate or broadly rounded, with a brief petiole-like connection to sheath, petiole 0.3 cm long. Leaf-blades lanceolate or oblong, 16–28 cm long, 35–40 mm wide, light green or glaucous, discolorous with last colour beneath. Leaf-blade venation with 14–16 secondary veins. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in globose clusters, 6–9 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 3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Upper glume ovate, 2–3 mm long. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 8–14 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliolate, hairy above. Lemma apex acute, mucronate. Palea 1 length of lemma, 2-keeled. Palea keels ciliate, adorned above. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 4–6 mm long, yellow, anther tip with extended connective or pubescent. Filaments united in a tube, 8 mm long. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

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

Country /Province /State. **China.** China South Central. **Indo-China.** Myanmar. Yunnan.

Gigantochloa parvifolia (Gamble) Nguyen To Quyen. *Bot. Zhurn.*, 75(2): 224: (1990).

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

TYPE from Myanmar. **Basionym or Replaced Name:** *Oxytenanthera parvifolia* Brandis ex Gamble, *Ann. Bot. Gard. Calc.* 7: 72 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma, Yonzalin valley: Brandis (K iso).

Illustrations: None found.

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 15–17 mm diam., woody. Culm-internodes terete. Lateral branches dendroid. Branch complement several. Culm-sheaths present, 20–25 cm long, 1 times as long as wide, pubescent, with appressed hairs, with tawny hairs, truncate at apex. Culm-sheath ligule 10–18 mm high, dentate. Culm-sheath blade ovate, 5–8 cm long, 25 mm wide, acuminate. Leaf-sheaths pubescent. Leaf-sheath oral hairs scanty. Ligule an eciliate membrane, pubescent on abaxial surface, erose, acute. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2 cm long. Leaf-blades lanceolate, 7–12 cm long, 12 mm wide. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade margins scabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, dense, 2.5–5 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 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, 15–20 mm long, 2.5–5 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate. Upper glume margins eciliate. Upper glume mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 10–12 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute. Palea 1 length of lemma, 3–5 -veined, 2-keeled but the uppermost without keels. Palea keels ciliolate. Apical sterile florets 1 in number, barren.

Flower and Fruit. Lodicules absent. Anthers 6, anther tip smooth. Filaments united in a tube. Stigmas 1–2, plumose. Ovary umbonate, pubescent all over. Caryopsis with adherent pericarp.

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

Country /Province /State. Indo-China. Vietnam.

Gigantochloa poilanei (A. Camus) Nguyen To Quyen. *Bot. Zhurn.*, 75(2): 224: (1990).

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

TYPE from Indochina. **Basionym or Replaced Name:** *Oxytenanthera poilanei* A.Camus, *Bull. Mus. Hist. Nat. Paris*, 27: 455 (1921). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indochina, Annam, Lao bao: Poilane 1339.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Eugene Poilane (1888–1964) French botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 500–800 cm long, woody. Culm-internodes terete, thin-walled, 30 cm long. Lateral branches dendroid. Culm-sheaths present. 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 lanceolate or oblong, 15–20 cm long, 15–22 mm wide. Leaf-blade venation with 12–16 secondary veins. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, 1.5–3 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 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, 17 mm long, breaking up at maturity, disarticulating above glumes but not between florets.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, 4–5 mm long. Lower glume surface pubescent. Lower glume apex obtuse. Upper glume ovate, 6 mm long. Upper glume surface pubescent. Upper glume apex obtuse.

Florets. Basal sterile florets 1, male, with palea, attached to and deciduous with the fertile. Lemma of lower sterile floret obovate, 12 mm long, pubescent, obtuse. Palea of lower sterile floret 8 mm long, pilose, adorned on keels. Fertile lemma lanceolate or ovate, 15–16 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins convolute. Lemma apex acute. Palea oblong, 10–11 mm long, without keels. Palea apex pubescent.

Flower and Fruit. Lodicules absent. Anthers 6, anther tip with extended connective or pubescent. Filaments united in a tube. Stigmas 1. Ovary umbonate. Caryopsis with adherent pericarp.

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

Country /Province /State. Indo-China. Vietnam.

Gigantochloa pruriens E.A. Widjaja. *Reinwardtia*, 10(3): 369 (1987).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Pugar: Widjaja 1710 (BO holo, K, L).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. purio*, itch. Densely hairy causing itching to sensitive skins.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–1500 cm long, 60–120 mm diam., woody. Culm-internodes terete, thin-walled, 40–60 cm long, dark green or glaucous, distally hispid. Lateral branches dendroid. Buds or branches absent from lower part of culm. Branch complement several, with 1 branch dominant. Culm-sheaths present, deciduous, 15–30 cm long, hispid, with dark brown hairs, auriculate, with 6 mm high auricles. Culm-sheath ligule 2 mm high, dentate. Culm-sheath blade lanceolate or narrowly ovate, reflexed, 11 cm long, 25 mm wide. Leaf-sheaths glabrous on surface to pubescent. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2 mm long, erose. 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, 24.5–38 cm long, 20 mm wide.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in compact unilateral clumps, 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 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, 12–14 mm long, 4 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 4–7 mm long. Upper glume apex acute, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 8–14 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma hairs tawny. Lemma apex acuminate. Palea 7–12 mm long, 2-keeled. Palea keels ciliate. Palea surface pubescent, hairy on margins. Palea apex dentate, 2-fid, acute. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules 3, 1.5–3 mm long, ciliate. Anthers 6, 6–8 mm long, yellow, anther tip with extended connective or pubescent. Filaments united in a tube, united for 1 of their length. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa pseudoarundinacea (Steud.) E.A. Widjaja. *Reinwardtia*, 10(3): 305 (1987).

Accepted by: U. Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. **Basionym or Replaced Name:** *Bambusa pseudoarundinacea* Steud., *Syn. Pl. Gram.* 330 (1854). T: <Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Java: Zollinger 3479 (P hol., L).

Illustrations (Books): S. Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 700–1300 cm long, 50–130 mm diam., woody, without nodal roots or rooting from lower nodes. Culm-internodes terete, yellow or light green, striped, distally pilose (sparsely above). Lateral branches dendroid. Culm-sheaths present, deciduous, auriculate, with 3–4 mm high auricles, with 17 mm wide auricles, setose on shoulders, shoulders with 3–5 mm long hairs. Culm-sheath ligule 3–5 mm high, dentate. Culm-sheath blade ovate, spreading or reflexed. Leaf-sheath auricles falcate, 2 mm long. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 25 cm long, 25 mm wide.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 7.5–10 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, persistent, similar, shorter than spikelet. Lower glume ovate. Lower glume apex mucronate. Upper glume ovate. Upper glume mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 5–7 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute, mucronate. Palea 0.9 length of lemma, 4–5 -veined, 2-keeled. Palea keels eciliate. Palea apex acute.

Flower and Fruit. Lodicules 3, 0.5–1 mm long. Anthers 6, yellow, anther tip penicillate. Filaments united in a tube. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Java, Lesser Sunda Is, Sumatra.

Gigantochloa pubinervis Widjaja. *Reinwardtia* 11(2): 98 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indonesia, Riau, Sematang Nyanyit: Widjaja 4064 (BO holo, K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. pubes*, signs of puberty; *nervis*, nerve. The glumes and lemmas are hairy, especially on the nerves.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 25–80 mm diam., woody. Culm-internodes terete, thin-walled, 30–47 cm long, distally glabrous or pubescent. Lateral branches dendroid. Branch complement several. Culm-sheaths present, deciduous, 22 cm long, hispid, with dark brown hairs or black hairs, truncate at apex, auriculate, with 4 mm high auricles, setose on shoulders, shoulders with 5 mm long hairs. Culm-sheath ligule 2 mm high, dentate. Culm-sheath blade ovate, constricted at base, reflexed, 13.5–16.6 cm long, 30–35 mm wide, pubescent. Leaf-sheaths pilose, hairs white or tawny. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades oblong, 15.5–30 cm long, 27–59 mm wide, fleshy. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa pubipetiolata Widjaja. *Reinwardtia* 11(2): 100 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Desa Pinggir Nature Reserve: Widjaja 3994 (BO holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. pubes*, hair of adulthood; *petiolus*, little leg; *-ata*, possessing. Petiole of leaf hairy.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, pendulous at the tip, 1500 cm long, 60–80 mm diam., woody. Culm-internodes terete, thin-walled, 40–50 cm long, distally glabrous or pubescent. Lateral branches dendroid. Branch complement several. Culm-sheaths present, deciduous, 11–12.5 cm long, hispid, with dark brown hairs, auriculate, with 3 mm high auricles, setose on shoulders, shoulders with 4–6 mm long hairs. Culm-sheath ligule 5 mm high, lacerate. Culm-sheath blade ovate, constricted at base, erect, 11–14.5 cm long, 25–30 mm wide, pubescent. Leaf-sheath oral hairs ciliate. Leaf-sheath auricles absent. Ligule an eciliate membrane, 3 mm long, erose. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole pubescent. Leaf-blades lanceolate, 23.3–37.5 cm long, 42–63 mm wide, fleshy. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa ridleyi Holttum. *Gard. Bull. Singapore*, xv. 275 (1956).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Singapore: Pestana (SING holo, K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): in honor of Henry Nicholas Ridley (1855–1956) English-born Malayan botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1600 cm long, 100 mm diam., woody. Culm-internodes terete, mid-green, distally glabrous. Lateral branches dendroid. Branch complement several. Culm-sheaths present, persistent, 25 cm long, hispid, with appressed hairs, with black hairs, auriculate, setose on shoulders. Culm-sheath ligule 3 mm high, entire. Culm-sheath blade triangular, demarcated but persistent, erect, 8–10 cm long, 60 mm wide, pubescent. Leaf-sheaths hirsute. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–0.5 cm long. Leaf-blades oblong, 40 cm long, 60 mm wide, fleshy. Leaf-blade surface glabrous. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Malaya, Singapore.

Gigantochloa robusta Kurz. *Indian Forester* 1:344, 354 (1876).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya: Coll?.

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–2000 cm long, 70–90 mm diam., woody, with aerial roots from the nodes. Culm-internodes terete, thin-walled, 30–40 cm long, light green or yellow, striped, distally pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, 17–35 cm long, hispid, with dark brown hairs, truncate at apex, auriculate, with 7 mm high auricles, ciliate on shoulders, shoulders with 5 mm long hairs. Culm-sheath ligule 5 mm high, fimbriate. Culm-sheath blade triangular, reflexed, 10–14 cm long, 35–50 mm wide. Leaf-sheath oral hairs setose, 5 mm long. Leaf-sheath auricles erect, 1 mm long. Ligule a ciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4 cm long. Leaf-blades lanceolate, 15–27 cm long, 25–50 mm wide. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets ovate, laterally compressed, 9–10 mm long, 4 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 3–5 mm long. Upper glume margins ciliate. Upper glume hairs tawny. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 7–8 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs tawny. Lemma apex acuminate.

Palea 6–7 mm long, 2-keeled. Palea apex dentate, 2 -fid. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, yellow, anther tip apiculate. Filaments united in a tube (for 3/4 length). Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Java, Lesser Sunda Is, Moluccas, Sumatra.

Gigantochloa rostrata K.M. Wong. *Malaysian Forester*, 45(3): 349 (1982).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Kepong: Wong FRI28981 (KEP holo, K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): lemma with a rostrate apex.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped loosely. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, drooping at the tip, 400–800 cm long, 20–35 mm diam., woody. Culm-internodes terete, 15–30 cm long, dark green or yellow, striped, distally hispid. Lateral branches dendroid. Buds or branches absent from lower part of culm. Branch complement several, with 1 branch dominant. Culm-sheaths present, deciduous, 5–10 cm long, 2 times as long as wide, green or yellow, striped, hispid, with appressed hairs, auriculate, with 0.5–1 mm high auricles, glabrous on shoulders. Culm-sheath ligule dentate. Culm-sheath blade lanceolate, spreading or reflexed, 8 cm long, 5 mm wide. Leaf-sheath oral hairs lacking. Leaf-sheath auricles absent. Ligule an eciliate membrane, 3–8 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4 cm long. Leaf-blades lanceolate, 10–21 cm long, 20–30 mm wide. Leaf-blade surface pubescent.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 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, 26–31 mm long, 2–3 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 6–11 mm long. Upper glume margins ciliate. Upper glume hairs dark brown. Upper glume apex acuminate.

Florets. Fertile florets increasing in size upwards. Fertile lemma lanceolate, 15–30 mm long, chartaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma margins ciliate, hairy above. Lemma hairs dark brown. Lemma apex rostrate. Palea 10–22 mm long, 11 -veined, 2-keeled. Palea apex dentate, 1 -fid. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6–10 mm long, red, anther tip with extended connective or pubescent. Filaments united in a tube, united for 1 of their length. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, linear, sulcate on hilar side, 10–14 mm long, light brown, hairy at apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Malaya.

Gigantochloa scortechinii Gamble. *Ann. Bot. Gard. Calc.* vii. 62. (1896).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Perak: Scortechini (K holo, CAL).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);.

Derivation (Clifford & Bostock 2007): in honor of Benedetto Scortechini (1845–1886) Italian cleric and botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–2000 cm long, 60–120 mm diam., woody. Culm-internodes terete, thin-walled, distally pruinose (when young). Lateral branches dendroid. Branch complement several or many, in a horizontal line, with 1 branch dominant, thinner than stem. Culm-sheaths present, coriaceous, pubescent, hairy throughout, with dark brown hairs, without auricles, setose on shoulders. Culm-sheath ligule 10–18 mm high. Culm-sheath blade lanceolate, constricted at base, spreading, pubescent. 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, 12–35 cm long, 20–50 mm wide. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, 2–3.5 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 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 15–20 mm long, 4–6 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 14–16 mm long, chartaceous, without keel, 21–27 -veined, more than 3-veined. Lemma surface pubescent, hairy all along. Lemma hairs dark brown. Lemma apex acute. Palea 8–13 -veined, 2-keeled. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate, 15–17 mm long.

Flower and Fruit. Lodicules absent. Anthers 6, 8–9 mm long. Filaments united in a tube. Stigmas 1. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Malaya.

Gigantochloa serik Widjaja. *Reinwardtia* 11(2): 102 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Lembah Anai Nature Reserve: *Widjaja 3972* (BO holo, K, L, US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): Vernacular name of the species in Sumatra, Indonesia.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–1500 cm long, 20–60 mm diam., woody. Culm-internodes terete, thin-walled, 25–45 cm long, mid-green, distally glabrous or hispid (black hairs). Lateral branches dendroid. Culm-sheaths present, persistent, 15–17 cm long, hispid, with appressed hairs, with black hairs, auriculate, with obtuse auricles, with 1–2 mm high auricles, glabrous on shoulders. Culm-sheath ligule entire or ciliolate. Culm-sheath blade lanceolate, narrower than sheath, reflexed, 2.5–13.5 cm long, 6–13 mm wide, pubescent (sparsely). Leaf-sheaths pubescent. Leaf-sheath oral hairs scanty or lacking, 1–4 mm long. Leaf-sheath auricles falcate, 1–1.5 mm long, obtuse. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 15–27 cm long, 20–34 mm wide. Leaf-blade surface glabrous or pilose, sparsely hairy, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 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, 19–35 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets. Floret callus pubescent.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, 10–11 mm long. Lower glume margins ciliate. Lower glume hairs dark brown. Lower glume apex acuminate, mucronate. Upper glume ovate, 10–11 mm long. Upper glume margins ciliate. Upper glume hairs dark brown. Upper glume apex acuminate, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 15–21 mm long, chartaceous, without keel, more than 3-veined. Lemma surface puberulous, hairy all along or above. Lemma margins ciliate. Lemma hairs dark brown. Lemma apex acuminate. Palea 12–20 mm long, 2-keeled. Palea keels ciliolate. Palea surface puberulous. Palea apex dentate, 2-fid. Apical sterile florets 1 in number, barren (without palea), lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 8–11 mm long, red, anther tip apiculate. Filaments united in a tube. Stigmas 1, pubescent. Ovary pubescent all over. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa taluh Widjaja & Astuti. *Reiwardtia* 12:204 (2004).

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

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indonesia, Bali, Rakarya: IP 456.

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000 cm long, 18–26 mm diam., woody. Culm-internodes terete, 27.5–40 cm long, mid-green, distally hispid. Lateral branches dendroid. Culm-sheaths present, deciduous, glabrous, auriculate, with 2 mm high auricles, with 4 mm wide auricles, glabrous on shoulders. Culm-sheath ligule 2 mm high, lacerate. Culm-sheath blade lanceolate, as wide as sheath at base, reflexed. Leaf-sheaths pubescent, hairs dark brown. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect, 2 mm long. Ligule an eciliate membrane, 4 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades oblong, 22–40 cm long, 25–75 mm wide. Leaf-blade surface pubescent, sparsely hairy, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 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, 14–20 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, persistent, similar, shorter than spikelet. Upper glume ovate, 5–9 mm long. Upper glume margins ciliolate. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 11–19 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliolate. Lemma apex acute. Palea 11–18 mm long, 2-keeled. Palea keels ciliolate.

Flower and Fruit. Lodicules absent. Anthers 6, 7 mm long, red. Filaments united in a tube.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Lesser Sunda Is.

Gigantochloa tenuispiculata (A. Camus) Nguyen To Quyen. *Bot. Zhurn.*, 75(2): 225: (1990).

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

TYPE from Indochina. **Basionym or Replaced Name:** *Oxytenanthera tenuispiculata* A.Camus, Lecomte, *Fl. Gen. Indo-Chine*, 7: 621 (1922). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Indochina, Baria: Poilane.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. tenuis*, narrow; *spiculus*, small spike; *-atum*, possessing.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo. Rhizomes short, pachymorph. Butt sheaths absent. Culms woody. Culm-internodes terete, distally pubescent. Lateral branches dendroid. 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. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, 4–5 cm long, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

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 one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 20–25 mm long, breaking up at maturity, disarticulating above glumes but not between florets.

Glumes. Glumes several, 4–5 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 2 mm long. Lower glume surface glabrous or puberulous, hairy above. Lower glume apex acute. Upper glume ovate, 8 mm long. Upper glume surface glabrous or puberulous, hairy above. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, 16 mm long, acuminate, mucronate. Palea of lower sterile floret 10–11 mm long, pilose, adorned on keels. Fertile lemma oblong, 20–23 mm long, chartaceous, without keel, more than 3-veined. Lemma apex acute. Palea without keels. Palea surface pilose, hairy on margins.

Flower and Fruit. Lodicules absent. Anthers 6, anther tip with extended connective or pubescent. Filaments united in a tube. Stigmas 1. Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Gigantochloa thoi K.M. Wong. *Sandakania*, 1: 18 (1992).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Selangor: Wong FRI 28972 (KEP holo, K, L, SING).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Derivation (Clifford & Bostock 2007): In honor of Yow Pong Tho (1945–1991) Malaysian entomologist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–1600 cm long, 90–120 mm diam., woody. Culm-internodes terete, thin-walled, 35–45 cm long, glaucous, distally pruinose or hispid. Lateral branches dendroid. Culm-sheaths present, deciduous but leaving a persistent girdle, green, hispid, with dark brown hairs, auriculate, with 6–10 mm high auricles, setose on shoulders, shoulders with 10–18 mm long hairs. Culm-sheath ligule 7–22 mm high, fimbriate. Culm-sheath blade lanceolate, spreading or reflexed. Leaf-sheath oral hairs ciliate, 4 mm long. Leaf-sheath auricles falcate, 0.5–1 mm long. Ligule an eciliate membrane, 0.5–1.5 mm long, erose. 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, 8–32 cm long, 20–60 mm wide. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

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 lanceolate, laterally compressed, 9–15 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, 2–3 empty glumes, persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 8–11 mm long, chartaceous, without keel, more than 3-veined. Lemma surface puberulous. Lemma margins ciliate. Lemma apex cuspidate. Palea 1 length of lemma, 6–10 -veined, 2-keeled. Palea keels ciliate. Palea surface puberulous, hairy on back. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 5.5–6 mm long, anther tip penicillate. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Malaya, Singapore.

Gigantochloa tomentosa Widjaja. *Reinwardtia* 11(2): 104 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Riau Archipelago, Gesak: *Widjaja 4094* (BO holo, K, L).

Illustrations: None found.

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, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–1500 cm long, 60–80 mm diam., woody. Culm-internodes terete, thin-walled, 35–45 cm long, mid-green, distally glabrous or pubescent (brown hairs). Culm-nodes pubescent. Lateral branches dendroid. Culm-sheaths present, deciduous, hispid, with dark brown hairs, auriculate, with obtuse auricles, with 2 mm high auricles, glabrous on shoulders. Culm-sheath ligule 0.5–1 mm high, entire. Culm-sheath blade triangular, narrower than sheath, spreading, pubescent. Leaf-sheaths pilose, hairs tawny. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate, 1 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 lanceolate, 9–18 cm long, 12–22 mm wide. Leaf-blade surface pubescent, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate clusters or untidy tufts, 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 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, 12–30 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets. Floret callus pubescent.

Glumes. Glumes several, 4 empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 4 mm long. Lower glume margins ciliate. Lower glume hairs dark brown. Lower glume apex acuminate, mucronate. Upper glume ovate, 10 mm long. Upper glume margins ciliate. Upper glume hairs dark brown. Upper glume apex acuminate, mucronate.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 14–18 mm long, chartaceous, without keel, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex acuminate. Palea 9–15 mm long, 2-keeled. Palea keels ciliate. Palea apex dentate, 2 -fid. Apical sterile florets 1 in number, barren (without palea), lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6–9 mm long, red. Filaments united in a tube. Stigmas 1, pubescent. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malesia. Sumatra.

Gigantochloa velutina Widjaja. *Reinwardtia* 11(2): 106 (1997).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Indonesia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sumatra, Panumpuan: *Widjaja 3952* (BO holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. velvety. Plant in whole or in part covered with dense short hairs.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 2000 cm long, 60–80 mm diam., woody. Culm-internodes terete, thin-walled, 35–44 cm long, distally pruinose and pubescent. Lateral branches dendroid. Branch complement several. Culm-sheaths present, deciduous, 11 cm long, 1.2 times as long as wide, hispid, with dark brown hairs or black hairs, hairy on margins, auriculate, with 4 mm high auricles, setose on shoulders, shoulders with 10–15 mm long hairs. Culm-sheath ligule 1 mm high, dentate. Culm-sheath blade ovate, constricted at base, reflexed, 13 cm long, 22 mm wide, pubescent. Leaf-sheaths pilose, hairs white, outer margin hairy. Leaf-sheath oral hairs setose, 9 mm long. Leaf-sheath auricles absent. 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, 15.6–30.8 cm long, 28–45 mm wide, fleshy. Leaf-blade surface pubescent, hairy abaxially. Leaf-blade apex acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Malaysia. Sumatra.

Gigantochloa verticillata (Willd.) Munro. *Trans. Linn. Soc.* xxvi 124. (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).

TYPE from Indonesia. **Basionym or Replaced Name:** *Bambusa verticillata* Willd., *Sp. Pl.* 2: 245 (1799). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Java: Thunberg in Herb. Willd. 7007 (B holo).

Illustrations (Books): D.Farrelly, *The Book of Bamboo* (1984) (193), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 42).

Derivation (Clifford & Bostock 2007): L. *whorl*; *-ata*, possessing. Primary inflorescence branches whorled.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–2000 cm long, 50–100 mm diam., woody. Culm-internodes terete, thick-walled, mid-green or mid-green and yellow, concolorous or striped, distally glabrous or pubescent. Lateral branches dendroid. Buds or branches absent from lower part of culm. Culm-sheaths present, 15–30 cm long, hispid, with dark brown hairs, truncate at apex, auriculate, with 2–3 mm high auricles, glabrous on shoulders. Culm-sheath ligule 3 mm high. Culm-sheath blade lanceolate, narrower than sheath, reflexed, 25 cm long, 5 mm wide. Leaf-sheath auricles falcate. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 25 cm long, 25 mm wide. Leaf-blade surface glabrous.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 16–18 mm long, 3–4 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes several, persistent, similar, shorter than spikelet.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 10–12 mm long, chartaceous, without keel, more than 3-veined. Lemma margins ciliate. Lemma hairs purple. Lemma apex acute. Palea 7–9 -veined, 2-keeled. Palea keels ciliate. Palea surface puberulous. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 6–8 mm long. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, hairy at apex.

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

Country /Province /State. China. China South Central, China Southeast. **Indian Subcontinent, Indo-China, Malesia.** India. Myanmar, Thailand, Vietnam. Malaya. **Mesoamerica, Western South America.** Guatemala, Honduras. Colombia.

Hong Kong, Yunnan.

Gigantochloa vietnamica Nguyen to Quyen. *Bot. Zhurn.*, 72(6): 829 (1987).

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: Vietnam, Ha Tyuen: Czinj Mak (HNF holo).

Illustrations: None found.

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1500–2000 cm long, 60–120 mm diam., woody. Culm-internodes terete. Lateral branches dendroid. Culm-sheaths present, persistent, 25–37 cm long, 1 times as long as wide, chartaceous, glabrous, without auricles. Culm-sheath ligule 1–2 mm high. Leaf-sheath auricles absent. Ligule a ciliolate membrane, 1 mm long. 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, 17–35 cm long, 25–45 mm wide. Leaf-blade venation with 19–27 secondary veins, without cross veins.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 15–30 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume lanceolate, 5–7 mm long. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma lanceolate, 8–9 mm long, 4–8 mm wide, coriaceous, without keel, 15–17 -veined, more than 3-veined. Lemma apex acute. Palea 1 length of lemma. Palea keels ciliolate.

Flower and Fruit. Lodicules 3, ciliate. Anthers 6. Filaments united in a tube. Stigmas 1. Ovary pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Gigantochloa vinhphuica Nguyen to Quyen. *Bot. Zhurn.*, 72(6): 830 (1987).

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: Vietnam, Phu-tho: Nguyen (HNF holo).

Illustrations: None found.

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 2000–2500 cm long, 100–130 mm diam., woody. Culm-internodes terete. Lateral branches dendroid. Culm-sheaths present, persistent, 10–15 cm long, 0.35 times as long as wide, chartaceous, yellow, auriculate, setose on shoulders. Leaf-sheath oral hairs lacking. Leaf-sheath auricles falcate. Ligule a ciliolate membrane, 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 lanceolate, 15–23 cm long, 15–27 mm

wide. Leaf-blade venation with 7–9 secondary veins, without cross veins. Leaf-blade surface glabrous or puberulous, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 2–3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, subterete, 7–20 mm long, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes two or several, 2–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume lanceolate, 4–8 mm long. Upper glume surface pilose, hairy above. Upper glume margins ciliate. Upper glume apex acute.

Florets. Fertile florets increasing in size upwards. Fertile lemma lanceolate, 8–12 mm long, 4–8 mm wide, coriaceous, without keel, 19–31 -veined, more than 3-veined. Lemma surface pilose. Lemma margins ciliate. Lemma apex acute. Palea 9–12 mm long. Palea keels ciliate.

Flower and Fruit. Lodicules absent. Anthers 6. Filaments united in a tube. Stigmas 1. Ovary pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China. Vietnam.

Gigantochloa wrayi Gamble. *Ann. Bot. Gard. Calc.* vii. 64. (1896).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Malaysia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Malaya, Bukit gantang: Wray 1895 (K holo, BM).

Illustrations (Books): S.Dransfield, & E.A. Widjaja, *Plant Resources of South-East Asia No. 7, Bamboos* (1995).

Images: H.B.Gilliland et al., *Flora of Malaya Vol. 3 Grasses* (1971);.

Derivation (Clifford & Bostock 2007): in honor of Leonard Wray (1853–1942) British colonial gardens superintendent.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 20–70 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Lateral branches dendroid. Buds or branches absent from lower part of culm. Culm-sheaths present, 15–27 cm long, hispid, with dark brown hairs, truncate at apex, auriculate, glabrous on shoulders or ciliate on shoulders. Culm-sheath ligule 6–10 mm high, fimbriate. Culm-sheath blade lanceolate, narrower than sheath, reflexed, 12–22 cm long, 35–40 mm wide, pubescent. Leaf-sheath oral hairs lacking or ciliate. Ligule an eciliate membrane, erose. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.4–0.8 cm long. Leaf-blades lanceolate, 9–40 cm long, 12–60 mm wide. Leaf-blade surface puberulous, hairy abaxially.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in stellate 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 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, 20 mm long, 5 mm wide, breaking up at maturity, disarticulating above glumes but not between florets. Rhachilla internodes suppressed between florets.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 5 mm long. Upper glume ovate, 7 mm long.

Florets. Fertile florets increasing in size upwards. Fertile lemma ovate, 15–17 mm long, chartaceous, without keel, more than 3-veined. Lemma surface puberulous. Lemma margins ciliate. Lemma hairs dark brown, 1 mm long. Lemma apex acute. Palea 2-keeled. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Lodicules absent. Anthers 6, 8 mm long. Filaments united in a tube. Stigmas 1, pubescent. Ovary umbonate, pubescent on apex. Caryopsis with adherent pericarp, 10 mm long, hairy at apex.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indo-China, Malesia. Thailand. Malaya, Singapore.

Gilgichloa indurata Pilger. *Engl. Jahrb.* li. 416 (1914).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Tanzania. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tanzania, Ihumwa: Sperling in Herb. Amani 5319 (B holo).

Illustrations (Books): R.M.Phill, F.T.E.A., *Gramineae* (2(1974):414, Fig.113), G.V.Pope et al., *Flora Zambesiaca* 10 (3(1989):205, t. 56).

Derivation (Clifford & Bostock 2007): *L. induro*, make hard. Palea of lower floret rigid and woody at maturity.

Classification. Subfamily Panicoideae. Tribe: Tristachyideae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, 30–90 cm long. Culm-nodes pubescent. Ligule a fringe of hairs. Leaf-blades 4–15 cm long, 3–9 mm wide. Leaf-blade margins cartilaginous, crenate.

Inflorescence. Inflorescence a panicle. Panicle spiciform, linear, 3–15 cm long, 8–12 cm wide. Primary panicle branches accrescent to a central axis, with lateral stumps on axis. 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 lanceolate, laterally compressed, 7–8 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, 0.4–0.5 mm long, pubescent, truncate.

Glumes. Glumes persistent, dissimilar, subequal in width, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 3–4 mm long, 0.5 length of upper glume, membranous, without keels, 3 -veined. Lower glume surface pilose, hairy above, with tubercle-based hairs. Lower glume apex acute, awned, 1 -awned, awn 4–7 mm long. Upper glume ovate, 7–8 mm long, membranous, without keels, 3 -veined. Upper glume apex acuminate, awned, 1 -awned, awn 0.5–1.5 mm long.

Florets. Basal sterile florets 1, barren, with palea, separately deciduous. Lemma of lower sterile floret similar to upper glume, elliptic, 7–8 mm long, membranous, 5–7 -veined, pubescent, acuminate. Palea of lower sterile floret woody. Fertile lemma oblong, 3.5–4.5 mm long, coriaceous, without keel, 5 -veined, more than 3-veined. Lemma surface pubescent, with a transverse row of hair tufts, bearing 2–4 hair tufts in all. Lemma margins involute, interlocking with palea keels. Lemma apex lobed, 2 -fid, incised 0.2–0.3 of lemma length, awned, 3 -awned. Principal lemma awn from a sinus, geniculate, flat below, 14–20 mm long overall, with twisted column, deciduous, abscissing from top of lemma. Lateral lemma awns present, arising on apex of lobes, 1–1.5 mm long, shorter than principal. Palea 2 -veined. Palea keels winged, narrowly winged, with clavate appendages on wings.

Flower and Fruit. Lodicules 2, cuneate, 0.6–0.7 mm long, fleshy. Anthers 3. Caryopsis with adherent pericarp, fusiform, glabrous. Hilum linear.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-Central Tropical Africa, East Tropical Africa, South Tropical Africa. Burundi, Rwanda. Tanzania. Malawi, Zambia, Zimbabwe.

Glaziophyton mirabile Franch. *Morot, Journ. de Bot.* iii. 277 (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 Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Petropolis: Glaziou 14383 (P syn, K, US) ; Brazil, Serra dos Orgaos: Glaziou 17914 (P syn) ; Brazil, Rio de Janeiro: Glaziou 8999 (P syn, US)).

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999) (179, Fig. 86).

Illustrations (Journals): *Smithsonian Contributions to Botany* (9: 86, Fig. 36 (1973)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): L. unusual. Plant with the habit of a rush rather than a grass.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Cataphylls evident. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, reed-like, 180–230 cm long. Culm-internodes unequal, the upper longer, terete, with septate pith. Lateral branches lacking (but little basal tillers bearing bamboo-like leaves appear after burning). Leaves with blades commonly suppressed, transferring photosynthetic function to sheath and culm. Ligule absent.

Inflorescence. Synflorescence bractiferous, paniculate, 20–70 cm long, with glumaceous subtending bracts, bracts 3–5 mm long, without axillary buds at base of spikelet, with simple branching, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising (1–)2(–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, 7–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, (0–)2(–3) empty glumes, persistent, similar, shorter than spikelet. Lower glume ovate, 2.5–4 mm long, 0.7–0.8 length of upper glume, scarious, without keels, 3 -veined. Lower glume apex acute. Upper glume ovate, 3–5 mm long, 0.6–0.8 length of adjacent fertile lemma, scarious, without keels, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, 5–6 mm long, scarious, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Palea 1 length of lemma, scarious, 2 -veined. Palea keels ciliolate. Apical sterile florets 1 in number, abscissing from fertile floret, barren, lanceolate, 3 mm long.

Flower and Fruit. Lodicules 3, lanceolate, membranous, veined, acute. Anthers 3, 3 mm long. Stigmas 2.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Southeast.

Minas Gerais, Rio de Janeiro, Espirito Santo. Rio de Janeiro.

Glyceria acutiflora Torr. *Fl. North. and Mid. U.S.* 1:104 (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), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: USA: New York: Bloomingdale

ST: USA: New York: Fishkill

ST: USA: New Jearsy: Hoboken

ST: USA: Massachusetts: Dearfield.

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (111, Fig 32), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (82), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 294, as *ssp japonica*).

Derivation (Clifford & Bostock 2007): L. *acu*o, sharpen; *flos*, flower. Paleas, lemmas or glumes with sharp apices.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 50–100 cm long. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–6 mm long. Leaf-blades 8–20 cm long, 3–7 mm wide. Leaf-blade surface ribbed, scabrous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle open, elliptic, 15–40 cm long. Primary panicle branches appressed or ascending, 1–2 -nate, 5–10 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long.

Fertile Spikelets. Spikelets comprising 5–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the

upper sterile. Spikelets linear, subterete, 15–40 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 2–3 mm long, 0.66 length of upper glume, hyaline, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 3.5–5 mm long, 0.5–0.66 length of adjacent fertile lemma, hyaline, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 7.5 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface scabrous, rough generally. Lemma apex acute. Palea 1.2 length of lemma, 2 -veined. Palea keels scabrous. Palea apex dentate, 2 -fid, acuminate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1.3–1.6 mm long. Caryopsis with adherent pericarp, oblong, 3.5 mm long. Hilum linear.

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

Country /Province /State. China, Eastern Asia. China South Central, China Southeast. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. Japan, Korea. North-central USA, Northeast USA, Southeastern USA. Missouri. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Georgia, Kentucky, South Carolina, Tennessee.

Anhui, Fujian, Henan, Hunan, Jiangsu, Jiangxi, Zhejiang. Guizhou, Hubei, Sichuan, Yunnan.

Glyceria alnasteretum Komarov. *Fedde, Repert.* xiii. 87 (1914).

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.Koyama, *Grasses of Japan and its neighboring regions* (1987).

TYPE from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Kamchatka, Kikhpinich Mt.: Komarov 3366 (LE lecto, K).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (72).

Derivation (Clifford & Bostock 2007): L. *-etum*, place of growth. Growing amongst *Alnaster fruticosus*, that is, in birch woodlands.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, culms solitary. Rhizomes short. Culms erect, 60–90 cm long, 2.5–4 mm diam., 4–6 -noded. Culm-internodes 3–20 cm long. Leaves basal and cauline. Leaf-sheaths tubular for much of their length, with 1 of their length closed, 5–10 cm long, smooth, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, truncate. Leaf-blades 5–20 cm long, 3–6 mm wide, membranous. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or ovate, nodding, 16–22 cm long, 4–6 cm wide. Primary panicle branches 2 -nate, sparsely divided, 8–10 cm long. Panicle axis smooth. 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 elliptic, laterally compressed, 7–9 mm long, 3–3.5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2–2.5 mm long, 0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.5–3 mm long, 0.75 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex acute.

Florets. Fertile lemma elliptic, 3.5–4 mm long, membranous, much thinner above, much thinner on margins, light green or purple, suffused with last colour, without keel, 7 -veined, more than 3-veined. Lemma surface asperulous. 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, united, oblong, fleshy, truncate. Anthers 0.7–1 mm long. Caryopsis with adherent pericarp. Hilum linear.

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

Country /Province /State. Russian Far East, **Eastern Asia.** Kamchatka, Kuril Is, Sakhalin. Japan Hokkaido, or Honshu. Japan. **Subarctic America.** Aleutian Is.

Glyceria arkansana Fernald. *Rhodora*, i. 49. (1929).

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

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: IT: *B.F. Bush* 9, 29 Apr 1898, USA: Arkansas: Lincoln Co.: Varner; common in swamps (MO-2969047, US- (fragm. ex GH)). *Glyceria septentrionalis* var. *arkansana* (Fernald) Steyerl. & C. Kucera - *Rhodora* 63(745): 24. 1961.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating location. From Arkansas, USA.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 100–150 cm long, 10 mm diam. Leaf-sheaths tubular for much of their length, smooth, glabrous on surface. Ligule an eciliate membrane, 10 mm long. Leaf-blades 10–20 cm long, 10–18 mm wide, flaccid. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 40–70 cm long. Primary panicle branches appressed or ascending, 5–10 cm long. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 10–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 15–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, firmer than fertile lemma. Lower glume oblong, 2–2.5 mm long, 0.7–0.8 length of upper glume, chartaceous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 2.5–3.5 mm long, 1 length of adjacent fertile lemma, chartaceous, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 2.5–3 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface pilose. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

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

Country /Province /State. **Southeastern USA.** Arkansas, Louisiana.

Glyceria arundinacea Kunth. *Rev. Gram.* i. 118 (1829).

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

TYPE from Russia. **Basionym or Replaced Name:** *Poa arundinacea* Bieb., non Moench(1794), *Fl. Taur. Cauc.* 1: 60 (1808). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Poa arundinacea* Bieb. ; Russia, Caucasus: Coll?.

Recent Synonyms: *Glyceria triflora* (Korsh.) Komarov, *Fl. URSS*, 2: 459, 758 (1934).

Illustrations: None found.

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

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms erect, 70–150 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 15–30 cm long, 3–8 mm wide, mid-green or grey-green. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 15–20 cm long. Primary panicle branches spreading. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 2–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or ovate, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume elliptic, 1–1.5 mm long, 0.66 length of upper glume, membranous, without keels. Lower glume apex acute. Upper glume elliptic, 1.5–2.5 mm long, 0.5 length of adjacent fertile lemma, membranous, without keels. Upper glume apex acute.

Florets. Fertile lemma elliptic, 3–4 mm long, membranous, much thinner above, without keel, 5–7 -veined, more than 3-veined. Lemma surface asperulous. Lemma apex acute. Palea 3 mm long, 2 -veined. Palea keels wingless. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 0.7–1.2 mm long. Caryopsis with adherent pericarp. Hilum linear.

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

Region. Middle Europe, Southeastern Europe, Eastern Europe.

Country /Province /State. : Hungary. : Bulgaria, Romania. 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.** Kazakhstan. Iran. China South Central, Inner Mongolia, Manchuria, China North-Central. Mongolia. Korea.

Hebei, Shaanxi. Sichuan, Yunnan.

Glyceria australis C. E. Hubbard. *Kew Bull.* 1934, 450. (1934).

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, Port Jackson: *Brown 6296* (K holo).

Illustrations (Books): J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (177, Fig 126), N.Walsh & T.Entwistle, *Flora of Victoria* Vol 2 (1994) (442, Fig 86), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,, *Grasses of New South Wales*, 4th edn (2008) (270), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (75, Fig 11), 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. of the south. From the south in general as from Africa, America, Europe or elsewhere.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 30–60 cm long, 4–6 -noded, rooting from lower nodes. Lateral branches lacking. Leaf-sheaths loose, tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long, truncate. Leaf-blades 9–18 cm long, 2–5 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex obtuse.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, interrupted, 15–27 cm long. Primary panicle branches 2 -nate, simple, 0.2–2 cm long, bearing 1 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 linear, laterally compressed, 20–35 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2–3 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4–5.5 mm long, 0.66–0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 6–7 mm long, 0.7–0.9 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 7–10 mm long, membranous, much thinner above, much thinner on margins, without keel, 7 -veined, more than 3-veined. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged. Palea surface scaberulous. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3 mm long. Caryopsis with adherent pericarp, oblong, 3.5 mm long. Hilum linear.

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

Region. Northern Europe (*).

Country /Province /State. : Great Britain (*). **Australia.** Western Australia, South Australia, New South Wales, Victoria, Tasmania.

South-West. Southern. Coast, Tablelands, Western Slopes, Western Plains.

Glyceria borealis (Nash) Batchelder. *Proc. Manchester Inst.* i. 74 (1923).

Accepted by: R.J.Soreng et al., *Catalogue of New World 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:** *Panicularia borealis* Nash, *Bull. Torrey Bot. Club* 24(7): 348–349 (1897)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: ST: *Fernald* 193, 25 Jul 1893, USA: Maine: Van Buren: 25 Jul 1893 (NY; US- (fragm. ex NY & photostat), US-204129). type of *Glyceria fluitans* var. *angustata* Vasey ex Fernald.

ST: *G. V. Nash*, 10 Jul 1893, USA: New York: Cairo, in water (NY; IT: US- (fragm. ex NY & photo)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (82).

Derivation (Clifford & Bostock 2007): L. of the north. Growing in the cold regions of the northern hemisphere.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms geniculately ascending or decumbent, 60–100 cm long, rooting from lower nodes. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 5–10 mm long, acute. Leaf-blades flat or conduplicate, 5–15 cm long, 3–5 mm wide. Leaf-blade surface scaberulous, glabrous. Leaf-blade margins scaberulous.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 20–45 cm long. Primary panicle branches appressed, 5–10 cm long, bearing 3–12 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 linear, subterete, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 2–2.5 mm long, 0.66 length of upper glume, membranous, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 3 mm long, 0.9 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 3.5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scaberulous, rough on veins. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp, 1.5 mm long. Hilum linear.

$2n = 20$ (2 refs 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, Mexico.** Alaska, Yukon, Northwest Territories. Alberta, British Columbia, Manitoba, Saskatchewan. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Wisconsin. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Arizona, California, Nevada, Utah. Northeast Mexico.

Chihuahua.

Glyceria canadensis (Michx.) Trin. *Mem. Acad. Petersb. Ser. VI. i.* 866. (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 Canada. **Basionym or Replaced Name:** *Briza canadensis* Michx., *Fl. Bor.-Amer.* 1: 71 (1803)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Canada: Michaux (P holo).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (80, as var. *canadensis*).

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

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms erect, 50–90 cm long. Culm-internodes smooth or scaberulous. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades 15–30 cm long, 2–8 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 15–30 cm long. Primary panicle branches drooping, 2–5 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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, 4–7 mm long, 3.5–4 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 1.5–2 mm long, 0.75 length of upper glume, membranous, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2.5 mm long, 0.75 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma oblong, 3–3.5 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins distinct. Lemma surface smooth. Lemma apex acute. Palea bowed outwards, 2.5 mm long, 1 length of lemma, 2 -veined. Palea keels thickened, smooth. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 0.5 mm long. Caryopsis with adherent pericarp, oblong, 1.3–1.5 mm long. Hilum linear.

$n = 60$ (1 ref TROPICOS). $2n = 60$ (FNA).

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

Country /Province /State. Eastern Canada, North-central USA, Northeast USA, Southeastern USA. New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Illinois, Wisconsin, Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia.

Glyceria caspia Trin. *Bull. Sc. Acad. Petersb.* 1: 68 (1836).

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, Talysch: Hohenacker 2227 (LE holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. -ica*, belonging to. From Caspia, that is the region about the Caspian Sea.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, weak, 30–60 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, mostly shorter than adjacent culm internode, without keel, antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 1.2–2 mm long, obtuse. Leaf-blades 3–8 mm wide, flaccid. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, nodding, bearing few spikelets. Primary panicle branches drooping, 2–5 -nate, simple. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, compressed slightly, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes zig-zag.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 0.5–1.2 mm long, 0.5–0.66 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1–1.8 mm long, 0.66 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, 1.8–2.5 mm long, membranous, much thinner above, much thinner on margins, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma apex acuminate. Palea bowed outwards, 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Caucasus. Transcaucasus.

Glyceria chinensis Keng ex Z.L. Wu. *Acta Phytotax. Sin.* 30(2): 174 (1992).

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

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China: Guizhou: Houang Tsao-pa, Xingyi Xian, 1917, *J. Cavalerie* 4303 (HT: UC).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 296).

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

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 30–60 cm long, 1.5–2 mm diam., rooting from lower nodes. Leaf-sheaths tubular for much of their length, with 0.5 of their length closed, longer than adjacent culm internode. Ligule an eciliate membrane, 5–6 mm long. Leaf-blades 6–12 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 15–19 cm long. Primary panicle branches appressed, 2–3 -nate, simple, 2–5 cm long, bearing 2–3 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 11–14 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, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3 mm long, 0.75 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, 4 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface smooth or scaberulous, rough on veins. Lemma apex acuminate. Palea 1 length of lemma, 2 -veined. Palea keels scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 0.8–1 mm long. Caryopsis with adherent pericarp. Hilum linear.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. China. China South Central. Guizhou, Yunnan.

Glyceria colombiana Gir.-Cacas. *Caldasia* 24(1): 10 . (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).

TYPE from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia, Santa Maria: Giraldo-Canas et al. 3216 (COL holo, CAUP, HUA).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating location. From Colombia.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending, 20–40 cm long, rooting from lower nodes. Culm-nodes brown, glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2 mm long, lacerate. Collar glabrous. Leaf-blades flat or conduplicate, 10–23 cm long, 3–5 mm wide. Leaf-blade surface glabrous. Leaf-blade margins scaberrulous. Leaf-blade apex acute.

Inflorescence. Inflorescence a panicle. Peduncle 10–15 cm long. Panicle open, pyramidal, 10–15 cm long. Primary panicle branches drooping, 2.5–10 cm long. Panicle branches capillary. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–6 mm long, glabrous.

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, 4–6 mm long, 2–3 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.4–1.5 mm long, 0.9 length of upper glume, membranous, purple, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface glabrous. Lower glume apex erose. Upper glume ovate, 1.6–1.7 mm long, 0.75 length of adjacent fertile lemma, membranous, purple, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex erose.

Florets. Fertile lemma oblong, 2.3–2.5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scaberrulous, rough on veins. Lemma apex erose, acute. Palea 2–2.5 mm long, 1 length of lemma, 2 -veined. Palea keels scaberrulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, 0.2 mm long, fleshy, truncate. Anthers 2, 0.5 mm long, yellow. Caryopsis with adherent pericarp, ovoid, laterally compressed, 1.25 mm long, rugose. Hilum linear, 1 length of caryopsis.

Distribution (TDWG). Continent. South America.

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

Glyceria declinata Breb. *Fl. Norm. ed. III.* 354 (1859).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

TYPE from France. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: France, Normandy: Coll?.

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (116), T. Cope & A. Gray, *Grasses of the British Isles* (131), H.J.Noltie, *The Grasses of Bhutan* (2000) (575, Fig. 21), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (178, Fig. 127), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (270), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (75, Fig. 11), 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) (218, Fig. 8), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (86).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. *declino*, bend aside. Racemes one-sided.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or decumbent or prostrate, 10–45 cm long, 1–3 -noded. Leaf-sheaths tubular for much of their length, with 1 of their length closed, keeled, smooth, glabrous on surface. Ligule an eciliate membrane, 4–9 mm long, acute. Leaf-blades flat or conduplicate, 3–18 cm long, 1.5–8 mm wide. Leaf-blade surface smooth. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, linear or lanceolate, equilateral or nodding, 4–30 cm long. Primary panicle branches appressed or ascending, 1–3 -nate, simple. Panicle branches smooth. Spikelets ascending or appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 1.5–4 mm long.

Fertile Spikelets. Spikelets comprising 8–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, compressed slightly, 13–25 mm long, 1.5–2 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong or ovate, 1.5–2.5 mm long, 0.6–0.8 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong or ovate, 2.5–3 mm long, 0.6–0.7 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 4–5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberrulous. Lemma apex dentate, 3–5 -fid, obtuse. Palea 1.1 length of lemma, 2 -veined. Palea keels winged, narrowly winged. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1–1.5 mm long, yellow or purple. Caryopsis with adherent pericarp, ellipsoid, 1.5–2.3 mm long. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

$n = 10$ (1 ref TROPICOS). $2n = 20$ (3 refs TROPICOS).

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

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

Country /Province /State. : Denmark, Great Britain. : Austria, Belgium, Czechoslovakia, Germany, Switzerland. : Corsica, France. Belarus, Estonia, Latvia, Lithuania. **Macaronesia.** Azores, Canary Is, Madeira. **Indian Subcontinent.** Eastern Himalaya. **Australia** (*), **New Zealand** (*). Western Australia, South Australia, New South Wales, A.C.T., Victoria, Tasmania. Chatham Is, New Zealand North I, New Zealand South I, Stewart Is. **Southwestern USA, Southeastern USA.** California, Nevada. Louisiana.

Bhutan. South-West. Southern. Coast, Tablelands, Western Plains.

Glyceria depauperata Ohwi. *Bot. Mag, Tokyo*, 45: 381 (1931).

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

TYPE from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan, Akita: *Faurie* 5599.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. depapupero*, impoverish. Stunted as if for want of nourishment.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect or geniculately ascending, 20–40 cm long, 1–1.7 mm diam., 2–4 -noded. Culm-internodes 6–12 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 2–5 mm long, white. Leaf-blades 3–5 cm long, 2–4 mm wide, light green. Leaf-blade surface smooth, glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 10–25 cm long, 1–1.5 cm wide. Primary panicle branches appressed, 1–3 -nate, simple, bearing 1–4 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 7–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, compressed slightly, 10–25 mm long, 2.5–3 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate or ovate, 0.8–1 mm long, 0.5 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate or ovate, 1.8–2.2 mm long, 0.33–0.75 length of adjacent

fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma elliptic or ovate, 2.5–3.5 mm long, membranous, much thinner above, much thinner on margins, without keel, 7 -veined, more than 3-veined. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Palea apex emarginate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russian Far East and **Eastern Asia.** Kuril Is.

Glyceria drummondii (Steud.) C. E. Hubbard. *Kew Bull.* 1934, 450 (1934).

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:** *Porroteranthe drummondii* Steud., *Syn. Pl. Gram.* 287 (1855). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Australia: *Drummond* 390 (K iso).

Illustrations: None found.

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Annual. Culms decumbent, 50–100 cm long, spongy. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blades 10–15 cm long, 3–8 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous.

Inflorescence. Inflorescence a panicle, exserted or embraced at base by subtending leaf. Panicle open, lanceolate, secund, 15–25 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 5–14 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 10–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–4 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 0.5–1 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, 1.5–2.5 mm long, 0.25 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 6–8 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex obtuse. Palea 1.1 length of lemma, 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. **Australia.** Western Australia. South-West.

Glyceria elata (Nash) Hitchcock. *Jepson, Fl. Calif.* i. 162 (1912).

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

TYPE from USA. **Basionym or Replaced Name:** *Panicularia elata* Nash, *Mem. New York Bot. Gard.* 1: 54 (1900)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: (NY; IT: US- (fragm. ex NY & photo)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (78).

Derivation (Clifford & Bostock 2007): L. tall. Culms taller than those of most species of the genus.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 100–150 cm long. Leaf-sheaths tubular for much of their length, retrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 3–6 mm long, erose, truncate. Leaf-blades 6–10 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 15–25 cm long. Primary panicle branches spreading. 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 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 oblong, 0.7–1.2 mm long, 0.66 length of upper glume, membranous, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex erose, acute. Upper glume oblong, 1–1.8 mm long, 0.5–0.9 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex erose, acute.

Florets. Fertile lemma oblong, 2 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma apex erose, obtuse. Palea 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 2, 0.7–0.8 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 20$ (FNA).

Distribution (TDWG). Continent. North America.

Country /Province /State. Western Canada, Northwest USA, Southwestern USA, South-central USA. Alberta, British Columbia. Idaho, Montana. California. New Mexico.

Glyceria fluitans (L.) R. Br. *Prod.* 179. (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), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

TYPE from Europe. **Basionym or Replaced Name:** *Glyceria fluitans* L, *Sp. Pl.* 75 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Europe: *Herb. Linn.* 92/22 (LINN holo).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (118), T. Cope & A. Gray, *Grasses of the British Isles* (128), N.N.Tsvelev, *Grasses of the Soviet Union* (1983) (815 (539), Pl.10), C.A.Gardner, *Flora of Western Australia*, Vol 1, Part 1, *Gramineae* (1952) (103, Pl 29), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (84).

Illustrations (Journals): *Ruizia* (13:146, Fig15a-c (1993)).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);.

Derivation (Clifford & Bostock 2007): L. *fluito*, float. Leaves or rhizomes floating.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms erect or decumbent, 50–100 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, keeled, smooth, glabrous on surface. Ligule an eciliate membrane, 5–15 mm long, acute. Leaf-blades flat or conduplicate, 5–25 cm long, 3–10 mm wide. Leaf-blade surface smooth. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted (spreading at anthesis), linear, equilateral or nodding, 10–50 cm long. Primary panicle branches spreading, 1–2 -nate, simple, bearing 1–4 fertile spikelets on each lower branch. Panicle branches smooth. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 1–4 mm long.

Fertile Spikelets. Spikelets comprising 8–16 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 oblong, laterally compressed, 18–35 mm long, 2–3.5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 2–3 mm long, 0.66 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, 0.5–0.66 length of adjacent fertile lemma, membranous, without keels, 1(–3) -veined. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 6–7.5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex acute. Palea 1–1.1 length of lemma, 2 -veined. Palea keels winged, narrowly winged. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 2–3 mm long. Caryopsis with adherent pericarp, ellipsoid, 2.5–3 mm long. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

$2n = 20$ (1 ref TROPICOS), or 40 (2 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. : Denmark, Great Britain, Svalbard. : Balears. : Crete. Belarus, Estonia, Latvia, Lithuania, Krym, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa, Macaronesia.** Algeria, Morocco, Tunisia. Azores. Siberia, **Caucasus, Western Asia.** Irkutsk. **Australia** (*), **New Zealand** (*). Tasmania (*). **Eastern Canada, North-central USA, Northeast USA, Southwestern USA, Mexico.** New Brunswick, Newfoundland, Nova Scotia, Prince Edward I. California. Central Mexico, Northeast Mexico, Southwest Mexico. **Western South America, Southern South America.** Colombia, Ecuador, Peru. Chile Central, Chile South.

Maule, Biobio, La Araucania. Los Lagos, Magallanes. Mexico State. Durango, Guanajuato, Hidalgo, Queretaro, San Luis Potosi. Michoacan.

Glyceria formosensis Ohwi. *Acta Phytotax. & Geobot.* 2: 164. (1933).

T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Taiwan, Nokogoe: *Ohwi* 3193.

Illustrations: None found.

Classification. Subfamily Pooideae. Tribe: Meliceae.

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

Country /Province /State. Eastern Asia. Taiwan.

Glyceria grandis Wats. *A. Gray, Man. N. U. St. A. Bot. ed.* 6 667 (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).

TYPE from Canada. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Canada, Quebec: Munro (GH lecto).

Illustrations (Books): K.F.Best, et al, *Prairie Grasses* (1971) (139), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (72, as var. *grandis* & var. *komarovii*).

Derivation (Clifford & Bostock 2007): L. tall. Plants robust with tall culms.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 90–160 cm long. Leaf-sheaths tubular for much of their length, with 0.9–1 of their length closed. Ligule an eciliate membrane, 4–9 mm long, obtuse. Leaf-blades 6–15 mm wide. Leaf-blade surface scaberulous, rough abaxially.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 20–35 cm long. Primary panicle branches ascending or spreading. 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, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 1.6–1.7 mm long, 0.66 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2.4–2.5 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma oblong, 2.5–2.7 mm long, membranous, purple, without keel, 7 -veined, more than 3-veined. Lemma lateral veins distinct. Lemma apex erose, obtuse. Palea 2 -veined. Palea apex erose. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers (2–)3, 0.5–0.9 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 20$ (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. Alberta, British Columbia, Manitoba, Saskatchewan. Labrador, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward I, Quebec. Colorado, Idaho, Montana, Oregon, Washington, Wyoming. Illinois, Iowa, 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.

Glyceria holubii Tzvelev. Bot. Zhurn. Mostow & Leningrad [St. Petersburg] 91(2): 266–267. 2006. (20 Feb 2006).

TYPE from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: prov. Tunceli: Ovacik-Hozat, 2000 m, flush in oak scrub, 22 VII 1957.

Illustrations: None found.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms 50–90 cm long. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 3.5–7 mm long, lacerate. Leaf-blades 2.5–6 mm wide, stiff, grey-green. Leaf-blade surface scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 15–26 cm long. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 lanceolate or oblong, laterally compressed, 8–14 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 1.3–1.7 mm long, 0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Upper glume lanceolate, 1.7–2.3 mm long, 0.66 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent.

Florets. Fertile lemma ovate, 2.6–3.3 mm long, membranous, much thinner above, without keel, more than 3-veined. Lemma lateral veins with distinct primaries but obscure intermediates. Lemma surface asperulous. Lemma apex attenuate. Palea 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 0.9–1.1 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Western Asia. Turkey.

Glyceria insularis C.E.Hubb. *Bull. Brit. Mus. (Nat. Hist.), Bot.*, 8(4): 394 (1981).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Tristan da Cunha. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Tristan da Cunha: Mejlund 1365 (K holo, O).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. insula*, island; *-are*, pertaining to. Island species.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes elongated. Culms erect or geniculately ascending, 25–55 cm long. Lateral branches lacking. Leaf-sheaths tubular for much of their length, with 1 of their length closed, longer than adjacent culm internode, keeled, striately veined or reticulately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 5–10 mm long, lacerate. Leaf-blades flat or conduplicate, 6–21 cm long, 4–10 mm wide. Leaf-blade surface smooth. Leaf-blade margins cartilaginous. Leaf-blade apex acute, hardened.

Inflorescence. Inflorescence a panicle. Panicle open, linear or lanceolate, dense, secund, 12–24 cm long, 0.5–1.5 cm wide, contracted about primary branches. Primary panicle branches 2–3-nate, simple, 2–3 cm long, bearing spikelets almost to the base. Panicle axis smooth. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 2–4 mm long, smooth.

Fertile Spikelets. Spikelets comprising 6–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or oblong, laterally compressed, 15–23 mm long, 2–3 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3.5–7.5 mm long, membranous, without keels, 1-veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume lanceolate or oblong, 5.5–8 mm long, membranous, without keels, 1-veined. Upper glume apex obtuse or acute.

Florets. Fertile lemma lanceolate or oblong, 6–7.5 mm long, coriaceous, much thinner above, without keel, 7-veined, more than 3-veined. Lemma surface scaberrulous. Lemma apex dentate, 3-fid, obtuse or acute. Palea elliptic or oblong, 4–5 mm long, 2-veined. Palea keels winged, narrowly winged. Palea apex entire or dentate, 2-fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1.3–1.8 mm long. Caryopsis with adherent pericarp, ellipsoid or oblong, dorsally compressed, 2 mm long, dark brown.

Distribution (TDWG). Continent. Antarctica.

Country /Province /State. Subantarctic islands. Tristan de Cunha.

Glyceria ischyronura Steud. *Syn. Pl. Gram.* 427 (1854).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

TYPE from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan: Coll?.

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (115, Fig 34).

Derivation (Clifford & Bostock 2007): Gk. *ischyros*, strong; *neuron*, nerve. Lemmas conspicuously seven-nerved.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms geniculately ascending or decumbent, 70–120 cm long, 2–4 mm diam., 4–7-noded, rooting from lower nodes. Culm-internodes 3–10 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blades 20–40 cm long, 5–10 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, equilateral or nodding, 15–40 cm long, 3–7 cm wide. Primary panicle branches appressed, 3-nate, 6–10 cm long. Panicle axis smooth or with occasional prickles. Panicle branches smooth or scabrous. 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 lanceolate or oblong, laterally compressed, 5–7 mm long, 1.5–1.8 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes zig-zag, 1–1.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 0.8–1.2 mm long, 0.5–0.66 length of upper glume, membranous, without keels, 1-veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.5–1.8 mm long, 0.75 length of adjacent fertile lemma, membranous, without keels, 1-veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 2–2.2 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex obtuse. Palea bowed outwards, 1 length of lemma, 2 -veined. Palea surface scabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 0.5–0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 40$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russian Far East, **Eastern Asia**. Kuril Is. Japan Hokkaido, or Honshu, or Shikoku, or Kyushu. Japan, Korea.

Glyceria latispicea (F.Muell.) F. Muell. *Fragm.* viii. 127. (1873).

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:** *Festuca latispicea* F. Muell., *Fragm.* 8: 127 (1873); *Poa aquatica* L. *Sp. Pl.* 1: 67 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ad Gwydir et Myall-Creek, Leichhardt; in Nova Anglia, C. St.,.

Recent Synonyms: *Poa latispicea* (F. Muell.) F. Muell., *Syst. Census Austral. Pl.* 134 (1883).

Illustrations (Books): S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (271), A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* (2009) (75, Fig 11), D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002).

Derivation (Clifford & Bostock 2007): *L. latus*, broad; *spica*, thorn. Spikelets broad.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms 50–110 cm long. Leaf-sheaths tight, tubular for much of their length, with 1 of their length closed, mostly shorter than adjacent culm internode, ribbed, glabrous on surface. Ligule an eciliate membrane, 5 mm long, acute. Leaf-blades 3–5 mm wide. Leaf-blade midrib conspicuous. Leaf-blade surface ribbed, scabrous, glabrous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, 10–15 cm long, 2 cm wide. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 20–50 mm long, scabrous.

Fertile Spikelets. Spikelets comprising 2–6 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 15 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 7–10 mm long, 0.9 length of upper glume, membranous, much thinner on margins, without keels, 3–5 -veined. Lower glume primary vein scabrous. Lower glume apex acute. Upper glume lanceolate, 8–11 mm long, 1.2–1.3 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 5 -veined. Upper glume primary vein scabrous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 6–9 mm long, membranous, much thinner on margins, keeled, 7 -veined, more than 3-veined. Lemma surface puberulous, hairy below. Lemma apex dentate, 2 -fid, with lobes 0.5 mm long. Palea 5–7 mm long, 2 -veined. Palea surface puberulous. Apical sterile florets resembling fertile though underdeveloped.

Distribution (TDWG). Continent. Australasia.

Country /Province /State. **Australia.** New South Wales.

Coast, Tablelands, Western Slopes.

Glyceria lazistanica Holub ex Tzvelev. *Bot. Zhurn.* (Moscow & Leningrad) 91(2): 264 (2006).

TYPE from Turkey. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Turkey, Lazistan, Khabakhor: *Balansa 1554* (LE holo).

Illustrations: None found.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 70–130 cm long. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades 4–9 mm wide, stiff. Leaf-blade surface puberulous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 20–35 cm long. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 5–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 1.3–1.7 mm long, 0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.7–2.2 mm long, 0.75 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma ovate, 2.3–2.7 mm long, membranous, without keel, more than 3-veined. Lemma surface smooth. Lemma apex acute. Palea bowed outwards, 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 0.6–0.7 mm long. Caryopsis with adherent pericarp.

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

Country /Province /State. Western Asia. Turkey.

Glyceria leptolepis Ohwi. *Bot. Mag., Tokyo*, xlv. 381. (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), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

TYPE from Japan. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Japan, Okudamura: Tashiro.

Illustrations (Books): C-C Hsu, *Flora of Taiwan*, Vol 5 (1978) (330), C-C Hsu, *Taiwan Grasses* (1975), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 295).

Derivation (Clifford & Bostock 2007): Gk. *leptos*, thread; *lepis*, scale. Lemmas narrow-lanceolate.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, culms solitary. Rhizomes absent or elongated. Culms erect, 80–150 cm long, 5–8 mm diam., 10–16 -noded. Culm-internodes 5–12 cm long. Leaves cauline. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 0.8–1.3 mm long, truncate. Leaf-blades flat or involute, 40–60 cm long, 5–13 mm wide. Leaf-blade surface scabrous, rough adaxially, glabrous. Leaf-blade margins scabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or ovate, nodding, 20–30 cm long, 6–10 cm wide. Primary panicle branches 2–3 -nate, 4–12 cm long. Panicle axis scabrous. Panicle branches scabrous, rough distally. 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 elliptic, laterally compressed, 6–8 mm long, 2–3 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 1.5–2 mm long, 0.5–0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.8–2.2 mm long, 0.66 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate or oblong, 3–3.5 mm long, membranous, much thinner above, yellow or light green, without keel, 7 -veined, more than 3-veined. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels scabrous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 2, 0.6–0.7 mm long. Caryopsis with adherent pericarp, oblong, 1.5 mm long. Hilum linear.

$2n = 20$ (1 ref TROPICOS).

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

Country /Province /State. Russian Far East, **China, Eastern Asia.** Khabarovsk, Primorye, Sakhalin. China South Central, Inner Mongolia, Manchuria, China North-Central, China Southeast. Japan Hokkaido. Japan, Korea, Taiwan.

Gansu, Shaanxi, Shandong. Anhui, Henan, Jiangxi, Zhejiang. Hubei.

Glyceria leptorhiza (Maxim.) Komarov. *Act. Hort. Petrop.* 20: 307 (1901).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), N.Tsvelev, *Grasses of the Soviet Union* (1983), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

TYPE from Russia. **Basionym or Replaced Name:** *Glyceria fluitans* var. *leptorhiza* Maxim., *Mem. Sav. Etr. Petersb.* 9:320 (1859). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Amur, Chache: Maximovicz (LE holotype, K).

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 294).

Derivation (Clifford & Bostock 2007): Gk. *leptos*, thin; *rhiza*, root. Rhizomes thin.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect or geniculately ascending, 20–40 cm long, 1–1.7 mm diam., 2–4 -noded. Culm-internodes 6–12 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 2–5 mm long, white. Leaf-blades 3–5 cm long, 2–4 mm wide. Leaf-blade surface glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle open, linear, 10–25 cm long, 1–1.5 cm wide. Primary panicle branches appressed, 1–3 -nate, simple, bearing 1–4 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 7–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or oblong, laterally compressed, compressed slightly, 10–25 mm long, 2.5–3 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 0.8–1 mm long, 0.5 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 1.8–2.2 mm long, 0.33–0.75 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma elliptic or ovate, 2.5–5.7 mm long, membranous, much thinner above, much thinner on margins, without keel, 7 -veined, more than 3-veined. Lemma apex acuminate. Palea 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged, ciliolate. Palea apex emarginate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Caryopsis with adherent pericarp. Hilum linear.

$2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, Russian Far East, **China**, **Eastern Asia**. Buryatiya. Amur, Khabarovsk, Primorye. Manchuria. Japan Hokkaido, or Honshu. Japan.

Glyceria leptostachya Buckl. *Proc. Acad. Sc. Philad.* 1862 :95 (1863).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Oregon, Columbia R.: Nuttall (PH holotype).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (84).

Derivation (Clifford & Bostock 2007): Gk. *leptos*, narrow; *stachys*, ear of corn. Spikelets long and narrow.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms geniculately ascending or decumbent, 60–100 cm long. Leaf-sheaths tubular for much of their length, scaberulous, glabrous on surface. Ligule an eciliate membrane, 6–11 mm long, lacerate, acute. Leaf-blades 3–7 mm wide. Leaf-blade surface scaberulous, rough on both sides, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 20–40 cm long. Primary panicle branches appressed or ascending, 2–3 -nate. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 8–13 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 12–18 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 1.2–1.5 mm long, 0.5 length of upper glume, membranous, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 2.4–3 mm long, 0.8–1 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 3 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scaberulous. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

Distribution (TDWG). Continent. North America.

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

Glyceria lithuanica (Gorski) Gorski. *Icon. Bot. Char. Cyp. Gram. Lith.* :t.20 (1849).

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), T.Koyama, *Grasses of Japan and its neighboring regions* (1987).

TYPE from Lithuania. **Basionym or Replaced Name:** *Poa lithuanica* Gorski, *Naturihist. Skizze* 117 (1830)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Lithuania: Coll? (WI holo).

Illustrations (Books): T.Koyama, *Grasses of Japan and its neighbouring regions* (1987) (112, Fig 36), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 297).

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

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, culms solitary. Stolons present. Culms erect, 70–110 cm long, 2–4 mm diam., 4–6 -noded. Culm-internodes 5–15 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 20–30 cm long, 5–8 mm wide. Leaf-blade surface scaberulous, rough adaxially, glabrous. Leaf-blade apex obtuse or abruptly acute or acute.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, nodding, 15–25 cm long, 7–14 cm wide. Primary panicle branches 2–5 -nate, 10–14 cm long. Panicle branches scabrous. 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 or ovate, laterally compressed, 4–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 0.8–1 mm long, 0.66 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.3–1.5 mm long, 0.33–0.5 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma flabellate, 3–3.5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 0.7 mm long. Caryopsis with adherent pericarp. Hilum linear.

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

Region. Northern Europe, Middle Europe, Eastern Europe.

Country /Province /State. : Finland, Norway, Sweden. : Poland. Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, North European Russia, Northwest European

Russia. Siberia, Russian Far East, **Caucasus, China, Mongolia, Eastern Asia, Russia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Khabarovsk, Kuril Is, Primorye, Sakhalin. Manchuria. Mongolia. Japan Hokkaido, or Honshu. Japan, Korea.

Glyceria maxima (Hartm.) O. R. Holmberg. *Bot. Notiser.* 1919, 97 (1919).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), D.Sharp, D. & B.K.Simon, *AusGrass* (2002), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

TYPE from Europe. **Basionym or Replaced Name:** *Molinia maxima* Hartm., *Handb. Skand. Fl.* 56 (1820) ; *Poa aquatica* L., *Sp. Pl.* 67 (1753). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Poa aquatica* ; Europe: Herb. Linn. 87.1 (LINN lecto) ; LT: (LINN-87.1). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 255 (2000).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (124), T. Cope & A. Gray, *Grasses of the British Isles* (127), J.P.Jessop, G.R.M. Dashorst & F.M.James, *Grasses of South Australia* (2006) (178, Fig 128), S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler., *Grasses of New South Wales*, 4th edn (2008) (271), J.C.Tothill,& J.B.Hacker. *The grasses of southern Queensland* (1983) (252), 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) (75, Fig 11), 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) (74).

Images: D.Sharp & B.K.Simon, *AusGrass*. Grasses of Australia. CD-Rom Version 1.0. (2002);, R.Darke, *Ornamental Grasses* (2004);, R.Darke, *The Encyclopaedia of Grasses for Liveable Landscapes* (2007);.

Derivation (Clifford & Bostock 2007): L. greatest. Culms very tall.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 90–250 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, keeled, smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–6 mm long, obtuse (cuspidate). Leaf-blades flat, 30–60 cm long, 7–20 mm wide. Leaf-blade venation with obscure cross veins. Leaf-blade surface smooth or scaberulous, rough abaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Peduncle smooth or scaberulous above. Panicle open, oblong or ovate, equilateral, 15–45 cm long. Primary panicle branches spreading, profusely divided, 6–20 cm long. Panicle branches scabrous. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present, 1–10 mm long.

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, laterally compressed, compressed strongly, 5–12 mm long, 2–3.5 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 or ovate, 2–3 mm long, 0.6–0.8 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume oblong or ovate, 3–4 mm long, 1 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Fertile lemma lanceolate or ovate, 3–4 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels wingless, scaberulous. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1.5–2 mm long. Caryopsis with adherent pericarp, ellipsoid, 1.5–2 mm long. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

$2n = 60$ (1 ref TROPICOS).

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

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

Country /Province /State. : Denmark, Finland, Great Britain, Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : France, Sardinia. : Bulgaria, Greece, Italy, Romania, Sicily, Turkey Europe, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. Siberia, **Middle Asia, Western Asia, China.** Kazakhstan. Xinjiang. **Australia** (*), **New Zealand** (*). Western Australia (*), South Australia (*), Queensland (*), New South Wales (*), Victoria (*), Tasmania (*). New Zealand North I, New Zealand South I. **Subarctic America, Western Canada, Eastern Canada.** Alberta. Newfoundland, Ontario.
South-West. Southern. South East. Tablelands, Western Slopes, Western Plains.

Glyceria melicaria (Michx.) Hubbard. *Rhodora*, xiv. 186 (1912).

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

TYPE from USA. **Basionym or Replaced Name:** *Panicum melicarium* Michx., *Fl. Bor. Am.* 1: 50 (1803). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Carolina: Michaux (P holo).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (76).

Derivation (Clifford & Bostock 2007): L. *-aria*, pertaining to. Resembling *Melica*..

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms 60–100 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed. Ligule an eciliate membrane. Leaf-blades 2–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence a panicle. Panicle contracted, linear, nodding, 15–25 cm long. Primary panicle branches appressed, distant, simple. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 1.5 mm long, 0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2 mm long, 0.8–1 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma oblong, 2–2.5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma apex acute. Palea 2 -veined. Apical sterile florets 1 in number, barren, cuneate, 0.5 mm long.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

$2n = 40$ (FNA).

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

Country /Province /State. **Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, Southeastern USA.** Colorado. Illinois. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. Utah. North Carolina, Tennessee.

Glyceria multiflora Steud. *Syn. Pl. Gram.* 285. (1854).

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

TYPE from Chile. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Chile, Quillota: Bertero 1240 (P holo, MO).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 2 Pooideae (2012) (84), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (2027, Fig. 69), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (258, Fig. 55 & 267, Fig. 58), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (66, Fig 17), A.L.Cabrera, *Flora de la Provincia de Buenos Aires, IV Pt 2 Gramineas* (1970) (321, Fig. 81), M.N.Correa, *Flora Patagonica* Parte III, Gramineae (1978) (271, Fig. 176), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (118, Fig. 42), H.M. Longhi-Wagner, *Flora Illustrada do Rio Grande do Sul, Gramineae, Poeae* (1987).

Derivation (Clifford & Bostock 2007): *L. multus*, many; *flos*, flower. Spikelets with more florets than those of related species.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 30–70 cm long, rooting from lower nodes. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 7–15 mm long, lacerate, truncate or acute. Leaf-blades floating, flat or conduplicate, 10–30 cm long, 5–14 mm wide. Leaf-blade surface glabrous.

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

Fertile Spikelets. Spikelets comprising 12–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 15–25 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, 0.66–0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 3–4 mm long, 0.7–0.9 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma elliptic, 4–4.5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex dentate, 3 -fid. Palea 1 length of lemma, 2 -veined. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 1 mm long. Caryopsis with adherent pericarp, 2 mm long, green or dark brown. Hilum linear.

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

Region. Northern Europe (*).

Country /Province /State. : GB Aliens (Ryves et al). **Western South America, Brazil, Southern South America.** Bolivia, Colombia. Brazil South. Argentina Northeast, Chile Central, Uruguay.

Catarina, Rio Grande do Sul. Rio Grande do Sul, Santa Catarina. Buenos Aires, Cordoba, Distrito Federal, Entre Rios, Santa Fe. Chubut, Neuquén, Río Negro, Santa Cruz. Rest of Chile- Biobio, La Araucania, Maule, O'Higgins, Santado, Valpariso. Santiago, Maule, Biobio, La Araucania. Los Lagos, Aisen, Magellanes.

Glyceria nemoralis (Uechtr.) Uechtr. & Koern. *Bot. Zeit.* xxiv. 121. (1866).

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 Hungary. **Basionym or Replaced Name:** *Glyceria plicata* var. *nemoralis* Uechtr., *Jahresber. Schles. Ges. Vaterl. Kult.* 41:97 (1863). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Hungary, Bratislava: Coll?.

Illustrations (Books): G.Hegi, *Flora von Mitteleuropa* 1 (1909).

Derivation (Clifford & Bostock 2007): *L. nemus*, wood, *-alis*, pertaining to. Woodland species.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms 40–110 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 3–3.5 mm long, lacerate. Leaf-blades 2–5 mm wide, light green. Leaf-blade surface scaberulous, rough adaxially. Leaf-blade margins scabrous. Leaf-blade apex acute or acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 15–35 cm long. Primary panicle branches spreading, bearing 1–16 fertile spikelets on each lower branch. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 elliptic or ovate, laterally compressed, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 1.5–1.7 mm long, 0.8 length of upper glume, membranous, without keels. Lower glume apex obtuse. Upper glume oblong, 1.8–2 mm long, 0.66 length of adjacent fertile lemma, membranous, without keels. Upper glume apex obtuse.

Florets. Fertile lemma elliptic or obovate, 3–3.5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins with distinct primaries but obscure intermediates. Lemma surface smooth. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1–1.5 mm long, yellow. Caryopsis with adherent pericarp. Hilum linear.

$2n = 20$ (1 ref TROPICOS).

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

Region. Middle Europe, Southeastern Europe, Eastern Europe.

Country /Province /State. : Czechoslovakia, Germany, Hungary, Poland. : Bulgaria, Romania, Yugoslavia. Belarus, Estonia, Latvia, Lithuania, Baltic States, Central European Russia, East European Russia, Northwest European Russia, Ukraine. **Caucasus, Western Asia.** North Caucasus, Transcaucasus. Turkey.

Glyceria notata Chevall. *Fl. Env. Paris* 2:174 (1827).

Accepted by: R.J.Soreng et al., *Catalogue of New World Grasses* (2000–2003) and online, W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006), S-L Chen et al, *Flora of China* 22 (Poaceae) (2006), W.D.Clayton & N.Snow, *Key to Pacific Grasses* (2010).

TYPE from France. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: France, Paris: Balansa.

Recent Synonyms: *Glyceria plicata* (Fries) Fries, *Mant.* 3: 176 (1842).

Illustrations (Books): T. Cope & A. Gray, *Grasses of the British Isles* (129), M.E.Barkworth et al, *Flora of North America north of Mexico Vol 24 Poaceae*, part 1 (2007) (86).

Derivation (Clifford & Bostock 2007): *L. noto*, mark. Spikelets multi-colored.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose. Culms decumbent, 30–75 cm long, spongy, rooting from lower nodes. Leaf-sheaths tubular for much of their length, with 1 of their length closed, keeled, striately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 2–8 mm long, obtuse. Leaf-blades flat or conduplicate, 5–30 cm long, 3–14 mm wide. Leaf-blade surface scaberulous, rough abaxially or on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or oblong, 10–45 cm long. Primary panicle branches spreading, 2–5 -nate, simple, 3–12 cm long. Panicle branches scabrous. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present, 1–6 mm long.

Fertile Spikelets. Spikelets comprising 7–16 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 oblong, laterally compressed, compressed slightly, 10–25 mm long, 1.5–2 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume elliptic or oblong, 1.5–2.5 mm long, 0.6–0.7 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume elliptic or oblong, 2.5–4 mm long, 0.7–0.8 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 3.5–5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex obtuse. Palea 0.9–1 length of lemma,

2 -veined. Palea keels winged, narrowly winged. Palea apex dentate, 2 -fid, obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1–1.5 mm long. Caryopsis with adherent pericarp, ellipsoid, 2 mm long. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

$2n = 40$ (1 ref TROPICOS).

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

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

Country /Province /State. : Denmark, Great Britain. Belarus, Estonia, Latvia, Lithuania, Central European Russia, East European Russia, North European Russia, South European Russia, Northwest European Russia, Ukraine. **Northern Africa.** Morocco. Siberia, Russian Far East, **Middle Asia, Caucasus, Western Asia, China, Russia.** Sakhalin. Kazakhstan, Kirgizistan, Turkmenistan, Tadjikistan, Uzbekistan. Afghanistan. Xinjiang. **Indian Subcontinent.** Pakistan. **Australia** (*), **New Zealand** (*). Hawaii (*). **Eastern Canada, North-central USA, Northeast USA.** Wisconsin. Indiana. **Mesoamerica, Western South America.** Costa Rica. Colombia.

Glyceria nubigena W. A. Anders. *Rhodora*, v. 321. (1933).

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

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Great Smoky Mts.: Andersom & Jennison 1418 (TENN holo, GH).

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

Derivation (Clifford & Bostock 2007): *L. nubes*, cloud; *gigno*, bear. Growing on high mountains.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms 100–200 cm long. Culm-internodes smooth. Leaf-sheaths tubular for much of their length, longer than adjacent culm internode, smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades 20–45 cm long, 6–10 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 20–30 cm long. Primary panicle branches spreading or reflexed. Panicle branches stiff. 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, 4–5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 1.5 mm long, 0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume oblong, 2 mm long, 0.75 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma oblong, 2.5 mm long, membranous, dark green, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma apex erose, obtuse. Palea 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

$2n = 40$ (FNA).

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

Country /Province /State. Southwestern USA. California.

Glyceria obtusa (Muhl.) Trin. *Mem. Acad. Petersb. Ser. VI. i.* 366 (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 USA. **Basionym or Replaced Name:** *Poa obtusa* Muhl., *Desc. Gram.* 147 (1817). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Pennsylvania: Coll?.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (74).

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

Derivation (Clifford & Bostock 2007): L. blunt. Glumes or lemmas apically rounded.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms erect or geniculately ascending, 50–100 cm long. Leaf-sheaths tubular for much of their length, smooth, glabrous on surface. Ligule an eciliate membrane. Leaf-blades flat or conduplicate, 2–6 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic or oblong, dense, 10–50 cm long. Primary panicle branches appressed or ascending. 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 ovate, laterally compressed, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.5 mm long, 0.75 length of upper glume, membranous, much thinner above, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 2 mm long, 0.5–0.66 length of adjacent fertile lemma, membranous, much thinner above, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 3–4 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins obscure. Lemma surface smooth. Lemma apex obtuse. Palea 0.9 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

$2n = 40$ (FNA).

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

Country /Province /State. **Eastern Canada, Northeast USA, Southeastern USA.** New Brunswick. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

Glyceria occidentalis (Piper) J. C. Nelson. *Torreyia* xix. 224 (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).

TYPE from USA. **Basionym or Replaced Name:** *Panicularia occidentalis* Piper, Piper & Beattie, *Fl. N. W. Coast*, 59 (1915). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Washington, Vancouver: Piper 4905 (US holo).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (84, as hybrid).

Derivation (Clifford & Bostock 2007): L. *occident*, west; *-ale*, pertaining to.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 60–150 cm long. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 7–12 mm long, glabrous on abaxial surface or pubescent on abaxial surface, lacerate, acute. Leaf-blades flat or conduplicate, 4–8 mm wide. Leaf-blade surface scaberulous, rough on both sides, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 20–50 cm long. Primary panicle branches ascending or spreading. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 6–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 15–22 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes straight or curved, 1.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 1.5 mm long, 0.5 length of upper glume, membranous, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume oblong, 3 mm long, 0.5 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 5.5 mm long, membranous, mid-green or purple, tipped with last colour, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scabrous. Lemma apex erose, obtuse. Palea 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1.4–1.6 mm long. Caryopsis with adherent pericarp. Hilum linear.

Distribution (TDWG). Continent. North America.

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

***Glyceria potaninii* Tzvelev. Bot. Zhurn. (Moscow & Leningrad) 91(2): 268 (2006).**

TYPE from China. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: China, Sichuan, Peishan to Yacho: Coll? (LE holo).

Illustrations: None found.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending or decumbent, 40–80 cm long, 2.5–5 mm diam. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades 3–5 mm wide. Leaf-blade surface smooth, puberulous, sparsely hairy, hairy adaxially.

Inflorescence. Inflorescence a panicle. Panicle contracted, lanceolate, continuous or interrupted. Panicle branches smooth. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 7–13 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed, 20–35 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2.3–3 mm long, 0.66 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Upper glume lanceolate, 4–5 mm long, 0.66 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent.

Florets. Fertile lemma ovate, 7–8.5 mm long, membranous, without keel, more than 3-veined. Palea 1.15 length of lemma, 2 -veined. Palea keels winged, narrowly winged. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 1–1.2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Temperate Asia.

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

***Glyceria probatovae* Tzvelev. Bot. Zhurn. (Moscow & Leningrad) 91(2): 262 (2006).**

TYPE from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Kurile Is., Iturup, Sentjabrjskij: *Probatova* (LE holo).

Illustrations: None found.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 40–60 cm long. Culm-internodes thick-walled to solid. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.3–1.5 mm long. Leaf-blades 1.5–4 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, loose, bearing few spikelets. Panicle branches scaberulous. 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 or oblong, laterally compressed, 5–7 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 0.5–1.2 mm long, 0.5 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume lanceolate, 1.3–2 mm long, 0.66 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 2–2.5 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous, rough on veins. Lemma apex obtuse. Palea bowed outwards, 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russian Far East. Kuril Is.

Glyceria pulchella (Nash) K. Schumann. *Bot. Jahrbesber. (Just)*, 29(1): 513 (1903).

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

TYPE from USA. **Basionym or Replaced Name:** *Panicularia pulchella* Nash, Britton & Rydb. in *Bull. N. Y. Bot. Gard.* 2. 6: 157 (1901). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Alaska, White R.: Williams.

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (76).

Derivation (Clifford & Bostock 2007): L. pretty. Attractive in some respect, usually the inflorescence.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms 40–100 cm long, without nodal roots or rooting from lower nodes. Leaf-sheaths tubular for much of their length, retrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades 2–5 mm wide. Leaf-blade surface scabrous, rough on both sides, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 15–25 cm long. Primary panicle branches ascending or spreading. 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 or ovate, laterally compressed, 3.5–6 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.8–1.5 mm long, 0.5–0.66 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, 1.5–2 mm long, 0.66–0.75 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 2.5–3 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scabrous, rough on veins. Lemma apex obtuse. Palea 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

$2n = 20$ (1 ref TROPICOS).

Distribution (TDWG). Continent. North America.

Country /Province /State. Subarctic America, Western Canada. Alaska, Yukon, Northwest Territories. Alberta, British Columbia, Manitoba, Saskatchewan.

Glyceria saltensis A.A.Sulekic & Z.E.Rugolode Agrasar. *Darwiniana*, 35: 155 (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 Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina, Valle Encantado: Sulekic & Espeche 1396 (SI holo).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 2 Pooideae (2012) (85).

Illustrations (Journals): *Darwiniana* (35: 156, Fig.1 (1998)).

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

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, caespitose, clumped densely. Culms erect or geniculately ascending, 50–85 cm long, 3–7 mm diam., without nodal roots or rooting from lower nodes. Culm-nodes glabrous. Leaf-sheaths longer than adjacent culm internode, smooth, glabrous on surface or hispid. Ligule an eciliate membrane, 5–11 mm long, acute. Leaf-blades erect, flat or conduplicate, 8–16 cm long, 2.5–6 mm wide. Leaf-blade surface glabrous. Leaf-blade apex hooded.

Inflorescence. Inflorescence a panicle, embraced at base by subtending leaf. Panicle contracted, linear, nodding, 35–50 cm long, 0.5–1 cm wide, bearing few spikelets. Primary panicle branches appressed, bearing 1–4 fertile spikelets on each lower branch. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 2.5–3 mm long.

Fertile Spikelets. Spikelets comprising 6–14 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 11.5–23 mm long, 2 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes eventually visible between lemmas. Floret callus glabrous.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2.5–4 mm long, 0.66 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface glabrous. Lower glume apex obtuse or acute. Upper glume lanceolate, 4.5–6 mm long, 1.2 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Fertile lemma oblong, 3.7–5 mm long, membranous, much thinner above, without keel, 11 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface scaberulous. Lemma apex obtuse or acute. Palea 3.5–4.8 mm long, 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged, scaberulous. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, 0.2–0.3 mm long, fleshy, truncate. Anthers 3, 1.3–1.5 mm long. Caryopsis with adherent pericarp, ellipsoid, laterally compressed, 2.9–3 mm long. Hilum linear, 1 length of caryopsis.

Distribution (TDWG). Continent. South America.

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

Glyceria septentrionalis Hitchcock. *Rhodora*, viii. 211 (1906).

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

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, New Jersey, Guttenberg: Van Sickle (US iso).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007), F.W.Gould, *The Grasses of Texas* (1975) (67, Fig. 27).

Derivation (Clifford & Bostock 2007): *L. northern*. Northern in distribution.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms 100–180 cm long, rooting from lower nodes. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades 4–10 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, equilateral or nodding, 18–40 cm long. Primary panicle branches ascending, simple, 3–12 cm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 7–20 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, compressed slightly, 8–30 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume oblong, 2–5 mm long, 0.75 length of upper glume, membranous, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex erose, obtuse. Upper glume oblong, 2.5–5.5 mm long, 0.7–1.1 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 1 -veined. Upper glume apex erose, obtuse.

Florets. Fertile lemma oblong, 3.5–5 mm long, membranous, light green, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex erose, obtuse. Palea 1.1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1 mm long. Caryopsis with adherent pericarp. Hilum linear.

$2n = 20$ (1 ref TROPICOS).

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

Country /Province /State. Eastern Canada, North-central USA, Northeast USA, South-central USA, Southeastern USA, Mexico. Ontario. Illinois, Iowa, Missouri, Wisconsin. Texas. Alabama, Arkansas, Delaware, Georgia, Kentucky, Louisiana, Maryland, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Central Mexico, Northeast Mexico. **Western South America.** Colombia.

Mexico State. Queretaro, San Luis Potosi.

Glyceria spicata Guss. *Fl. Sic. Syn.* ii. 784 (1844).

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 Sicily. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sicily: Coll? (K iso).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. spica*, thorn; *-ata*, possessing; Inflorescence a spike or spicate panicle.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, 40–120 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 4–7 mm long. Leaf-blades 8–25 cm long, 3–7 mm wide. Leaf-blade surface smooth, glabrous. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 15–20 cm long. Primary panicle branches simple. Spikelets solitary. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 8–16 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 oblong, laterally compressed, 18–35 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2–3 mm long, 0.5–0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume ovate, 4 mm long, 0.66–0.8 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 5–6 mm long, membranous, of similar consistency above, without keel, 7 -veined, more than 3-veined. Lemma lateral veins obscure, extending close to apex. Lemma apex truncate or obtuse. Palea 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged, scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 1.1–1.6 mm long. Caryopsis with adherent pericarp. Hilum linear.

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

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

Country /Province /State. : GB Aliens (Ryves et al). : Corsica, Sardinia. : Greece, Italy, Sicily, Yugoslavia. **Indian Subcontinent.** India.

Tamilnadu.

Glyceria spiculosa (Schmidt) Roshev. ex B. Fedtsch. *Fl. Transbaical.* 85 (1929).

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 Russia. **Basionym or Replaced Name:** *Scolochloa spiculosa* F. Schmidt, *Reise Amurl.* 201 (1868) . T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Sachalin Is, Wiachtu: Coll?.

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 297).

Derivation (Clifford & Bostock 2007): *L. spica*, thorn; *-ula*, diminutive; *-osa*, well-developed.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms decumbent, 30–120 cm long, rooting from lower nodes. Leaf-sheaths tubular for much of their length, with 1 of their length closed, without keel, smooth, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 10–30 cm long, 3–5 mm wide. Leaf-blade surface smooth, glabrous. Leaf-blade apex acuminate.

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

Fertile Spikelets. Spikelets comprising 5–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or ovate, laterally compressed, 10–15 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 3–4 mm long, 0.8–0.9 length of upper glume, hyaline, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 3.5–4.5 mm long, 0.9–1 length of adjacent fertile lemma, hyaline, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma oblong, 3.8–4.8 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma apex acute. Palea 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged, scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1.3–2 mm long. Caryopsis with adherent pericarp. Hilum linear.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Siberia, Russian Far East, **China, Eastern Asia.** Buryatiya, Chita, Irkutsk, Tuva. Amur, Kamchatka, Khabarovsk, Magadan, Primorye, Sakhalin. Inner Mongolia, Manchuria. Korea. Nei Mongol. Heilongjiang, or Liaoning.

Glyceria striata (Lam.) Hitchcock. *Proc. Biol. Soc. Wash.* xli. 157 (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), E.Edgar, & H.Connor, *Flora of New Zealand Gramineae* 5 (2000), T.G.Tutin et al, *Flora Europaea* 5 (1980), N.Tsvelev, *Grasses of the Soviet Union* (1983).

TYPE from USA. **Basionym or Replaced Name:** *Poa striata* Lam., *Illustr.* 1: 183 (1791). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Virginia: Coll? (P holo).

Illustrations (Books): K.F.Best, et al, *Prairie Grasses* (1971) (141), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (78), F.W.Gould, *The Grasses of Texas* (1975) (66, Fig. 26).

Derivation (Clifford & Bostock 2007): *L. stria*, furrow; *-ata*, possessing. Glumes and lemmas streaked.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes absent or short. Culms erect, 40–90 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, without keel, smooth, glabrous on surface. Ligule an eciliate membrane, 1.5–4 mm long. Leaf-blades flat or conduplicate, 2–8 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, nodding, 12–22 cm long. Primary panicle branches drooping, 6–12 cm long. Panicle branches flexuous, smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong or ovate, laterally compressed, 3–4 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.4–0.9 mm long, 0.9 length of upper glume, membranous, much thinner on margins, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume surface puberulous, hairy at apex. Lower glume apex obtuse. Upper glume ovate, 0.5–1 mm long, 0.33–0.5 length of adjacent fertile lemma, membranous, with hyaline margins, without keels, 1 -veined. Upper glume surface puberulous, hairy at apex. Upper glume apex obtuse.

Florets. Fertile lemma obovate, 1.5–2 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma apex erose, obtuse. Palea bowed outwards, 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 2, 0.3–0.5 mm long. Caryopsis with adherent pericarp. Hilum linear.

$n = 10$ (1 ref TROPICOS). $2n = 20$ (1 ref TROPICOS).

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

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

Country /Province /State. : Sweden. : Austria, Switzerland. : France. Northwest European Russia, Ukraine. **New Zealand** (*). New Zealand North I, New Zealand South I. **Subarctic America, Western Canada, Eastern Canada, Northwest USA, North-central USA, Northeast USA, Southwestern USA, South-central USA, Southeastern USA, Mexico.** Alaska, 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, Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. Central Mexico, Northeast Mexico, Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica.** Guatemala.

Distrito Federal, Mexico State, Morelos, Puebla. Coahuila, Chihuahua, Hidalgo, Neuvo Leon. Sonora. Oaxaca. Chiapas.

Glyceria texana Tzvelev. *Bot. Zhurn. (Moscow & Leningrad)* 91(2): 265 (2006).

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *E. Hall* 783, 2 Jun 1872, USA: Texas, eastern Texas, ponds Hempstead, 2 Jun 1872 (LE; IT: US-947762).

Illustrations: None found.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms 50–130 cm long. Ligule an eciliate membrane, 4–7 mm long, lacerate. Leaf-blades 3–8 mm wide. Leaf-blade surface scabrous, rough adaxially.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate, 25–40 cm long. Panicle branches scabrous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 7–15 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate or oblong, laterally compressed or subterete, 15–25 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 2–2.3 mm long, 0.66 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent.

Upper glume lanceolate, 3–3.7 mm long, 0.9 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent.

Florets. Fertile lemma ovate, 3.5–4.2 mm long, membranous, without keel, more than 3-veined. Lemma surface scabrous and tuberculate. Palea 1 length of lemma, 2 -veined. Palea keels winged, narrowly winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3, 0.9–1.2 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. South-central USA. Texas.

Glyceria tonglensis C. B. Clarke. *Journ. Linn. Soc.* xv. 119. (1876).

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

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Darjeeling: Clarke 27594 (K holo).

Recent Synonyms: *Glyceria ovatiflora* Keng ex P.C. Keng, *Acta Bot. Yunnanica*, 4(3): 273 (1982).

Illustrations (Books): K.M.Matthew, *Flora Palni Hills* (1996) (835, Pl 835), H.J.Noltie, *The Grasses of Bhutan* (2000) (575, Fig. 21), S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 294).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Mt Tonglo in Himalayas.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose. Rhizomes elongated. Culms decumbent or prostrate, 20–80 cm long, rooting from lower nodes. Leaf-sheaths tubular for much of their length, with 1 of their length closed, smooth, glabrous on surface. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades flat or conduplicate, 10–30 cm long, 2–4 mm wide. Leaf-blade surface scaberulous, rough on both sides. Leaf-blade margins scabrous. Leaf-blade apex obtuse or abruptly acute.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or ovate, 10–30 cm long. Primary panicle branches appressed or spreading (after anthesis), 3–10 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 ovate, laterally compressed, 6–8.5 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, 0.66 length of upper glume, membranous, without keels. Lower glume apex entire or erose, acute. Upper glume ovate, 1.5–2.5 mm long, 0.5–0.66 length of adjacent fertile lemma, membranous, without keels. Upper glume apex entire or erose, acute.

Florets. Fertile lemma oblong or ovate, 3–3.5 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface asperulous, rough on veins. Lemma apex erose, obtuse. Palea 2 -veined. Palea keels wingless. Palea apex dentate, 2 -fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3. Caryopsis with adherent pericarp. Hilum linear.

n = 10 (3 refs TROPICOS).

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

Country /Province /State. China. China South Central, China Southeast, Tibet. **Indian Subcontinent, Indo-China.** Eastern Himalaya, India, Nepal, Pakistan, West Himalaya. Myanmar.

Anhui, Jiangxi. Guizhou, Sichuan, Yunnan. Darjeeling, Bhutan, Sikkim.

Glyceria triflora (Korsh.) Komarov. *Fl. URSS*, 2: 459, 758 (1934).

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).

TYPE from Russia. **Basionym or Replaced Name:** *Glyceria aquatica* var. *triflora* Korsh., *Tr. Peterb. Bot. Sada* 12:418 (1892). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Iwanawskoje: Coll?.

Illustrations (Books): S-L Chen et al, *Flora of China*, Illustrations, Poaceae (2007) (Fig. 297).

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, robust, 50–150 cm long, 4–8 mm diam. Leaf-sheaths tubular for much of their length, with 1 of their length closed, reticulately veined, smooth, glabrous on surface. Ligule an eciliate membrane, 2–4 mm long, acute. Leaf-blades 15–25 cm long, 5–10 mm wide, mid-green and grey-green, discolourous with last colour beneath. Leaf-blade surface smooth or scaberulous, rough adaxially. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle open, obovate, 20–30 cm long. Primary panicle branches ascending or spreading, 3–4 -nate. Panicle branches smooth or scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or oblong, laterally compressed, 5–8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 1.5–2 mm long, 0.66–0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume ovate, 2–3 mm long, 0.9–1 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Fertile lemma elliptic or oblong, 2–3.5 mm long, membranous, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous, rough on veins. Lemma apex obtuse. Palea 1 length of lemma, 2 -veined. Palea keels wingless. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 0.9–1.5 mm long.

$2n = 20$ (2 refs TROPICOS).

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

Region. Eastern Europe.

Country /Province /State. North European Russia. Siberia, Russian Far East, **China, Mongolia, Eastern Asia.** Altay, Buryatiya, Chita, Irkutsk, Krasnoyarsk, Tuva. Amur, Kamchatka, Khabarovsk, Magadan, Sakhalin.

Glyceria voroschilovii Tzvelev. *Bot. Zhurn. (Moscow & Leningrad)* 91(2): 262 (2006).

TYPE from Russia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Russia, Kurile Is., Iturup, Mt. Rebunshiri: *Rgorova & Alexeev 3240* (LE holo).

Illustrations: None found.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Culms geniculately ascending, 50–100 cm long, 4–5 mm diam. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades 3–6 mm wide. Leaf-blade surface smooth or scabrous, rough on both sides.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, effuse, 1.2–2 cm long, bearing few spikelets. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

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 lanceolate or oblong, laterally compressed, 8–14 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 1.7–2.2 mm long, 0.75 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acute. Upper glume lanceolate, 2.3–3 mm long, 0.75 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate or ovate, 3.2–3.5 mm long, membranous, without keel, more than 3-veined. Lemma surface scaberulous, rough on veins. Lemma apex acute. Palea bowed outwards, 1 length of lemma, 2 -veined. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, ellipsoid, 1.8–2 mm long.

Distribution (TDWG). Continent. Temperate Asia.

Country /Province /State. Russian Far East. Kuril Is.

Glyceria x gatineauensis Bowden. *Canad. Journ. Bot.* 38: 126 (1960).

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

Illustrations: None found.

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

Classification. Subfamily Pooideae. Tribe: Meliceae.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northeast USA. West Virginia.

Glyceria x laxa (Scribn.) Scribn. ex L. Rand & J. H. Redfield. *Prel. Cat. pl. Mount Desert* 180 (1890).

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

TYPE from USA. **Basionym or Replaced Name:** *Panicularia laxa* Scribn., *Bull. Torrey Bot. Club*, 21: 37 (1894). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: USA, Maine, Mt. Desert: Redfield & Rand (US holo).

Illustrations: None found.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Distribution (TDWG). Continent. North America.

Country /Province /State. Eastern Canada, Northeast USA, Southeastern USA. New Brunswick, Nova Scotia, Prince Edward I. Connecticut, Indiana, Maine, Massachusetts, Michigan, Ohio, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. North Carolina.

Glyceria x pedicellata Towns. *Ann. & Mag. Nat. Hist. Ser. 2. 5* :105 (1850).

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.G.Tutin et al, *Flora Europaea* 5 (1980).

Illustrations (Books): C.E.Hubbard, *Grasses* (1968) (120), T. Cope & A. Gray, *Grasses of the British Isles* (130).

Derivation (Clifford & Bostock 2007): *L. pes*, foot; *-ellus*, diminutive; *-ata*, possessing. Spikelets shortly stalked.

Classification. Subfamily Pooideae. Tribe: Meliceae.

Habit, Vegetative Morphology. Perennial. Stolons present. Culms decumbent or prostrate, 50–100 cm long. Leaf-sheaths tubular for much of their length, with 1 of their length closed, keeled, smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 5–10 mm long, acute. Leaf-blades flat or conduplicate, 10–35 cm long, 5–12 mm wide. Leaf-blade surface scaberulous, rough abaxially or on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, lanceolate or oblong, 10–50 cm long. Primary panicle branches ascending or spreading, 2–3 -nate, 2–9 cm long, bearing 1–9 fertile spikelets on each lower branch. Panicle branches smooth. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present, 1–6 mm long.

Fertile Spikelets. Spikelets comprising 9–16 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 oblong, laterally compressed, compressed slightly, 15–35 mm long, persistent on plant.

Glumes. Glumes similar, shorter than spikelet. Lower glume elliptic or oblong, 2–3 mm long, 0.66 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse. Upper glume elliptic or oblong, 3–4.5 mm long, 0.75 length of adjacent fertile lemma, membranous, without keels, 1 -veined. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 4–6 mm long, membranous, much thinner above, without keel, 7 -veined, more than 3-veined. Lemma surface scaberulous. Lemma apex obtuse. Palea 1 length of lemma, 2 -

veined. Palea keels winged, narrowly winged. Palea apex dentate, 2-fid. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 2, united, oblong, fleshy, truncate. Anthers 3, 1–1.8 mm long, yellow.

Distribution (TDWG). Continent. Europe, Australasia.

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

Country /Province /State. : Denmark, Great Britain, Ireland, Norway, Sweden. : Austria, Belgium, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland. : France. : Yugoslavia. Estonia, Latvia, Lithuania, Baltic States. **New Zealand.** New Zealand North I, New Zealand South I.

Glyphochloa acuminata (Hack.) W.D. Clayton. *Kew Bull.*, 35(4): 815 (1981).

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 *Manisuris*).

TYPE from India. **Basionym or Replaced Name:** *Rottboellia acuminata* Hack., *DC. Monog. Phan.* 6: 291 (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Maisur & Carnatic: Hook. & Thoms.

Illustrations (Books): N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (193, Fig 10 as *Manisuris acuminata* & as *Manisuris acuminata* var. *woodrowii*), G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Figs. 55f & 56 as var. *acuminata* and Fig. 57b as var. *stocksii* and Fig. 57c as var. *woodrowii*).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Pl. 18).

Derivation (Clifford & Bostock 2007): *L. acumen*, sharp point; *-ata*, possessing. Lemmas or glumes acute.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual. Culms 7–30 cm long. Ligule an eciliate membrane, 2 mm long. Leaf-blades 3–20 cm long, 2–3 mm wide, flaccid.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, unilateral, 2–5 cm long. Rhachis fragile at the nodes, subcylindrical and excavated, glabrous on surface. Spikelet packing abaxial. Rhachis internodes hour-glass shaped, 2–3.5 mm long. Rhachis internode tip transverse, crateriform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened.

Sterile Spikelets. Companion sterile spikelets well-developed, ovate, 3–5 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged on keels, acuminate, muticous or awned, one glume awned, with 2–3 mm long awn.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 5–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 1 length of spikelet, indurate, much thinner above, 2-keeled, keeled laterally, winged on keel, winged above. Lower glume lateral veins ribbed. Lower glume surface rugose, glabrous. Lower glume apex caudate, muticous or awned, 1-awned, awn 2–4 mm long. Upper glume elliptic, membranous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma elliptic, hyaline, without keel.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Kerala, Karnataka, Maharashtra, Tamilnadu.

Glyphochloa divergens (Hack.) W.D. Clayton. *Kew Bull.*, 35(4): 815 (1981).

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:** *Rottboellia divergens* Hack., DC. *Monog. Phan.* 6: 292 (1889). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Mysore?: Huegel.

Illustrations (Books): G.G.Potgar, C.B.Salunkhe & S.R.Yadav, Grasses of Maharashtra (2012) (Figs. 55d & 57a as var. *hirsuta*).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, Grasses of Maharashtra (2012) (Pl. 18).

Derivation (Clifford & Bostock 2007): *L. divergo*, go in different directions.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual. Culms slender, 10–17 cm long, 2–3 -noded. Lateral branches sparse. Leaves basal and cauline. Leaf-sheaths keeled, pilose. Ligule an eciliate membrane, 0.5–0.75 mm long. Leaf-blades 8–10 cm long, 2–3 mm wide, flaccid. Leaf-blade surface pilose, hairy on both sides.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, unilateral, 1.75–2.5 cm long. Rhachis fragile at the nodes, subcylindrical and excavated, glabrous on surface, smooth on margins. Spikelet packing abaxial. Rhachis internodes cuneate, 1.5 mm long. Rhachis internode tip transverse, crateriform, with hairy rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened.

Sterile Spikelets. Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas, lanceolate, 2.5–2.75 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes chartaceous, winged on keels, 5 -veined, acuminate, awned, one glume awned, with 2.5 mm long awn.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 2.5–2.75 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, indurate, much thinner above, 2-keeled, keeled laterally, winged on keel, winged broadly, winged above. Lower glume surface cancellate, glabrous. Lower glume apex lobed, 2 -fid, awned, 2 -awned, awn 2.5–3 mm long. Upper glume ovate, membranous, 1-keeled, 3 -veined.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 1.75–2 mm long, hyaline, 2 -veined. Fertile lemma ovate, 1.5 mm long, hyaline, without keel, 0 -veined, 0–3 -veined, without veins.

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

Country /Province /State. **Indian Subcontinent.** India.
Kerala.

Glyphochloa forficulata (Fischer) W.D. Clayton. *Kew Bull.*, 35(4): 815 (1981).

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 *Manisuris*).

TYPE from India. **Basionym or Replaced Name:** *Manisuris forficulata* C.E.C.Fischer, *Kew Bull.* 1933, 355 (1933). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Mahabaleshwar: Lisboa (K holo).

Illustrations (Books): N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (173, Fig 10 as *Manisuris forficulata* & *Manisuris forficulata* var. *hirsuta*), S.W.L.Jacobs & J.Everett (2000) (373, Fig. 3), G.G.Potgar, C.B.Salunkhe & S.R.Yadav, Grasses of Maharashtra (2012) (Fig 55b).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, Grasses of Maharashtra (2012) (Pl. 18).

Derivation (Clifford & Bostock 2007): *L. forficula*, small scissors; -*ata*, possessing. Apex of lower glume resembling a pair of shears.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms geniculately ascending or decumbent, 10–20 cm long. Leaf-sheaths hirsute. Ligule an eciliate membrane, 2 mm long. Leaf-blades flat or conduplicate, 4–14 cm long, 2–5 mm wide. Leaf-blade surface pilose.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Peduncle hirsute above. Racemes 1, single, unilateral, 2–6 cm long. Rhachis fragile at the nodes, subcylindrical and excavated. Spikelet packing abaxial. Rhachis internodes cuneate, 2.5 mm long. Rhachis internode tip transverse, crateriform, with hairy rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened.

Sterile Spikelets. Companion sterile spikelets well-developed, containing empty lemmas or male, oblong, asymmetrical, 5.5–8 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged on keels, 5–7 -veined, acuminate, awned, both glumes awned, with 8–12 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 6–8 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, indurate, 2-keeled, keeled laterally, winged on keel, winged broadly, winged above, 5–6 -veined. Lower glume primary vein eciliate or pectinately spinose. Lower glume surface rugose, glabrous or pubescent. Lower glume apex lobed, 2 -fid, acute, awned, 2 -awned, awn 5–8 mm long. Upper glume elliptic, membranous, 1-keeled, 3 -veined.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, 3 mm long, hyaline. Fertile lemma elliptic, 2–2.5 mm long, hyaline, without keel.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Karnataka. Maharashtra, Tamilnadu.

Glyphochloa goaensis (Rao & Hemadri) Clayton. *Kew Bull.*, 35(4): 815 (1981).

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:** *Manisuris goaensis* Rao Rolla & Hemadri, *Bull. Bot. Surv. Ind.* 10: 106 (1968). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Goa: Rao 84474 (US holo, K).

Illustrations (Books): G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Figs. 55i & 58).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Pl. 19).

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Goa State, India.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual. Culms 20–35 cm long. Ligule an eciliate membrane, 2 mm long. Leaf-blades 3–5 cm long, 2–3 mm wide.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, unilateral, 3.5–7 cm long. Rhachis fragile at the nodes, subcylindrical and excavated, glabrous on surface. Spikelet packing abaxial. Rhachis internodes hour-glass shaped, 4–4.5 mm long. Rhachis internode tip oblique, crateriform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened.

Sterile Spikelets. Companion sterile spikelets well-developed, oblong, 4–7 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged on keels, acuminate, awned, both glumes awned, with 1–6 mm long awn.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 4–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume ovate, 1 length of spikelet, indurate, 2-keeled, keeled laterally, winged on keel, winged above. Lower glume surface rugose (2 ridges pointing down), glabrous or puberulous. Lower glume apex awned, 1 -awned, awn 5–8 mm long. Upper glume elliptic, membranous, 1-keeled, winged on keel.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma elliptic, hyaline, without keel.

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

Country /Province /State. **Indian Subcontinent.** India.
Goa.

Glyphochloa henryi Janarth. , V.C.Joshi , S.Rajkumar. *Rheedea* 10(2): 99 (2000).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from India. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Goa, Tisk-Usago: Janarthanam & Rajkumar 1661 (CAL holo, BSI, L, MH).

Illustrations (Books): G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Fig.55g).

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect, 50–90 cm long, 5–6 -noded. Culm-nodes swollen, glabrous. Leaf-sheaths 4–5.6 cm long. Ligule an eciliate membrane. Leaf-blade base truncate. Leaf-blades 7–15 cm long, 4–8 mm wide, dark green and light green, discolourous with last colour beneath. Leaf-blade venation with 7–8 secondary veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Peduncle pilose above. Racemes 1, single, unilateral, 5–9 cm long. Rhachis fragile at the nodes, subcylindrical and excavated, ciliate on margins. Spikelet packing abaxial. Rhachis internodes inflated, 3 mm long. Rhachis internode tip transverse, crateriform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened, 3 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, male with a few bisexual, ovate, 6 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged on keels, caudate, awned, one glume awned, with 6 mm long awn. Companion sterile spikelet lemmas 2, exserted from glumes, 3 mm long.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets ovate, dorsally compressed, 3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, reaching apex of florets, firmer than fertile lemma. Lower glume oblong, 0.5 length of spikelet, indurate, 2-keeled, keeled laterally. Lower glume lateral veins ribbed (8–9 ribs below transverse ridge). Lower glume surface rugose (1 ridge near base), glabrous. Upper glume oblong, 3 mm long, membranous, 3 -veined. Upper glume surface pubescent, hairy below.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate, 3 mm long, hyaline, 2 -veined, ciliolate on margins. Palea of lower sterile floret 3 mm long. Fertile lemma ovate, 3 mm long, hyaline, without keel, 1 -veined, 0–3 -veined, one-veined. Lemma surface pilose, hairy above. Palea ovate, 2 mm long, hyaline.

Flower and Fruit. Anthers 3, 1–2 mm long.

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

Country /Province /State. **Indian Subcontinent.** India.

Glyphochloa maharashtraensis Potdar & S.R.Yadav. *Kew Bull.* 66 (4): 625 (2011).

TYPE from India. **Basionym or Replaced Name:** Maharashtra (Kolhapur Distr.), Udgiri, *Potgar 1880* (hol: CAL; iso: BLAT, BSI, K, SUK).

Illustrations (Books): G.G.Potgar, C.B.Salunkhe & S.R.Yadav, Grasses of Maharashtra (2012) (Fig. 61 as var. *maharashtraensis* and Fig. 62 as var. *hirsuta*).

Illustrations (Journals): *Kew Bulletin* (66: 626, Fig.1 and 627, Fig.2, as var. *hirsuta* (2011)).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, Grasses of Maharashtra (2012) (Pl. 19).

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, slender, 10–20 cm long. Culm-internodes terete. Lateral branches lacking or sparse. Branch complement constant. Leaf-sheaths 2–4 cm long, pilose, with tubercle-based hairs. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades 4–10 cm long, 2–5 mm wide. Leaf-blade surface hirsute, densely hairy, with tubercle-based hairs. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Peduncle glabrous or hirsute above. Racemes 1, single, unilateral, 3–5 cm long. Rhachis fragile at the nodes, subcylindrical and excavated. Spikelet packing abaxial. Rhachis internodes cuneate, 1.5–2 mm long. Rhachis internode tip transverse, crateriform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened, ciliate, hairy on margins.

Sterile Spikelets. Companion sterile spikelets well-developed, male, ovate, asymmetrical, 4–4.5 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged on keels, 5–7 -veined, acuminate, awned, both glumes awned, with 3–8 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes, 2–4 mm long, muticous.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 2–3 mm long, 1.3–1.6 mm wide, falling entire, deciduous with accessory branch structures. Spikelet callus base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 2–3 mm long, 1 length of spikelet, indurate, 2-keeled, keeled laterally, winged on keel, winged broadly, winged above, 7–9 -veined. Lower glume surface rugose, pubescent, hairy below. Lower glume apex lobed, 2 -fid, acute, awned, 2 -awned, awn 4–6 mm long. Upper glume elliptic, 2–2.5 mm long, membranous, 1-keeled, 3 -veined. Upper glume apex acute.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret ovate, 2–2.3 mm long, hyaline, 0 -veined, without lateral veins, ciliolate on margins, obtuse. Palea of lower sterile floret 1.5 mm long. Fertile lemma ovate, 1.2–1.8 mm long, 0.5–0.6 mm wide, hyaline, without keel, 0 -veined, 0–3 -veined, without veins. Lemma apex obtuse. Palea ovate, 1.5–1.7 mm long. Palea apex acute.

Flower and Fruit. Lodicules 2. Anthers 3, 0.6–0.8 mm long. Caryopsis with adherent pericarp, ellipsoid, 0.8–1 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Maharashtra.

Glyphochloa mysorensis (Jain & Hemadri) W.D. Clayton. *Kew Bull.*, 35(4): 815 (1981).

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:** *Manisuris mysorensis* Jain & Hemadri, *Bull. Bot. Surv. Ind.* 10: 280 (1969). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Castle Rock, Mysore: Gammie 15643.

Illustrations (Books): G.G.Potgar, C.B.Salunkhe & S.R.Yadav, Grasses of Maharashtra (2012) (Figs. 55a & 59).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, Grasses of Maharashtra (2012) (Pl. 19).

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

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, slender, 10–20 cm long, 3–4 -noded. Lateral branches sparse. Leaf-sheaths pilose. Ligule an eciliate membrane,

1.5–2 mm long. Leaf-blades flat or conduplicate, 6–10 cm long, 2–3 mm wide. Leaf-blade surface hirsute. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, unilateral, 1–3.5 cm long. Rhachis fragile at the nodes, subcylindrical and excavated, 4–5 mm wide, glabrous on surface. Spikelet packing abaxial. Rhachis internodes clavate, 2.5 mm long. Rhachis internode tip transverse, crateriform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened, 1.5 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, comprising 2 subequal glumes without lemmas or male, ovate, 3.5–4 mm long, longer than fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged on keels, 5 -veined, acuminate, awned, both glumes awned, with 4–10 mm long awn.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 3 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, indurate, 2-keeled, keeled laterally, winged on keel, winged broadly, winged above, 3–5 -veined. Lower glume lateral veins ribbed. Lower glume surface with hooked spines, rough on flanks (and sometimes on back), glabrous or puberulous. Lower glume apex lobed, 2 -fid, awned, 2 -awned, awn 5–8 mm long. Upper glume elliptic, membranous, 3 -veined. Upper glume apex acute or acuminate.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret oblong, 2.5–2.75 mm long, hyaline. Fertile lemma ovate, 2–2.5 mm long, hyaline, without keel. Palea 1 length of lemma.

Flower and Fruit. Anthers 3, 0.75–1 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.

Karnataka.

Glyphochloa ratnagirica (Kulk. & Hemadri) Clayton. *Kew Bull.*, 35(4): 815 (1981).

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:** *Manisuris ratnagirica* Kulkarni & Hemadri, *Indian Forester*. 100(4): 250 (1974). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Ratnagiri: Kulkarni 121638 (K iso).

Illustrations: Illustrated.

Illustrations (Books): G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Fig 55c).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Pl. 19).

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms geniculately ascending, 15–35 cm long, 2–5 -noded. Culm-internodes channelled, distally glabrous or pilose. Culm-nodes constricted, brown, bearded. Lateral branches ample. Leaf-sheaths mostly shorter than adjacent culm internode, striately veined, pilose, with tubercle-based hairs. Ligule an eciliate membrane, 2 mm long, scarious, obtuse. Leaf-blades 3–10 cm long, 2–5 mm wide. Leaf-blade surface pilose, with tubercle-based hairs. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Peduncle pilose above. Racemes 1, single, unilateral, 3–6 cm long. Rhachis fragile at the nodes, subcylindrical and excavated, ciliate on margins. Spikelet packing abaxial. Rhachis internodes cuneate, 2.5–3.2 mm long. Rhachis internode tip transverse, crateriform, with hairy rim. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened, 2.5–3.2 mm long, pubescent.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong, asymmetrical, 4–5 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged

on keels, 3–5 -veined, acuminate, awned, one glume awned, with 3.5–8 mm long awn. Companion sterile spikelet lemmas 2, enclosed by glumes, 2.5–3 mm long.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong, dorsally compressed, 5–6 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong, 1 length of spikelet, indurate, 2-keeled, keeled laterally, winged on keel (1 keel), winged broadly, winged above, 5–6 -veined. Lower glume surface asperulous. Lower glume apex lobed, 2 -fid, acute, awned, 2 -awned, awn 3–5 mm long. Upper glume lanceolate or ovate, 2.5–4 mm long, membranous, 1-keeled, 3 -veined. Upper glume surface puberulous, hairy at base. Upper glume apex acute.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret lanceolate or elliptic, 2.25–3 mm long, hyaline, 2 -veined, obtuse. Palea of lower sterile floret 2–3.1 mm long. Fertile lemma lanceolate or ovate, 2.1–2.75 mm long, hyaline, without keel, 3 -veined. Lemma surface scaberulous. Palea lanceolate, 2.5–3 mm long, 2 -veined.

Flower and Fruit. Lodicules 2, cuneate, 0.5 mm long, fleshy, truncate. Anthers 3, 1.8–2.5 mm long, yellow or purple. Stigmas purple. Caryopsis with adherent pericarp, ellipsoid, 1.3 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent. India.
Maharashtra.

Glyphochloa santapau (Jain & Desh.) W.D. Clayton. *Kew Bull.*, 35(4): 815 (1981).

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:** *Manisuris santapau* Jain & Deshpande, *Bull. Bot. Surv. Ind.* 10: 277 (1969). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Ratnagiri: Saldanha 7130.

Illustrations (Books): G.G. Potgar, C.B. Salunkhe & S.R. Yadav, *Grasses of Maharashtra* (2012) (Figs. 55e & 60).

Images: G.G. Potgar, C.B. Salunkhe & S.R. Yadav, *Grasses of Maharashtra* (2012)
(Pl. 19).

Derivation (Clifford & Bostock 2007): in honor of Hermenegild Santapau (1903–1970) Spanish-born Indian cleric and botanist.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual, caespitose. Culms erect or geniculately ascending, slender, 10–25 cm long, 3–4 -noded. Culm-internodes distally hirsute. Lateral branches sparse. Ligule an eciliate membrane, 1.5–2 mm long. Leaf-blades flat or conduplicate, 6–10 cm long, 1.5–3 mm wide. Leaf-blade surface hirsute. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Peduncle hirsute above, widened at apex. Racemes 1, single, unilateral, 3–6 cm long. Rhachis fragile at the nodes, subcylindrical and excavated, 4–6 mm wide, glabrous on surface, villous on margins. Spikelet packing abaxial. Rhachis internodes oblong, 2–2.5 mm long. Rhachis internode tip oblique, crateriform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened.

Sterile Spikelets. Companion sterile spikelets well-developed, male, oblong or ovate, asymmetrical, 4 mm long, shorter than fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged on keels, 5 -veined, acuminate, awned, one glume awned, with 5 mm long awn.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets oblong or ovate, dorsally compressed, 4.5–5 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus pilose, base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume oblong or ovate, 1 length of spikelet, indurate, much thinner above, 2-keeled, keeled laterally, winged on keel,

winged broadly, winged above. Lower glume surface smooth, pilose, hairy below. Lower glume margins ciliate. Lower glume apex awned, 1 -awned, awn 3.5–7 mm long. Upper glume elliptic, membranous, without keels, 3 -veined.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret oblong, 2.25–2.5 mm long, hyaline. Fertile lemma elliptic, 2.25–2.5 mm long, hyaline, without keel.

Flower and Fruit. Anthers 3, 1.5 mm long.

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

Country /Province /State. **Indian Subcontinent.** India.

Glyphochloa talbotii (Hook.f.) W.D. Clayton. *Kew Bull.*, 35(4): 816 (1981).

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 *Manisuris*).

TYPE from India. **Basionym or Replaced Name:** *Rottboellia talbotii* Hook. f., *Fl. Brit. Ind.* 7: 155 (1896). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: India, Goa: Talbot 2572 (K holo).

Illustrations (Books): N.L.Bor, *The grasses of Burma, Ceylon, India and Pakistan* (1960) (193, Fig 10 as *Manisuris talbotii*), G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Fig. 55h).

Images: G.G.Potgar, C.B.Salunkhe & S.R.Yadav, *Grasses of Maharashtra* (2012) (Pl. 19).

Derivation (Clifford & Bostock 2007): in honor of William Alexander Talbot (1847–1917) Irish-born Indian forester.

Classification. Subfamily Panicoideae. Tribe: Sacchareae. Subtribe Rottboelliinae.

Habit, Vegetative Morphology. Annual. Culms 15–30 cm long. Ligule an eciliate membrane, 2 mm long. Leaf-blades 3–6 cm long, 2–3 mm wide.

Inflorescence. Inflorescence composed of racemes, terminal and axillary. Racemes 1, single, unilateral, 2–7 cm long. Rhachis fragile at the nodes, subcylindrical and excavated, glabrous on surface. Spikelet packing abaxial. Rhachis internodes inflated, 1.5–2 mm long. Rhachis internode tip transverse, crateriform. Spikelets in pairs. Fertile spikelets sessile, 1 in the cluster. Companion sterile spikelets pedicelled, 1 in the cluster. Pedicels present, fused to internode, united wholly, flattened, 1.5–2 mm long.

Sterile Spikelets. Companion sterile spikelets well-developed, lanceolate, 6–7 mm long, as long as fertile, deciduous with the fertile. Companion sterile spikelet glumes coriaceous, winged on keels, caudate, awned, one glume awned, with 2–3 mm long awn.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 1 fertile florets, without rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets. Spikelets two-flowered - the lower floret male or barren, the upper fertile. Spikelets elliptic, dorsally compressed, 6–7 mm long, falling entire, deciduous with accessory branch structures. Spikelet callus glabrous, base truncate, with central peg, inserted.

Glumes. Glumes dissimilar, exceeding apex of florets, firmer than fertile lemma. Lower glume elliptic, 1 length of spikelet, indurate, 2-keeled, keeled laterally, winged on keel, winged broadly, winged above. Lower glume surface rugose (2–3 ridges pointing up), glabrous. Lower glume apex caudate, awned, 1 -awned, awn 4–8 mm long. Upper glume elliptic, membranous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret oblong, hyaline. Fertile lemma elliptic, hyaline, without keel.

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

Country /Province /State. **Indian Subcontinent.** India.

Gossweilerochloa delicatula Renv. *Kew Bulletin* 33(3): 525, f.1 (1979).

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

TYPE from Angola. **Basionym or Replaced Name:** *Gossweilerochloa delicatula* S.A. Renvoize, *Kew Bull.*, 33(3): 525 (1979). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Angola, Cuanza Sul, Capir: Gossweiler 9858 (K holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. delicatus*, dainty; *-ula*, diminutive. Small and dainty as of habit.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Butt sheaths persistent and investing base of culm. Culms 45–90 cm long. Leaf-sheaths without keel. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades flat or convolute, 20–40 cm long, 2–6 mm wide.

Inflorescence. Inflorescence a panicle. Panicle open, oblong, effuse, 30–40 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, 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 ovate, 1.5–2 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex obtuse or acute. Upper glume ovate, 2.25–2.5 mm long, 1.1–1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex obtuse or acute.

Florets. Fertile lemma oblong or ovate, 2 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma midvein pubescent, hairy below. Lemma lateral veins extending close to apex. Lemma margins pubescent, hairy below. Lemma apex emarginate or obtuse, awned, 1 -awned. Principal lemma awn 0.5–1 mm long overall. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Anthers 0.75 mm long. Caryopsis with adherent pericarp, oblong. Embryo not projecting.

Distribution (TDWG). Continent. Africa.

Country /Province /State. South Tropical Africa. Angola.

Gouinia barbata (Hackel) Swallen. *Am. Journ. Bot.* xxii. 37 (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. **Basionym or Replaced Name:** *Diplachne barbata* Hack., *Oesterr. Bot. Zeitschr.* 1902, 240 (1902) . T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Pernambuco, Boa Viagem: Schenck 4310 (W holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. bearded*, barbed. Terminal sterile floret awned.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect, 60–70 cm long. Leaf-sheaths glabrous on surface or pilose. Ligule a fringe of hairs. Leaf-blades conduplicate, 13–20 cm long, 2–3 mm wide. Leaf-blade surface hispid, densely hairy, hairy adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, distant, unilateral, 8–13 cm long. Central inflorescence axis 20–30 cm long. Rhachis angular. Spikelet packing lax. Raceme-bases brief. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, linear.

Fertile Spikelets. Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 5–7 mm long, 0.8–1 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 elliptic, 6–7 mm long, 1.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 5–6 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy below. Lemma margins ciliate, hairy below. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn in a sinus, 3–6 mm long overall. Palea surface glabrous. Palea apex acuminate. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast.

Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe. Pernambuco.

Gouinia brasiliensis (S. Moore) Swallen. *Am. Journ. Bot.* xxii. 36 (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. **Basionym or Replaced Name:** *Pogochloa brasiliensis* S. Moore, *Trans. Linn. Soc. Ser. 2.* 4 : 509, t. 37 (1895). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Coimbra: Moore 1080 (BM holo).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (123), S.A.Renvoize, *Gramineas de Bolivia* (1998) (304, Fig. 63).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms erect, 70–160 cm long. Leaf-sheaths longer than adjacent culm internode, smooth or scaberulous, pilose. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades 10–35 cm long, 5–12 mm wide. Leaf-blade surface smooth. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 10–14, borne along a central axis, spreading or drooping, unilateral, 4–16 cm long. Central inflorescence axis 20–40 cm long. Rhachis angular. Raceme-bases brief, pubescent or pilose. Spikelets appressed, solitary. Fertile spikelets sessile. Pedicels present.

Fertile Spikelets. Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 4–6 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1–5 -veined. Lower glume apex acute. Upper glume ovate, 5.5–7 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 5–7 -veined. Upper glume apex emarginate or obtuse, mucronate.

Florets. Fertile lemma lanceolate, 8 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 5–20 mm long overall. Palea 1 length of lemma. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, Southern South America. Bolivia. Brazil West Central. Argentina Northwest, Paraguay.

Mato Grosso. Jujuy, Salta. Chaco.

Gouinia cearensis (Ekman) Swallen. *Am. Journ. Bot.* xxii. 39 (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. **Basionym or Replaced Name:** *Diplachne cearensis* Ekman, *Arkiv Bot. Stockh.* 10 No. 17, 32 (1911). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Crato to Barbalha: Leofgren 672.

Illustrations: None found.

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms erect or scandent, 100–300 cm long. Lateral branches lacking. Leaf-sheaths antrorsely scabrous, pilose. Ligule a ciliate membrane. Leaf-blades 10–25 cm long, 5–12 mm wide. Leaf-blade surface scabrous, pilose, hairy abaxially.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, distant, unilateral, 4–12 cm long. Central inflorescence axis 10–28 cm long. Rhachis angular. Spikelet packing lax. Raceme-bases filiform. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, 2–3 mm long.

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. Floret callus evident, bearded.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4.5 mm long, 0.8 length of upper glume, membranous, 1-keeled, 3 -veined. Lower glume apex acute, mucronate. Upper glume elliptic, 5.5 mm long, 0.7–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 5 -veined. Upper glume apex obtuse, mucronate.

Florets. Fertile lemma lanceolate, 7 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy below. Lemma margins ciliate, hairy below. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 8–9 mm long overall. Palea surface glabrous. Palea apex awned, awns 1.5 mm long. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast.

Mato Grosso, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe. Ceará.

Gouinia gracilis Ekman. *Am. Journ. Bot.* xxii. 33. (1935).

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

TYPE from Cuba. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cuba, Holguin: Ekman (US holo, CHAPA, GH, K, L, MO, NY, SI, UB).

Illustrations (Books): A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (108, Fig. 68).

Derivation (Clifford & Bostock 2007): L. slender. Culms or inflorescences slender.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms decumbent, slender, 70–100 cm long. Leaf-sheaths smooth or scaberulous, pilose. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades involute, 7–14 cm long, 1–2 mm wide. Leaf-blade surface scabrous, pilose, hairy adaxially. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 5–6, borne along a central axis, spreading or deflexed, unilateral, 2–4.5 cm long. Central inflorescence axis 5–15 cm long. Rhachis angular. Spikelet packing distant. Spikelets spreading or deflexed, 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 oblong, laterally compressed, 5–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 2.5–4 mm long, 0.7–0.9 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume apex obtuse. Upper glume ovate, 3.5–4.5 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 3–7 -veined. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate, 4–6 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 5–9 mm long overall. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean. Cuba.

Gouinia guatemalensis (Hackel) Swallen. *Publ. Carnegie Inst. Wash. No.* 436, 334 (1934).

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

TYPE from Guatemala. **Basionym or Replaced Name:** *Diplachne guatemalensis* Hack., *Oesterr. Bot. Zeitschr.* 1902, 275 (1902). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Guatemala: Friedrichstal 1748 (W holo).

Illustrations: None found.

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms erect, 60–90 cm long. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, antrorsely scabrous, pilose, with tubercle-based hairs. Ligule an eciliate membrane, 1 mm long, erose. Leaf-blades 20–25 cm long, 15 mm wide. Leaf-blade surface scabrous, rough on both sides, pilose, sparsely hairy, hairy on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, unilateral, 5–10 cm long. Central inflorescence axis 10–20 cm long. Rhachis angular. Raceme-bases filiform, 20–40 mm long. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 2 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 4–5 mm long, 0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume surface scabrous. Lower glume apex obtuse or acute, mucronate. Upper glume ovate, 5–6 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume surface scabrous. Upper glume apex obtuse or acute, mucronate.

Florets. Fertile lemma lanceolate, 7–8 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 7–8 mm long overall. Palea 1 length of lemma. Palea keels eciliate. Palea apex with excurrent keel veins. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

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

Country /Province /State. **Mexico.** Southwest Mexico, Southeast Mexico. **Mesoamerica.** Guatemala, Honduras, Nicaragua.

Oaxaca, Campeche, Quintana Roo, Yucatan.

Gouinia isabelensis J.J. Ortiz Diaz. *Acta Bot. Mex.*, 23: 18 (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 Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Isla Isabel: Solis 1 (MEXU holo, US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. -ensis*, denoting origin. From Isla Isabel, Nayarit, Mexico.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose. Culms erect, 50–100 cm long, 0.5–3 mm diam., 4–7 -noded. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, antrorsely scabrous, glabrous on surface. Ligule a ciliolate membrane, 1–1.5 mm long. Collar glabrous or pilose. Leaf-blades linear or lanceolate, 10–30 cm long, 6–12 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 4–15, borne along a central axis, unilateral, 10–15 cm long. Central inflorescence axis 10–15 cm long. Rhachis angular. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, angular, 2–6 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, 2–3 mm wide, breaking up at maturity,

disarticulating below each fertile floret. Rhachilla internodes 1–1.5 mm long, scaberulous. Floret callus evident, pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 3.5–5 mm long, 0.66 length of upper glume, membranous, 1-keeled, 1–5 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent or distinct. Lower glume apex acuminate, mucronate or awned, 1 -awned, awn 0.5–1 mm long. Upper glume lanceolate, 5.5–7 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 3–7 -veined. Upper glume primary vein scabrous. Upper glume apex acuminate, mucronate or awned, 1 -awned, awn 0.5–1 mm long.

Florets. Fertile lemma lanceolate, 7–9 mm long, membranous, keeled, 3–7 -veined, 0–3 -veined or more than 3-veined. Lemma surface pilose, hairy below, hairy between veins. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn straight or curved, 5–10 mm long overall. Palea 6–8 mm long, 2 -veined. Palea keels scabrous. Palea surface pilose, hairy on back. Apical sterile florets 1 in number, barren, lanceolate.

Flower and Fruit. Anthers 3, 0.5 mm long, yellow. Caryopsis with adherent pericarp, ellipsoid, 2.5–3.5 mm long, dark brown.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Southwest Mexico. Nayarit.

Gouinia latifolia (Griseb.) Vasey. *Contrib. U. S. Nat. Herb.* i. 365 (1895).

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

TYPE from Argentina. **Basionym or Replaced Name:** *Tricuspis latifolia* Griseb., *Goett. Abh.* 19: 259 (1874). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina, Ascochinga: Hieronymus 256 (GOET lecto).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (123), S.A.Renvoize, *Gramineas de Bolivia* (1998) (304, Fig. 63), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (107, Fig. 72).

Illustrations (Journals): *Ruizia* (13:275, Fig 32f-h (1993)).

Derivation (Clifford & Bostock 2007): *L. latus*, broad; *folium*, leaf. Leaf-blades broad or relatively broad with respect to related species.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms 100–150 cm long. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, antrorsely scabrous, glabrous on surface or pilose, with tubercle-based hairs. Ligule an eciliate membrane, 1 mm long, erose. Leaf-blades 12–30 cm long, 8–26 mm wide. Leaf-blade surface scabrous, pilose, sparsely hairy, hairy on both sides. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 15–25, borne along a central axis, drooping, unilateral, 3–15 cm long, simple or secondarily branched. Central inflorescence axis 20–35 cm long. Rhachis angular. Raceme-bases filiform, 10–60 mm long. Spikelets ascending, solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 4–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 3.5–4 mm long, 0.8–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume apex acute. Upper glume ovate, 4–5 mm long, 0.6–0.7 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume primary vein scabrous. Upper glume apex obtuse or acute.

Florets. Fertile lemma lanceolate, 6–7 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 2–7 mm long overall. Palea 1 length of lemma. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

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

Country /Province /State. Mexico. Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America, Brazil, Southern South America.** Honduras, Nicaragua, Venezuela, Bolivia, Colombia, Peru, Argentina Northwest, Paraguay.

Catamarca, Jujuy, La Rioja, Salta, Santiago del Estero, San Luis, Tucuman. Buenos Aires, Chaco, Cordoba, Corrientes, Formosa, Santa Fe. Oaxaca. Campeche, Quintana Roo, Yucatan.

Gouinia longiramea Swallen. *Publ. Carnegie Inst. Wash.* No. 436, 334 (1934).

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, Chichen Itza: Swallen 2385 (US holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. longus*, long; *ramus*, branch. Panicle with long branches.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms erect, 150 cm long, firm or woody. Culm-internodes distally glabrous. Lateral branches lacking. Leaf-sheaths mostly shorter than adjacent culm internode, scaberulous. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1 mm long, erose. Leaf-blades 25–35 cm long, 8–10 mm wide. Leaf-blade surface smooth, glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, drooping, unilateral, 20–30 cm long. Central inflorescence axis 50 cm long. Rhachis angular. Spikelet packing distant (2–5 cm apart). Raceme-bases filiform. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, 2–5 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 oblong, laterally compressed, 10–15 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, 4–5 mm long, 0.66–0.75 length of upper glume, membranous, 1-keeled, 3–5 -veined. Lower glume apex acute. Upper glume ovate, 6–7 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 5–7 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 8–10 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy below. Lemma margins ciliate, hairy below. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 10–20 mm long overall. Palea 1 length of lemma. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Southeast Mexico. Yucatan.

Gouinia mexicana (Scribn.) Vasey. *Contrib. U. S. Nat. Herb.* i. 365 (1895).

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

TYPE from Mexico. **Basionym or Replaced Name:** *Leptochloa mexicana* Scribn., *Bull. Torrey Bot. Club* 313 (1891). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Tamasopo Canyon: Pringle 3252 (NY holo, K, MEXO, MO, NY, US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. -ana*, indicating origin. From Mexico.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms erect, 150–200 cm long. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode, smooth or scaberulous. Ligule an eciliate membrane or a

ciliolate membrane, 1 mm long, erose. Leaf-blades 20–35 cm long, 15–22 mm wide. Leaf-blade surface smooth or scaberulous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 20–25, borne along a central axis, spreading, unilateral, 5–26 cm long. Central inflorescence axis 30–40 cm long. Rhachis angular. Spikelet packing lax. Raceme-bases filiform, 10–80 mm long. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 15 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, 5 mm long, 0.7–0.8 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume apex acute. Upper glume ovate, 6 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 8–9 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 2–3 mm long overall. Palea 0.75 length of lemma. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Northeast Mexico.
San Luis Potosi.

Gouinia papillosa Swallen. *Publ. Carnegie Inst. Wash. No.* 436, 334 (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 Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Tancah: Swallen 2829 (US holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. papilla*, nipple; *-osa*, abundance. With papillae on the glumes or lemmas.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, knotty. Culms erect, 100–120 cm long. Leaf-sheaths glabrous on surface or pilose, with tubercle-based hairs. Ligule an eciliate membrane, 1 mm long, erose. Leaf-blades 12–30 cm long, 6–15 mm wide. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, flexuous, unilateral, 10–25 cm long, secondarily branched, secondary branches racemulose. Central inflorescence axis 30–40 cm long. Rhachis angular. Spikelet packing lax. Raceme-bases filiform. Spikelets appressed, 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 oblong, laterally compressed, 10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus evident, pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 4–5 mm long, 0.7–0.9 length of upper glume, membranous, 1-keeled, 1–3 -veined. Lower glume apex acute. Upper glume elliptic, 4.5–6.5 mm long, 0.7–0.8 length of adjacent fertile lemma, membranous, 1-keeled, 3–5 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 6–8 mm long, membranous, keeled, 3–5 -veined, 0–3 -veined or more than 3-veined. Lemma midvein ciliate, hairy below. Lemma lateral veins excurrent or extending close to apex. Lemma margins eciliate. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 6–12 mm long overall. Palea surface pubescent, hairy on flanks. Palea apex acuminate. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Lodicules 2, cuneate, fleshy. Anthers 3.

Distribution (TDWG). Continent. North America.
Country /Province /State. Mexico. Northeast Mexico, Southeast Mexico.
Tamaulipas. Quintana Roo, Yucatan.

Gouinia paraguayensis (Kuntze) Parodi. *Rev. Mus. La Plata*, iv. 176 (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 Paraguay. **Basionym or Replaced Name:** *Arundinaria paraguayensis* Kuntze, *Rev. Gen.* 3. 2 : 341 (1898). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Paraguay, Puerto Esperanza: Kuntze 56 (NY holo, US).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (124, as var. *paraguayensis*), S.A.Renvoize, *Gramineas de Bolivia* (1998) (304, Fig. 63), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (382, Fig. 133).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms erect, 30–75 cm long. Lateral branches ample. Leaf-sheaths antrorsely scabrous. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades 3–10 cm long, 1–5 mm wide. Leaf-blade surface scabrous, rough on both sides.

Inflorescence. Inflorescence composed of racemes. Racemes 10–25, borne along a central axis, in several whorls, spreading or deflexed, unilateral, 2–18 cm long. Central inflorescence axis 8–20 cm long. Rhachis angular. Spikelet packing distant. Raceme-bases filiform, 10–60 mm long. Spikelets spreading, solitary. Fertile spikelets pedicelled. Pedicels present, filiform, 20–40 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 oblong, laterally compressed, 8–12 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, 3.5–5.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume apex acuminate. Upper glume ovate, 3.5–5.5 mm long, 0.6–0.7 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 6–9 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins eciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 4.5–15 mm long overall. Palea 1 length of lemma. Palea keels eciliate. Palea apex awned. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Caribbean, Western South America, Southern South America. Guatemala. Bolivia.

Catamarca, La Rioja, Salta, Santiago del Estero, San Juan, Tucuman. Chaco, Cordoba, Entre Rios, Formosa.

Gouinia ramosa Swallen. *Publ. Carnegie Inst. Wash.* No. 436, 333 (1934).

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

TYPE from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Chichen Itza: Swallen 2436 (US holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *ramus*, branch; -osa, abundance. Inflorescences or culms much branched.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Culms erect or rambling, 300 cm long. Culm-internodes distally glabrous. Lateral branches ample, arising from upper culm, spreading. Leaf-sheaths longer than adjacent culm internode, antrorsely scabrous, pilose, with tubercle-based hairs. Leaf-sheath oral hairs ciliate. Ligule an eciliate membrane, 1 mm long, erose. Leaf-blades 10–20 cm long, 8–14 mm wide. Leaf-

blade surface scabrous, rough abaxially, pilose, sparsely hairy, hairy on both sides. Leaf-blade margins cartilaginous, scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, drooping, unilateral, 6–12 cm long. Central inflorescence axis 20–25 cm long. Rhachis angular. Spikelet packing lax. Raceme-bases filiform. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 3 fertile florets, with a barren rhachilla extension or with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, 8–12 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, 4–4.5 mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume surface scabrous. Lower glume apex obtuse or acute, muticous or mucronate. Upper glume ovate, 4.5–5 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 1–3 -veined. Upper glume primary vein scabrous. Upper glume lateral veins absent or distinct. Upper glume surface scabrous, rough above. Upper glume apex obtuse or acute, muticous or mucronate.

Florets. Fertile lemma lanceolate, 6–7 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy below. Lemma margins ciliate, hairy below. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 4–7 mm long overall. Palea 1 length of lemma. Palea keels eciliate. Palea surface scaberulous. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. North America.

Country /Province /State. Mexico. Southeast Mexico. Yucatan.

Gouinia tortuosa Swallen. *Am. Journ. Bot.* xxii. 41. (1935).

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

TYPE from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina, Patquia: Lahitte & Castro 13 (US holo).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (125, as *paraguayensis* var. *tortuosa*).

Derivation (Clifford & Bostock 2007): *L. tortus*, twisted; *-osa*, abundance. With conspicuously twisted leaf-blades or awns.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 40–50 cm long. Lateral branches ample. Leaf-sheaths longer than adjacent culm internode, scaberulous. Ligule a ciliolate membrane, 0.5–1 mm long. Leaf-blades flat or involute, 4–12 cm long, 2–4 mm wide. Leaf-blade surface scaberulous. Leaf-blade apex filiform.

Inflorescence. Inflorescence composed of racemes. Racemes borne along a central axis, spreading, unilateral, 3–12 cm long. Central inflorescence axis 10–20 cm long. Rhachis angular. Raceme-bases filiform, 10–60 mm long. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, linear, 1.5–3 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 oblong, laterally compressed, 8–10 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 6–8 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume apex acuminate. Upper glume ovate, 6–8 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 6–8 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins eciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 8–14 mm long overall. Palea keels ciliate. Palea apex awned. Apical sterile florets 1 in number, barren, lanceolate. Apical sterile lemmas awned.

Flower and Fruit. Anthers 3.

Distribution (TDWG). Continent. South America.

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

Catamarca, La Rioja, Salta, Santiago del Estero, San Juan. Cordoba, Formosa.

Gouinia virgata (Presl) Scribn. *U. S. Dept. Agric. Bull. Agrost.* iv. 10 (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 Mexico. **Basionym or Replaced Name:** *Bromus virgatus* J. Presl, *Rel. Haenk.* 1: 263 (1830). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, Acapulco: Haenke (PR holo, BM, MO).

Illustrations (Books): R.McVaugh, *Flora Nova-Galiciana* Vol.14 *Gramineae* (1983), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (109, Fig. 69), W.Burger, *Flora Costaricensis* 15, *Gramineae: Fieldiana Botany New Series* 4 (1980) (248, Fig 87), G.Harling & C.Persson, *Flora of Ecuador* (2006) (68: 24, Fig. 4 (2001)).

Derivation (Clifford & Bostock 2007): *L. virga*, broom; *-ata*, possessing. Inflorescence arms or culms held erect.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 30–150 cm long. Culm-internodes solid. Culm-nodes glabrous. Ligule a ciliolate membrane, 0.5–1.5 mm long. Leaf-blades 10–25 cm long, 4–15 mm wide.

Inflorescence. Inflorescence composed of racemes. Racemes 4–15, borne along a central axis, unilateral, 8–20 cm long. Central inflorescence axis 10–15 cm long. Rhachis angular. Spikelet packing lax. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, linear, angular, 1–4 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 oblong, laterally compressed, 10–12 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2.5 mm long. Floret callus evident, pubescent.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume lanceolate, 3.9–5.2 mm long, 0.66 length of upper glume, membranous, 1-keeled, 3–4 -veined. Lower glume apex acuminate. Upper glume ovate, 5.7–7.2 mm long, 0.75 length of adjacent fertile lemma, membranous, 1-keeled, 5–7 -veined. Upper glume apex acuminate.

Florets. Fertile lemma lanceolate, 8–10 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate, hairy below. Lemma margins ciliate, hairy below. Lemma apex acuminate, awned, 1 -awned. Principal lemma awn 8–15 mm long overall. Palea keels ciliate. Apical sterile florets 1 in number, barren, lanceolate, 0.5–4 mm long. Apical sterile lemmas awned. Apical sterile lemma awns 3–15 mm long.

Flower and Fruit. Anthers 3, 0.5–0.6 mm long.

$2n = 40$ (2 refs TROPICOS).

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

Country /Province /State. Mexico. Central Mexico, Northeast Mexico, Gulf (Mexico), Northwest Mexico, Southwest Mexico, Southeast Mexico. **Mesoamerica, Caribbean, Western South America, Brazil.** Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua. Cuba, Haiti. Bolivia, Colombia, Peru. Brazil North.

Durango, San Luis Potosi, Tamaulipas. Veracruz. Sinaloa. Colima, Guerrero, Jalisco, Michoacan, Nayarit. Campeche, Quintana Roo, Yucatan.

Graphephorum melicoides (Michx.) Desv. *Nouv. Bull. Soc. Philom.* ii. 189. (1810).

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

TYPE from Canada. **Basionym or Replaced Name:** *Aira melicoides* Michx., *Fl. Bor. Am.* 1: 62 (1803). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Canada: Michaux (P holo).

Recent Synonyms: *Trisetum melicoides* (Michx.) Scribn., *Bot. Gaz.* 9: 169 (1884).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 24 *Poaceae*, part 1 (2007) (747 as *Trisetum*).

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

Classification. Subfamily Pooideae. Tribe: Poeae.

Habit, Vegetative Morphology. Perennial. Culms 50–100 cm long. Ligule an eciliate membrane. Leaf-blades 2–8 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence a panicle. Panicle open, elliptic, 10–20 cm long. Panicle branches scaberulous. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, filiform.

Fertile Spikelets. Spikelets comprising 2–3 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 6–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes definite, pilose. Floret callus bearded. Floret callus hairs 0.33–0.5 length of lemma.

Glumes. Glumes persistent, shorter than spikelet, thinner than fertile lemma, shiny. Lower glume elliptic, 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 elliptic, 1 length of adjacent fertile lemma, membranous, 1-keeled, 3 -veined. Upper glume primary vein scaberulous. Upper glume apex acute.

Florets. Fertile lemma elliptic, 5–6 mm long, membranous, much thinner on margins, shiny, keeled, 5 -veined, more than 3-veined. Lemma apex acute. Palea embraced by lemma. Palea keels scaberulous. Rhachilla extension 0.33–0.5 length of fertile floret, villous.

Flower and Fruit. Ovary glabrous.

Distribution (TDWG). Continent. North America.

Country /Province /State. Eastern Canada, North-central USA, Northeast USA. New Brunswick, Newfoundland, Nova Scotia, Ontario, Quebec. Wisconsin. Maine, Michigan, New Hampshire.

Greslania circinnata Balansa. *Bull. Soc. Bot. Fr.* 19: 320 (1872).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from New Caledonia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Caledonia, Mont Humboldt: Balansa 3580 (P holotype).

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 100–150 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate or oblong, 10–30 cm long, 20–50 mm wide, coriaceous, stiff. Leaf-blade venation without cross veins. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, paniculate, 30–40 cm long, lax or open, with glumaceous subtending bracts, without axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 1 fertile floret, 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.

Glumes. Glumes persistent, similar, shorter than spikelet, thinner than fertile lemma. Lower glume ovate, 3 mm long, scarious, without keels, 7 -veined. Lower glume apex acute. Upper glume elliptic, 6 mm long, scarious, without keels, 7–9 -veined. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 7 mm long, coriaceous, without keel, 7–9 -veined, more than 3-veined. Lemma apex acute, cucullate. Palea 1 length of lemma, coriaceous, 4 -veined. Palea keels approximate. Rhachilla extension 4 mm long.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Ovary umbonate, glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. Southwestern Pacific. New Caledonia.

Greslania montana Balansa. *Bull. Soc. Bot. Fr.* 19 : 320 (1872).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from New Caledonia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Caledonia, Dent de Saint Vincent: Balansa 2917.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. mons*, mountain; *-ana*, indicating location. Growing on mountains.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 90–160 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane. Leaf-blade base cordate, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, oblong or ovate, 7–15 cm long, 25–40 mm wide, coriaceous, stiff. Leaf-blade venation without cross veins. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, paniculate, 10–30 cm long, lax, with glumaceous subtending bracts, without axillary buds at base of spikelet, prophyllate below lateral spikelets.

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 ovate, laterally compressed, 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, 3 mm long, scarious, without keels. Lower glume apex obtuse. Upper glume ovate, 4 mm long, scarious, without keels. Upper glume apex obtuse.

Florets. Fertile lemma ovate, 5–6 mm long, coriaceous, without keel, more than 3-veined. Lemma apex obtuse, cucullate. Palea 1 length of lemma, coriaceous. Palea keels approximate.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Ovary umbonate, glabrous. Caryopsis with adherent pericarp, oblong.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. Southwestern Pacific. New Caledonia.

Greslania multiflora Pilger. *Engl. Jahrb.* ix. 23 (1906).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from New Caledonia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Caledonia, Ngoye Mts.: Schlechter 15177 (K iso).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. multus*, many; *flos*, flower. Spikelets with more florets than those of related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 60–120 cm long, woody. Culm-internodes terete, thin-walled. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate or oblong, 7–13 cm long, 15–20 mm wide, coriaceous, stiff. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, paniculate, 30–40 cm long, with glumaceous subtending bracts, bracts 3–5 mm long, without axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets pedicelled or sessile. Pedicels present.

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

Glumes. Glumes persistent, similar, reaching apex of florets, thinner than fertile lemma. Lower glume ovate, 0.6–0.8 length of upper glume, scarious, without keels, 7–9 -veined. Lower glume apex laterally pinched. Upper glume elliptic, scarious, without keels, 7–9 -veined. Upper glume apex laterally pinched.

Florets. Fertile lemma lanceolate, 5–6 mm long, coriaceous, without keel, 7 -veined, more than 3-veined. Lemma apex obtuse, laterally pinched (hooded). Palea 1 length of lemma, coriaceous, 6 -veined. Palea keels approximate. Rhachilla extension 0.6–0.7 length of fertile floret.

Flower and Fruit. Lodicules 3, 0.5 mm long. Anthers 6. Stigmas 3. Ovary umbonate, glabrous. Caryopsis with adherent pericarp (thick).

Distribution (TDWG). Continent. Pacific.

Country /Province /State. Southwestern Pacific. New Caledonia.

Greslania rivularis Balansa. *Bull. Soc. Bot. Fr.* xix. 320 (1872).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from New Caledonia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: New Caledonia, Reviere de Pamboui: Balansa 1742 (P holo, K).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. rivulus*, river; *-are*, pertaining to. Growing adjacent to rivers.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 180–350 cm long, 5–15 mm diam., woody. Culm-internodes terete, thin-walled. Lateral branches lacking. Leaf-sheaths longer than adjacent culm internode. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades deciduous at the ligule, lanceolate, 10–30 cm long, 20–45 mm wide, coriaceous, stiff. Leaf-blade venation without cross veins. Leaf-blade apex attenuate, filiform.

Inflorescence. Synflorescence bractiferous, paniculate, 20–40 cm long, open, with glumaceous subtending bracts or spathaceous subtending bracts, bracts 3–15 mm long, without axillary buds at base of spikelet, prophyllate below lateral spikelets.

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 ovate, laterally compressed, 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 oblong, 2.5–3 mm long, scarious, without keels, 9 -veined. Lower glume apex obtuse. Upper glume oblong, 3.5–4 mm long, scarious, without keels, 7–9 -veined. Upper glume apex obtuse.

Florets. Fertile lemma oblong, 4–6 mm long, coriaceous, without keel, 9–13 -veined, more than 3-veined. Lemma apex obtuse, cucullate. Palea 1 length of lemma, coriaceous. Palea keels approximate. Rhachilla extension 3.5 mm long.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Ovary umbonate, glabrous. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. Pacific.

Country /Province /State. Southwestern Pacific. New Caledonia.

Guadua aculeata Fourn. *Mex. Pl. Enum., Gram.* 130 (1886).

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 Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: LT: *W.F. von Karwin Karwinsky 944*, Mar 1841, Mexico: Veracruz: Colipa (LE(fragm. US-1021603)). LT designated by Young & Judd, *Ann. Missouri Botanical Gard.* 79: 761 (1992).

Illustrations (Books): D.Farrelly, *The Book of Bamboo* (1984).

Derivation (Clifford & Bostock 2007): *L. acus*, needle; *-ulus*, diminutive; *-ata*, possessing. Stems spiny.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped loosely. Rhizomes elongated, pachymorph. Butt sheaths absent. Culms erect or geniculately ascending or arching, 1000–1500 cm long, 100–150 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled, distally hispid. Lateral branches dendroid. Branch complement two or three. Culm-sheaths present, deciduous, hispid, without auricles, glabrous on shoulders. Culm-sheath ligule ciliolate. Culm-sheath blade triangular, as wide as sheath at base, demarcated but persistent, erect. Leaf-sheaths keeled, striately veined, glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs lacking. Leaf-sheath auricles absent. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.5 cm long, petiole glabrous. Leaf-blades lanceolate or oblong, 15–19 cm long, 28–30 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation without cross veins. Leaf-blade surface pilose, sparsely hairy, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, lax, with glumaceous subtending bracts, prophyllate below lateral spikelets, leafless between clusters.

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 linear, laterally compressed, compressed slightly, 35–45 mm long, 3–4 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 9–10 mm long, scaberulous.

Glumes. Glumes several, comprising 1–3 gemmiferous bracts, 1–3 empty glumes, persistent, shorter than spikelet. Lower glume ovate, 4–5 mm long, membranous. Lower glume surface asperulous. Lower glume apex obtuse. Upper glume lanceolate or ovate, 10 mm long. Upper glume surface asperulous. Upper glume apex obtuse.

Florets. Fertile lemma lanceolate or ovate, 13 mm long, coriaceous, without keel, more than 3-veined. Lemma surface scaberulous, glabrous. Lemma apex acute. Palea keels winged, conspicuously winged, ciliolate. Palea surface scaberulous. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 5 mm long, membranous, veined, glabrous. Anthers 3, 6 mm long, yellow, anther tip smooth or penicillate. Stigmas 3. Caryopsis with adherent pericarp, sulcate on hilar side, 7–8 mm long.

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

Country /Province /State. Mexico. Northeast Mexico, Gulf (Mexico), Southwest Mexico. Mesoamerica, Western South America. El Salvador, Guatemala, Honduras, Panama. Colombia.

Tamaulipas. Veracruz. Jalisco.

Guadua amplexifolia J. & C. Presl. *Rel. Haenk.* i. 256. (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. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico: Haenke (PR holo, US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. amplexus*, encircling; *folium*, leaf. Leaf-blades cordate and amplexicaule.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms 1000–2000 cm long, 60–100 mm diam., woody. Culm-internodes terete, thick-walled or solid, mid-green, distally glabrous. Lateral branches dendroid. Culm-sheaths present, glabrous, without auricles or auriculate, setose on shoulders, shoulders with 4–8 mm long hairs. Culm-sheath blade lanceolate, 5–20 cm long, brown pubescent. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs setose. Leaf-sheath auricles falcate, 20–35 mm long. Ligule an eciliate membrane, 0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades lanceolate, 16–24 cm long, 30–51 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, lax, with glumaceous subtending bracts, prophyllate below lateral spikelets, leafy between clusters.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 6–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 35–60 mm long, 4–5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3–4 empty glumes, persistent, shorter than spikelet. Upper glume ovate, 4–8 mm long.

Florets. Fertile lemma ovate, 14–16 mm long, coriaceous, without keel, 21–25 -veined, more than 3-veined. Lemma surface glabrous or pilose. Lemma apex apiculate. Palea 0.9 length of lemma. Palea keels winged, conspicuously winged, ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 6, 6–7 mm long. Stigmas 3. Ovary umbonate. Caryopsis with adherent pericarp.

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

Country /Province /State. **Mexico.** Gulf (Mexico), Southwest Mexico, Southeast Mexico. **Mesoamerica, Northern South America, Western South America.** Costa Rica, El Salvador, Honduras, Nicaragua, Panama. Venezuela. Colombia.

Veracruz. Oaxaca. Chiapas, Tabasco, Yucatan.

Guadua angustifolia Kunth. *Syn. Pl.* 1: 253 (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).

TYPE from Colombia. **Basionym or Replaced Name:** *Bambusa guadua* Humb. & Bonpl., *Pl. Aequin.* 168. t. 20 (1808). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: : Based on *Bambusa guadua* ; Colombia: Humboldt & Bonpland 2003 (P lecto, B).

Recent Synonyms: *Bambusa guadua* Humb. & Bonpl., *Pl. Aequin.* 168. t. 20 (1808).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (36, Fig. 6 as *Bambusa guadua*), D.Farrelly, *The Book of Bamboo* (1984) (193).

Illustrations (Journals): *Smithsonian Contributions to Botany* (9: 63, Fig. 27; 65, Fig. 28; 67, Fig. 29 (1973), as *Bambusa guadua*).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

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, 2000–3000 cm long, 100–130 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, 20 cm long. Lateral branches dendroid. Branch complement three, with 1 branch dominant, thinner than stem. Culm-sheaths present, pubescent, hairy throughout, with dark brown hairs, without auricles. Culm-sheath blade triangular, erect, pubescent. Leaf-sheath oral hairs lacking. Ligule a ciliolate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole glabrous. Leaf-blades lanceolate or oblong, 10–20 cm long, 6–12 mm wide. Leaf-blade venation without cross veins.

Inflorescence. Synflorescence bractiferous, scanty, 5–10 cm long, lax, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

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, straight or curved, laterally compressed, 30–60 mm long, 4–5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.5–0.8 length of upper glume, coriaceous, without keels, 11–17 -veined. Lower glume apex obtuse or acute. Upper glume ovate, 0.5–0.8 length of adjacent fertile lemma, coriaceous, without keels, 11–17 -veined. Upper glume apex obtuse or acute.

Florets. Fertile lemma ovate, 8–16 mm long, coriaceous, without keel, 11–17 -veined, more than 3-veined. Lemma apex acute. Palea 1 length of lemma, 6 -veined. Palea keels winged, conspicuously winged. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Ovary umbonate. Caryopsis with adherent pericarp.

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

Country /Province /State. Mexico. Gulf (Mexico), Southeast Mexico. **Mesoamerica, Northern South America, Western South America, Brazil, Southern South America.** El Salvador, Guatemala, Honduras, Nicaragua. Guyana, Venezuela. Colombia, Peru. Brazil Southeast. Argentina Northeast, Uruguay.

Amazonas, Acre, Rondonia, Sao Paulo Parana, Catarina, Rio Grande do Sul. Sao Paulo. Tucuman. Chaco, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe. Veracruz. Tabasco.

Guadua calderoniana X. Londono & E.J. Judziewicz. *Novon*, 1(1): 27 (1991).

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

TYPE from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Olivença: Calderon & dos Santos 2476 (CEPEC holo, B, CANB, COL, CTES, F, G, ISC, K, LE, MO, NY, P, PE, PRE, SGO, SI, SP, TULV, US, USCH).

Illustrations (Journals): *Novon* (1: 28 Fig. 1; 29 Fig. 2 (1992)).

Derivation (Clifford & Bostock 2007): L. *-ana*, indicating connection. In honor of Cleofí Elsa Caldersn (1929-) Argentine-born United States botanist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching or leaning, 1000–2000 cm long, 20–35 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled or solid, 30–35 cm long, mid-green. Culm-nodes without obvious supra-nodal ridge, pubescent. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement one to several, with 1 branch dominant, thinner than stem. Culm-sheaths present, deciduous, pubescent, with tawny hairs, auriculate, with 7–9 mm high auricles, setose on shoulders, shoulders with 15 mm long hairs. Culm-sheath ligule 1.5–3 mm high, ciliolate. Culm-sheath blade lanceolate or triangular, erect, 20–35 cm long, hispid. Leaves 12–15 per branch. Leaf-sheaths pubescent, outer margin hairy. Leaf-sheath oral hairs setose, 12–25 mm long. Leaf-sheath auricles falcate, 5–10 mm long. Ligule a ciliolate membrane, 1 mm long, brown, pubescent on abaxial surface. Leaf-blade base truncate or broadly rounded, with a brief petiole-like connection to sheath, petiole 0.5–1 cm long, petiole pubescent. Leaf-blades lanceolate or ovate, 15–27 cm long, 20–37 mm wide. Leaf-blade venation with 14–18 secondary veins, without cross veins. Leaf-blade surface glabrous. Leaf-blade margins ciliate. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty, lax, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 1 basal sterile florets, 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 lanceolate, laterally compressed, 40–80 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas, pubescent.

Glumes. Glumes several, 1–2 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 3–7 mm long, coriaceous, without keels, 11–17 -veined. Upper glume surface pubescent. Upper glume margins ciliolate. Upper glume apex acute, mucronate.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret similar to fertile lemma, lanceolate, 15–18 mm long, 23–27 -veined, pubescent, ciliate on margins, acuminate, mucronate. Fertile lemma lanceolate, 17–27 mm long, coriaceous, without keel, 23–27 -veined, more than 3-veined. Lemma surface pubescent. Lemma margins ciliate. Lemma apex acute, mucronate. Palea 15 mm long, 9–11 -veined. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2–3 mm long, veined, glabrous. Anthers 6, 7–10 mm long. Stigmas 3. Caryopsis with adherent pericarp, fusiform, 9 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil Northeast.
Bahia.

Guadua chacoensis (Rojas) X. Londono & P.M. Peterson. *Novon*, 2(1): 41: (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 Argentina. **Basionym or Replaced Name:** *Bambusa chacoensis* Rojas, *Bull. Geogr. Bot.* 28:157 (1918). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina, General Vedia: Quarin et al. 2364 (CTES neo, INT, F, G, K, MO, US).

Recent Synonyms: *Bambusa chacoensis* Rojas, *Bull. Geogr. Bot.* 28:157 (1918).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (60), S.A.Renvoize, *Gramineas de Bolivia* (1998) (Fig. 2), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (106, Fig. 19 as *Bambusa*), E.J.Judziewicz et al, *American Bamboos* (1999) (240, Fig. 141 & 241, Fig. 241).

Illustrations (Journals): *Novon* (2: 42 Fig. 1; 46 Fig 2 (1992)).

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

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, inclined at the tip, 1000–2000 cm long, 8–15 mm diam., woody, with root thorns from the nodes. Culm-internodes semiterete, thin-walled, mid-green. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement three or several, thinner than stem. Culm-sheaths present, deciduous, 20–50 cm long, 1.7–2.5 times as long as wide, glabrous or hispid, with tawny hairs, truncate at apex, without auricles, glabrous on shoulders. Culm-sheath ligule 0.8–1 mm high, ciliolate. Culm-sheath blade triangular, as wide as sheath at base, demarcated but persistent, erect, 4–13 cm long, 30–80 mm wide, glabrous on surface or pubescent or with ciliate margins, acute. Leaves 7–9 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, curly, 2–3 mm long, pale. Ligule a ciliolate membrane, 0.2–0.4 mm long, pubescent on abaxial surface. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.3 cm long, petiole glabrous. Leaf-blades lanceolate, 10–24 cm long, 5–25 mm wide. Leaf-blade venation with 8–14 secondary veins. Leaf-blade surface glabrous or hispid, sparsely hairy, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, paniculate, 30–40 cm long, open, with glumaceous subtending bracts, bracts 8–10 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

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 oblong, laterally compressed, 20–50 mm long, 4–5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 5–7 mm long, obscured by lemmas, pubescent.

Glumes. Glumes several, 1–2 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 5–8 mm long, without keels, 7–9 -veined. Upper glume apex acute, mucronate.

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, 10–14 mm long, puberulous, obtuse, mucronate. Fertile lemma ovate, 12–16 mm long, 7–12 mm wide, coriaceous, shiny, without keel, 12–17 -veined, more than 3-veined. Lemma surface puberulous, hairy below. Lemma margins convolute, covering most of palea. Lemma apex obtuse, mucronate or awned. Principal lemma awn 0.8–1 mm long overall. Palea 6–14 mm long, 11 -veined. Palea keels winged, conspicuously winged. Palea surface pubescent. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 3–5 mm long, veined, ciliate. Anthers 6, 5–8 mm long, anther tip apiculate. Stigmas 3. Caryopsis with adherent pericarp, fusiform, 9–12 mm long, light brown. Embryo 0.5 length of caryopsis.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, Southern South America. Bolivia. Brazil West Central, Brazil Southeast, Brazil South. Paraguay.

Sao Paulo Parana. Mato Grosso do Sul. Sao Paulo. Rio Grande do Sul. Tucuman. Chaco, Corrientes, Misiones.

Guadua chaparensis Londoño & Zurita, Eneida. *J. Bot. Res. Inst. Texas* 2: 31 (2008).

TYPE from Bolivia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cochabamba: Prov. Carrasco, Distrito Chapare, localidad Israel, orilla del Rio Sajta, 270, 17°2'33"S, 64°9'47"W, 8 Aug 2004, E. Zurina & J. Huaranca EZ 302 (HT: BOLV; IT: BOL, COL, TULV, US).

Illustrations (Journals): *J. Bot. Res. Inst. Texas* (2:32, fig.2 (2008)).

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, nodding at the tip, (1500–)1800–2500 cm long, (35–)70–120 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, 22–50(–70) cm long, dark green, distally glabrous. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, extravaginal. Bud complement 1. Branch complement two or three or several, with 1 branch dominant. Culm-sheaths present, 23–50 cm long, yellow, pubescent, glabrous on margins, without auricles. Culm-sheath ligule 0.5–1 mm high, ciliolate. Culm-sheath blade triangular, demarcated but persistent, erect, (4–)9–15 cm long, 14–17 mm wide, hispid, mucronate. Leaves 5–8(–10) per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Ligule an eciliate membrane or a ciliolate membrane, 0.3–0.5 mm long, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long. Leaf-blades linear or lanceolate, (5–)15–23(–25) cm long, (6–)13–20 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation prominent, with 11–14 secondary veins, with distinct cross veins. Leaf-blade margins scabrous. Leaf-blade apex attenuate, apiculate (1.5–2.5 mm). Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

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

Guadua ciliata X. Londono & G. Davidse. *Novon*, 1(1): 21 (1991).

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

TYPE from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Cucurital de Caname: Davidse, Huber & Tillet 16924 (MO holo, INPA, K, SI, TULV, US, VEN).

Illustrations (Books): J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (109, Fig. 73).

Illustrations (Journals): *Novon* (1: 23 Fig. 1; 25 Fig. 2 (1992)).

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, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 400–1000 cm long, 8–20 mm diam., woody, without nodal roots. Culm-internodes terete, thin-walled, 20–30 cm long, yellow or mid-green, distally glabrous or pubescent. Culm-nodes pubescent. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement one to three, with 1 branch dominant, thinner than stem. Culm-sheaths present, persistent, hairy on margins, without auricles, setose on shoulders, shoulders with 5–8 mm long hairs. Culm-sheath ligule 0.4–2.2 mm high, ciliolate. Culm-sheath blade triangular, erect, 1–2.4 cm long, pubescent or with ciliate margins, mucronate. Leaves 7–11 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, deciduous, 2–11 mm long. Ligule an eciliate membrane, 1–2.2 mm long, truncate or obtuse. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5–1.4 cm long, petiole pubescent. Leaf-blades lanceolate, 12–25 cm long, 20–35 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 15–23 secondary veins, with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, lax, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafy between clusters.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 5–9 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 50–70 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–9.5 mm long, obscured by lemmas, pubescent.

Glumes. Glumes several, 1–3 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 6–16 mm long, coriaceous, without keels, 13–19 -veined. Upper glume lateral veins with cross-veins. Upper glume surface glabrous or pubescent. Upper glume margins ciliolate. Upper glume apex acute, mucronate.

Florets. Fertile lemma ovate, 14–23 mm long, 7–9 mm wide, coriaceous, without keel, 23–27 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface glabrous or puberulous. Lemma margins ciliolate. Lemma apex acute, mucronate. Palea 8–17 mm long, 8–9 -veined. Palea keels winged, conspicuously winged, pubescent. Palea apex pubescent. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 5.1–7.2 mm long, veined, ciliate. Anthers 6, 5.5–7.5 mm long. Stigmas 3. Caryopsis with adherent pericarp, oblong, 8.5–10 mm long, dark brown. Embryo 0.2 length of caryopsis. Hilum linear, 1 length of caryopsis.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Brazil. Venezuela. Brazil North. Amazonas, Pará.

Guadua glomerata Munro. *Trans. Linn. Soc.* 26: 79 (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 Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Barra: Spruce 1196 (K holotype, BM, NY, P).

Recent Synonyms: *Bambusa glomerata* (Munro) McClure, *Smithsonian Contrib. Bot.*, 9: 66 (1973).

Illustrations: None found.

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

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, woody bamboo, caespitose, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 800–1200 cm long, 10–45 mm diam., woody, with root thorns from the nodes. Culm-internodes semiterete, thin-walled or thick-walled, scaberulous. Lateral branches dendroid. Bud complement 1. Culm-sheaths present, 4.5–5 times as long as wide, glabrous. Culm-sheath ligule 1 mm high. Culm-sheath blade triangular, demarcated but persistent, erect, 6 cm long, 20 mm wide. Leaves 5–13 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs ciliate, 2–3 mm long. Ligule an eciliate membrane, 1–1.2 mm long. Collar with external ligule. Leaf-blade base truncate or cordate, with a brief petiole-like connection to sheath, petiole 0.3–0.6 cm long, petiole glabrous. Leaf-blades lanceolate, 12–16 cm long, 22–32 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, globose, axis 0.2–0.7 cm long, dense, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Spikelets ascending or spreading or deflexed. 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, 40–60 mm long, 4–6 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

Florets. Fertile lemma lanceolate or ovate, 17–23 mm long, coriaceous, light brown, shiny, without keel, 15–20 -veined, more than 3-veined. Lemma lateral veins obscure, with cross-veins. Lemma apex acute. Palea 13–17 mm long. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, veined. Anthers 6, 6–7 mm long. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America, Brazil. French Guiana, Guyana, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil North. Amazonas, Acre, Rondonia. Amazonas, Pará.

Guadua incana Londono. *J. Bot. Res. Inst. Texas* 2: 26 (2008).

TYPE from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Caqueta: Km 26.7 via Florencia-Guadalupe, Quebrada La Rebolcosa, vertiente oriental de la Cordillera Oriental, 750m, cultivated at the Botanical Garden Juan Maria Céspedes, 2 Jun 2001 (fl.), X. Londoño 972 (HT: COL; IT: CUVC, TULV, ISC, US).

Illustrations (Journals): *J. Bot. Res. Inst. Texas* (2:27, fig.1 (2008)).

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, nodding at the tip, 1000–1500(–1800) cm long, 70–90(–120) mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, (20–)30–55(–65) cm long, light green, distally pubescent, with reflexed hairs. Culm-nodes with distinct supra-nodal ridge. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement two or three, with 1 branch dominant, thinner than stem. Culm-sheaths present, (19–)24–33 cm long, brown, hispid, with white hairs or yellow hairs, hairy on margins, without auricles, setose on shoulders, shoulders with curved hairs, shoulders with 3–5 mm long hairs. Culm-sheath ligule 0.5–1 mm high, ciliolate. Culm-sheath blade triangular, demarcated but persistent, erect, (3.5–)5–10 cm long, 7–12 mm wide. Leaves 5–8(–10) per branch. Leaf-sheaths glabrous on surface to pubescent, outer margin hairy. Leaf-sheath oral hairs setose, curly, 4–5 mm long. Ligule an eciliate membrane or a ciliolate membrane, 0.3–0.4 mm long, brown, pubescent on abaxial surface. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.2–0.4 cm long, petiole glabrous. Leaf-blades linear or lanceolate, (3.5–)11–13(–16) cm long, (7–)10–20(–22) mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation prominent, with 13–15 secondary veins, with distinct cross veins. Leaf-blade surface pilose, sparsely hairy, hairy on both sides. Leaf-blade margins scabrous. Leaf-blade apex acuminate, apiculate (2–3 mm).

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 1–2 basal sterile florets, 5–7 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, laterally compressed, 20–40 mm long, 7 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 3–4.5 mm long, pubescent.

Glumes. Glumes several, comprising 1–4(–5) gemmiferous bracts (or glumes), deciduous, similar, shorter than spikelet. Lower glume ovate, 5–9 mm long, 7–11 -veined. Lower glume surface pubescent. Lower glume apex acute, mucronate.

Florets. Basal sterile florets 1 or 2 or more, similar, barren, with palea or without significant palea, separately deciduous. Lemma of lower sterile floret similar to fertile lemma, lanceolate or ovate, 6.5–8 mm long, 10–16 -veined, ciliolate on margins, mucronate. Fertile lemma lanceolate or ovate, 9–11.5 mm long, 6–8 mm wide, coriaceous, without keel, 16–18 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 9–11 mm long, 0.9–1 length of lemma, 9–12 -veined. Palea keels winged, conspicuously winged. Palea surface puberulous, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 2.5–5 mm long, veined, ciliate. Anthers 6, 4–5.2 mm long, anther tip apiculate. Filaments free. Stigmas 3. Caryopsis with adherent pericarp, fusiform, 7–9 mm long. Embryo 0.2 length of caryopsis.

Distribution (TDWG). Continent. South America.

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

Guadua latifolia (HBK) Kunth. *Syn. Pl.* 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).

TYPE from Venezuela. **Basionym or Replaced Name:** *Bambusa latifolia* Humb. & Bonpl., *Pl. Aequin.* 1: 68. t. 21 (1808). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela, Rio Casiquiare: Humboldt & Bonpland 1090 (P holo).

Recent Synonyms: *Bambusa latifolia* Humb. & Bonpl., *Pl. Aequin.* 1: 68. t. 21 (1808).

Illustrations: None found.

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 erect, nodding at the tip, 300–1100 cm long, 50–130 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled or thick-walled, 25–45 cm long, mid-green, smooth. Lateral branches dendroid. Bud complement 1. Branch complement three. Culm-sheaths present, deciduous. Leaves 5–7 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs setose, 5–10 mm long. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base cuneate or broadly rounded, with a brief petiole-like connection to sheath, petiole 0.2–0.8 cm long. Leaf-blades lanceolate or ovate, 17–24 cm long, 25–45 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade margins ciliate. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty, axis 0–4 cm long, lax, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Spikelets appressed or ascending. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–60 mm long, 6–8 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

Florets. Fertile lemma ovate, 12–18 mm long, coriaceous, yellow or light green, dull, without keel, 18–25 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface glabrous or puberulous. Lemma apex acute, mucronate or awned, 1 -awned. Principal lemma awn 0.7–2 mm long overall. Palea keels winged, conspicuously winged. Palea apex ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, veined. Anthers 6, 4 mm long. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean, Northern South America, Brazil. Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Brazil North.

Amazonas, Acre, Rondonia. Acre, Amapa, Amazonas, Pará, Roraima, Rondonia, Tocantins.

Guadua longifolia (Fourn.) R.W. Pohl. *Novon*, 2(2): 92: (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 Mexico. **Basionym or Replaced Name:** *Arundinaria longifolia* Fourn., *Mex. Pl. Enum. Gram.* 131 (1886). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico: Karwinsky 947 ; Mexico, Jicaltepec: Liebmann (C syn) ; Mexico, Jicaltepec: Liebmann 121 (C syn, US) ; Mexico, Pital: Liebmann 122 (C syn, US) ; Mexico, Jicaltepec: Liebmann 123 (C syn, US) ;.

Illustrations (Books): E.J.Judziewicz et al, *American Bamboos* (1999).

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 erect, 400–1000 cm long, 20–50 mm diam., woody. Culm-internodes terete,

thick-walled or solid, mid-green, distally glabrous or pilose, with tubercle-based hairs. Lateral branches dendroid. Culm-sheaths present, glabrous or pubescent, with white hairs, without auricles, glabrous on shoulders. Culm-sheath blade lanceolate, 2–9 cm long, pubescent. Leaf-sheaths glabrous on surface or hispid, outer margin hairy. Leaf-sheath oral hairs setose, 2–7 mm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.1–0.2 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear, 13–27 cm long, 4–7 mm wide. Leaf-blade surface glabrous, hairless except near base. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, lax, with glumaceous subtending bracts, prophyllate below lateral spikelets, leafy between clusters.

Fertile spikelets sessile.

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, 50–130 mm long, 3–4 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 3–8 empty glumes, persistent, shorter than spikelet. Upper glume ovate, 3–14 mm long.

Florets. Fertile lemma ovate, 15–21 mm long, coriaceous, without keel, 17–23 -veined, more than 3-veined. Lemma surface glabrous. Lemma apex mucronate, 1 -awned. Principal lemma awn 3–5 mm long overall. Palea 10–15 mm long. Palea keels winged, conspicuously winged, ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 3, 7–8.5 mm long. Stigmas 3. Ovary umbonate. Caryopsis with adherent pericarp.

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

Country /Province /State. Mexico. Gulf (Mexico), Southeast Mexico. **Mesoamerica.** Belize, Guatemala, Honduras.

Veracruz. Campeche, Chiapas, Tabasco.

Guadua macclurei R.W. Pohl & G. Davidse. *Novon*, 2(2): 92 (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 Honduras. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Honduras, Gracias a Dios: Pohl & Gabel 13340 (ISC holo, F, MO).

Illustrations (Journals): *Novon* (2: 93, Fig. 5 (1992)).

Derivation (Clifford & Bostock 2007): Similar to *Olyra* and 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, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching, pendulous at the tip, 600–1500 cm long, 30–40 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, 35–55 cm long, mid-green, distally pubescent. Culm-nodes pubescent. Lateral branches dendroid. Branch complement several, with 1 branch dominant, thinner than stem. Culm-sheaths present, deciduous, hispid, hairy throughout, with white hairs, without auricles or auriculate, glabrous on shoulders or ciliate on shoulders. Culm-sheath ligule 1.5–2 mm high. Culm-sheath blade triangular, 7–14 cm long, hispid, acuminate. Leaf-sheaths glabrous on surface or hispid, outer margin hairy. Leaf-sheath oral hairs setose, spreading, 5–9 mm long. Leaf-sheath auricles falcate. Ligule a ciliolate membrane, 0.1–0.4 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.15–0.25 cm long, petiole pilose. Leaf-blades lanceolate, 13–26 cm long, 16–48 mm wide. Leaf-blade surface glabrous. Leaf-blade margins ciliate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, dense, with glumaceous subtending bracts, bracts 2–2.5 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between clusters (branches 15–30 cm long).

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, 8.5–9 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 6–7.5 mm long, coriaceous, without keels, 11–13 -veined. Lower glume apex rostrate. Upper glume ovate, 8–8.7 mm long, coriaceous, without keels, 11–13 -veined. Upper glume apex rostrate.

Florets. Fertile lemma ovate, 8.5–9 mm long, coriaceous, without keel, 11–15 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex apiculate. Palea bowed outwards, 1 length of lemma, 8–10 -veined. Palea keels winged, conspicuously winged. Rhachilla extension 3–5 mm long. Apical sterile florets distinct from fertile, 1 in number, barren, linear, 3.5–5 mm long.

Flower and Fruit. Lodicules 3, veined. Anthers 6, 5 mm long, yellow. Stigmas 3. Caryopsis with adherent pericarp.

$2n = 48$ (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. Costa Rica, Honduras, Nicaragua, Panama.

Guadua macrospiculata Londono, L.G.Clark. *Novon* 12(1): 65 (2002).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Colombia. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Colombia, Tarapoto: Londono & Kobayashi 577 (COL holo, ISC, US).

Illustrations (Journals): *Novon* (12: 66, Fig. 1 (2002)).

Derivation (Clifford & Bostock 2007): Gk *makros*, large; L. *spica*, a point; hence, in particular, an ear or spike of grain; -*ula*, diminutive. Spikelets larger than those of related species.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, pendulous at the tip, 800–1500 cm long, 18–40 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled or solid, 11–32 cm long, distally pubescent. Culm-nodes with distinct supra-nodal ridge, pubescent. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement many, with 1 branch dominant. Culm-sheaths present, deciduous, 6–14.5 cm long, coriaceous, glabrous, hairy on margins, without auricles or auriculate, with 1–3 mm high auricles, ciliate on shoulders, shoulders with curved hairs, shoulders with 3 mm long hairs. Culm-sheath ligule 1–1.5 mm high, ciliate. Culm-sheath blade ovate, demarcated but persistent, erect, 2–10 cm long, 25–90 mm wide, pubescent. Leaves 5–15 per branch. Leaf-sheaths glabrous on surface or pubescent, outer margin hairy. Leaf-sheath oral hairs setose, erect or curly, 3–10 mm long. Leaf-sheath auricles falcate, 0.5–1.25 mm long. Ligule a ciliolate membrane, 0.25 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.1–0.15 cm long, petiole pubescent. Leaf-blades lanceolate, 2–12 cm long, 8–28 mm wide. Leaf-blade midrib conspicuous. Leaf-blade venation with 12–14 secondary veins, with distinct cross veins. Leaf-blade surface smooth or scabrous, rough abaxially, glabrous or pilose, hairy adaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 1–2 basal sterile florets, 6–17 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, subterete, 30–170 mm long, 3–5 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 4–9 mm long, glabrous.

Glumes. Glumes several, 0 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 4–8 mm long, coriaceous, without keels. Upper glume lateral veins with cross-veins. Upper glume surface glabrous or puberulous, inner surface pubescent. Upper glume margins eciliate. Upper glume apex acute, mucronate.

Florets. Basal sterile florets 1 or 2 or more, similar, barren, with palea. Lemma of lower sterile floret elliptic, 6–14 mm long, chartaceous, 17–20 -veined, pubescent, hairy above, acuminate, mucronate. Palea of lower sterile floret 1 mm long. Fertile lemma elliptic, 15–24 mm long, 7–10 mm wide, coriaceous,

without keel, 18–25 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface glabrous, inner surface pubescent. Lemma apex acuminate, mucronate. Palea 10–16 mm long, 11–13 -veined, 2-keeled. Palea keels winged, conspicuously winged, ciliolate, adorned above, with 0.5 of their length adorned. Palea surface pubescent, hairy on back. Apical sterile florets 1 in number, rudimentary.

Flower and Fruit. Lodicules 3, 4–8 mm long, membranous, veined, ciliate. Anthers 6, 6–7 mm long, yellow, anther tip apiculate. Stigmas 3. Ovary pubescent on apex. Caryopsis with adherent pericarp, fusiform, 7 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America and Brazil. Colombia. Brazil North. Amazonas.

Guadua macrostachya Rupr. *Mem. Acad. Sc. Petersb. Ser. 6:* 5. 129 (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 French Guiana. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: French Guiana: Leprieur (P hol., K, LE, US).

Recent Synonyms: *Bambusa macrostachya* (Ruprecht) McClure, *Smithsonian Contrib. Bot.*, 9: 68 (1973).

Illustrations (Books): E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (240, Fig 39).

Images: E.J.Judziwicz, E.J., *American Bamboos* (1999);.

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, clumped densely. Rhizomes short, pachymorph. Butt sheaths absent. Culms 800–1800 cm long, 40–70 mm diam., woody, with root thorns from the nodes. Culm-internodes semiterete. Lateral branches dendroid. Bud complement 1. Culm-sheaths present. Leaves 7–11 per branch. Leaf-sheaths glabrous on surface, outer margin glabrous or hairy. Leaf-sheath oral hairs lacking. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.3–0.5 cm long, petiole pilose. Leaf-blades linear or lanceolate, 15–21 cm long, 8–22 mm wide, mid-green. Leaf-blade venation with obscure cross veins or with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty, axis 0–5 cm long, lax, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Spikelets appressed or ascending. 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, 35–65 mm long, 3.5–6 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

Florets. Fertile lemma ovate, 12–15 mm long, coriaceous, dull, without keel, 15–20 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface pubescent. Lemma margins ciliolate. Lemma apex acuminate. Palea 10 mm long. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 3–4 mm long, veined. Anthers 6, 5–6 mm long. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America, Brazil. French Guiana. Peru. Brazil North.

Para, Amapa. Amazonas.

Guadua maculosa (Hack.) E. G. Camus. *Les Bambusees*, 106 (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:** *Bambusa maculosa* Hack., *Oesterr. Bot. Zeitschr.* 53: 196 (1903). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Goias: Glaziou 22425 (W iso, K, US).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *L. macula*, spot; *-osa*, abundance. Spikelets or culms spotted with reddish-brown or yellow patches.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 12 mm diam., woody. Culm-internodes terete, thin-walled, distally glabrous. Lateral branches dendroid. Branch complement several, in a clump. Culm-sheaths present. Leaves 5–6 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect. 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 linear or lanceolate, 3–25 cm long, 1.5–5 mm wide. Leaf-blade venation without cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, lax, 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 5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or oblong, subterete, 20–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 6 mm long.

Glumes. Glumes two, persistent, similar, shorter than spikelet. Lower glume ovate, 8–9 mm long, 7–9 -veined. Lower glume apex obtuse or acute. Upper glume ovate, 8–9 mm long, 7–9 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, 12 mm long, coriaceous, without keel, 11–13 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface glabrous. Lemma apex acute. Palea 1 length of lemma. Palea keels winged, conspicuously winged, ciliolate, adorned above. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, obovate, glabrous. Anthers 6, 6 mm long. Stigmas 3. Caryopsis with adherent pericarp.

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

Country /Province /State. Brazil. Brazil North.

Amazonas.

Guadua magna Londoño & Filg. *Seminario Nac. Bambu* 27: 27–32, f. 1–3 (2006).

TYPE from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Goiás: Campos Verdes, 14°8'45"S, 49°3'24"W, margem de Mata de Galeria, alt. 351 m, 20 Jul 2004. Bambu arbóreo, formando touceiras densas, colmo lignificado, armado, 15–23 de compr., verdes, com manchas brancas nos nós, *T.S. Filgueiras, R. Magno & L. Roitman* 3667 (HT: IBGE; IT: K, ICN, ISC, MO, SP, TUL, US).

Illustrations: None found.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1260–2340 cm long, 63–130 mm diam., woody, with aerial roots from the nodes and with root thorns from the nodes. Culm-internodes terete, thick-walled, 7.5–30.4 cm long, yellow or light green, distally hispid. Culm-nodes with distinct supra-nodal ridge, glabrous. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement one to several, in a horizontal line, thinner than stem. Culm-sheaths present, persistent or tardily deciduous, 59.1–63.8 cm long, brown, hispid, hairy on margins, without auricles, glabrous on shoulders. Culm-sheath ligule 1 mm high, ciliolate. Culm-sheath blade triangular, demarcated but persistent, erect, 6.1–16.3 cm long, 72–116 mm wide, hispid and with ciliate margins. Leaves 2–8 per branch. Leaf-sheaths 2.8–4 cm long, glabrous on surface. Ligule a ciliolate membrane, 1 mm long, membranous. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.5–2 cm long, petiole glabrous. Leaf-blades deciduous at

the ligule, linear or lanceolate, 11.1–15.5 cm long, 6–11 mm wide. Leaf-blade midrib prominent beneath. Leaf-blade apex acute or acuminate. Flowering specimens unknown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil West Central.
Goias. Goiás.

Guadua paniculata Munro. *Trans. Linn. Soc.* 26: 85 (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 Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Rio Tocantins: Burchell 8852 (K syn, BR) ; Brazil, Rio Preto: Gardner (K syn, BM, BR).

Recent Synonyms: *Bambusa paniculata* (Munro) Hack., non Mak.(1900), *Oest. Bot. Zeitschr.* 53:195 (1903).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (90, Fig 26).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): *L. panus*, thread; *-ula*, diminutive; *-ata*, possessing. Inflorescence open with thread-like pedicels.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect (arching), 500–1000 cm long, 10–25 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled or solid, yellow or light green or mid-green. Lateral branches dendroid. Branch complement two or three, with 1 branch dominant, thinner than stem. Culm-sheaths present, deciduous but leaving a persistent girdle. Leaf-sheaths outer margin hairy. Leaf-sheath oral hairs setose, 5–7 mm long, dark. Ligule a ciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.05–0.1 cm long, petiole pubescent. Leaf-blades lanceolate, 8–14 cm long, 4–10 mm wide. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty or clustered at the nodes, in untidy tufts (of 1–3 spikelets), lax, with glumaceous subtending bracts, prophyllate below lateral spikelets, leafy between clusters.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 8–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 20–35 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 1–2 empty glumes, persistent, shorter than spikelet.

Florets. Fertile lemma ovate, 5–7 mm long, coriaceous, without keel, 11 -veined, more than 3-veined. Lemma apex acute, mucronate. Palea 0.75–0.9 length of lemma. Palea keels winged, conspicuously winged, ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, ovate, veined, ciliate. Anthers 6, 4 mm long, yellow. Stigmas 3. Ovary umbonate. Caryopsis with adherent pericarp, obovoid, 4–4.5 mm long. Embryo 0.25 length of caryopsis.

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

Country /Province /State. Mexico. Northeast Mexico, Gulf (Mexico), Southwest Mexico. Mesoamerica, Northern South America, Western South America, Brazil, Southern South America. Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama. Venezuela. Bolivia, Colombia. Brazil West Central, Brazil Northeast, Brazil Southeast. Paraguay.

Mato Grosso, Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Penambuco, Alagoas, Sergipe. Distrito Federal, Mato Grosso, Goiás. Minas Gerais, Sao Paulo. Rio Grande do Sul. Misiones. San Luis Potosi. Veracruz. Guerrero, Jalisco, Nayarit, Oaxaca.

Guadua paraguayana Doell. *Mart. Fl. Bras.* ii. III. 179. (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 Paraguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Paraguay, Rio Paraguay: Balansa 133 (K iso, LE, US).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (61, 62), A.Burkat, *Flora Ilustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969).

Derivation (Clifford & Bostock 2007): L. -ana, indicating location. From Paraguay.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 300–500 cm long, 20–40 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, solid, scaberulous. Lateral branches dendroid. Culm-sheaths present. Leaf-sheath oral hairs ciliate, 3–4 mm long. Ligule an eciliate membrane. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole pilose. Leaf-blades deciduous at the ligule, lanceolate, 5–12 cm long, 8–16 mm wide. Leaf-blade venation without cross veins.

Inflorescence. Inflorescence a panicle. Panicle oblong, 5–12 cm long, bearing few spikelets. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 6–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 40–80 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.5–0.8 length of upper glume, coriaceous, without keels. Upper glume ovate, 0.5–0.8 length of adjacent fertile lemma, coriaceous, without keels.

Florets. Fertile lemma ovate, 8–16 mm long, coriaceous, without keel, more than 3-veined. Lemma surface pubescent. Lemma apex acute. Palea 1 length of lemma. Palea keels winged, conspicuously winged. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Western South America, Brazil, Southern South America. Venezuela. Bolivia. Brazil West Central, Brazil Southeast. Argentina Northeast, Paraguay. Distrito Federal, Goiás. Minas Gerais. Chaco, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe.

Guadua refracta Munro. *Trans. Linn. Soc.* 26: 84 (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 Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Goiás: Burchell 7642 (K syn, US) ; Brazil, Goiás: Gardner 4063 (K syn).

Recent Synonyms: *Bambusa refracta* (Munro) McClure, *Smithsonian Contrib. Bot.*, 9: 68 (1973).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. curved back abruptly. Mostly applied to species whose mature inflorescence branches curve back.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 600–1200 cm long, woody. Culm-internodes terete, solid, distally pubescent. Lateral branches dendroid. Branch complement several, in a clump. Culm-sheaths present. Leaf-sheaths hirsute. Leaf-sheath oral hairs ciliate, deciduous. 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 pubescent. Leaf-blades linear or lanceolate, 15–20 cm long, 5–10 mm wide. Leaf-blade venation prominent, with 10–16 secondary veins, without cross veins. Leaf-blade surface scabrous, rough adaxially, pilose, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex acute.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 1–4 cm between clusters, with spathaceous subtending bracts, bracts 2–3 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between branches.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 6–10 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, subterete, 15–30 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, comprising 1–3 gemmiferous bracts, persistent, similar, shorter than spikelet.

Florets. Fertile lemma ovate, 6–7 mm long, coriaceous, without keel, 7–11 -veined, more than 3-veined. Lemma surface glabrous or pilose. Lemma apex obtuse, mucronate. Palea 1 length of lemma. Palea keels winged, conspicuously winged, ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil West Central, Brazil Southeast.

Goiás. Distrito Federal, Goiás. Minas Gerais.

Guadua sarcocarpa X. Londono & P.M. Peterson. *Syst. Bot.*, 16(4): 631 (1991).

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

TYPE from Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Peru, Cuzco: Reategui (US holo).

Illustrations (Journals): *Systematic Botany* (16: 632, Fig.1 (1991)).

Derivation (Clifford & Bostock 2007): Gk. *sarx*, flesh; *karphos*, fruit. Fruit fleshy.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms arching, 1000–2000 cm long, 80–100 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thin-walled, 40–90 cm long, mid-green. Culm-nodes without obvious supra-nodal ridge, pubescent. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement one, thinner than stem. Culm-sheaths present, deciduous, puberulous, without auricles. Culm-sheath ligule 2–3 mm high, ciliate. Culm-sheath blade triangular, erect, 3–9 cm long, pubescent, mucronate. Leaves 7–9 per branch. Leaf-sheaths reticulately veined, glabrous on surface or puberulous. Leaf-sheath oral hairs setose, deciduous, 10 mm long. Ligule an eciliate membrane, 2–3 mm long, brown. Collar with external ligule. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath, petiole 0.6–0.8 cm long, petiole glabrous. Leaf-blades lanceolate, 13–24 cm long, 18–35 mm wide. Leaf-blade venation with 17–19 secondary veins, with distinct cross veins. Leaf-blade surface papillose, rough abaxially, glabrous or pubescent. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty, lax, with glumaceous subtending bracts, bracts 6–10 mm long, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 4–8 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, 10–17 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 5–9 mm long, obscured by lemmas, pubescent.

Glumes. Glumes two, persistent, similar, shorter than spikelet, shiny. Upper glume lanceolate, 6–16 mm long, coriaceous, without keels, 11–17 -veined. Upper glume lateral veins with cross-veins. Upper glume surface puberulous. Upper glume apex acute.

Florets. Fertile lemma lanceolate, 20–35 mm long, coriaceous, shiny, without keel, 25–30 -veined, more than 3-veined. Lemma surface puberulous, hairy above. Lemma apex acute, mucronate. Palea 25 mm long, 9–10 -veined. Palea keels winged, conspicuously winged. Palea surface pubescent, hairy on back. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, 9–11 mm long, veined, ciliate. Anthers 6, 15–20 mm long. Stigmas 3. Ovary pubescent all over. Caryopsis with fleshy pericarp, oblong or ovoid, 15–60 mm long, hairy all over. Endosperm liquid.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Western South America, Brazil.** Bolivia, Peru. Brazil North. Acre.

Guadua superba Huber. *Bol. Mus. Para.* 4: 479 (1904).

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

TYPE from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Rio Purus: Huber 4230 (MG holo, US).

Recent Synonyms: *Bambusa tessmannii* (Pilger) McClure, *Smithsonian Contrib. Bot.*, 9: 68 (1973).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): extra. Plants large in some respect and especially with tall culms or long leaf-blades.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect or arching, 800–2000 cm long, 100–150 mm diam., woody, with root thorns from the nodes. Culm-internodes semiterete, thick-walled, antrorsely scabrous. Lateral branches dendroid. Bud complement 1. Culm-sheaths present, 3 times as long as wide, glabrous. Culm-sheath ligule 1.5–2.5 mm high, ciliolate. Culm-sheath blade triangular, demarcated but persistent, erect, 10–13 cm long, hispid. Leaves 7–13 per branch. Leaf-sheaths glabrous on surface, outer margin hairy. Leaf-sheath oral hairs scanty, 4–7 mm long. Ligule an eciliate membrane, 1 mm long. Collar with external ligule. Leaf-blade base cuneate or broadly rounded, with a brief petiole-like connection to sheath, petiole 0.2–0.8 cm long, petiole pilose. Leaf-blades linear, 16–26 cm long, 13–18 mm wide, glaucous. Leaf-blade venation without cross veins. Leaf-blade surface glabrous or puberulous, hairy abaxially. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, scanty, lax, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Spikelets appressed or ascending. Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 3–4 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets oblong, laterally compressed, acuminate, 15–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas, pubescent.

Florets. Fertile lemma ovate, 13–15 mm long, coriaceous, without keel, 15–17 -veined, more than 3-veined. Lemma lateral veins prominent. Lemma surface pubescent. Lemma margins ciliate. Lemma apex acute. Palea 9–10 mm long. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, veined. Anthers 6. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. **Northern South America, Western South America, Brazil.** French Guiana, Guyana, Surinam. Bolivia, Colombia, Ecuador, Peru. Brazil North. Amazonas, Acre, Rondonia. Acre, Amazonas.

Guadua tagoara (Nees) Kunth. *Enum. Pl.* 1: 434 (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:** *Bambusa tagoara* Nees, *Agrost. Bras.* 532 (1829). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Guaratingueta: Martius (BR holo).

Recent Synonyms: *Bambusa tagoara* Nees, *Agrost. Bras.* 532 (1829).

Illustrations (Books): L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (36, Fig 6 as *Bambusa*), E.J.Judziewicz et al, *American Bamboos* (1999).

Illustrations (Journals): *Rodriguesia* (60: 759, Fig. 5 (2009)).

Images: E.J.Judziewicz, E.J., *American Bamboos* (1999);.

Derivation (Clifford & Bostock 2007): one of the spellings for the Brazilian vernacular name for a number of woody grasses.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 800–1200 cm long, 80 mm diam., woody. Culm-internodes terete, thin-walled, 40–45 cm long, distally glabrous. Culm-nodes glabrous. Lateral branches dendroid. Culm-sheaths present. Leaf-sheaths keeled, pubescent. Ligule an eciliate membrane, truncate. Collar with external ligule. Leaf-blade base cuneate, with a brief petiole-like connection to sheath, petiole 0.3 cm long. Leaf-blades lanceolate, 10–21 cm long, 10–22 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 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, subterete, 15–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, persistent, similar, shorter than spikelet. Upper glume ovate, coriaceous, without keels. Upper glume apex acute.

Florets. Fertile lemma 12 mm long, coriaceous, without keel, more than 3-veined. Lemma apex acute. Palea 1 length of lemma. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Ovary umbonate. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Northern South America, Brazil. French Guiana. Brazil Northeast, Brazil Southeast, Brazil South.

Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Bahia, Maranhão, Espirito Santo, Minas Gerais, Rio de Janeiro, Sao Paulo. Paraná, Santa Catarina.

Guadua trinii (Nees) Rupr. *Mem. Acad. Sc. Petersb. Ser. 6.* 5:130 (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. **Basionym or Replaced Name:** *Bambusa trinii* Nees, *Linnaea*, 9: 469 (1834). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Sellow (B holo, K, LE).

Recent Synonyms: *Bambusa trinii* Nees, *Linnaea*, 9: 469 (1834).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (62), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (30, Fig. 3 as *Bambusa*), 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) (37, Fig. 5).

Derivation (Clifford & Bostock 2007): in honor of Carl Bernhard Trinius (1778–1844) German-born Russian physician and agrostologist.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms leaning, 300–1000 cm long, 30–50 mm diam., woody, with root thorns from the nodes. Culm-internodes semiterete, thick-walled, antrorsely scabrous. Lateral branches dendroid. Bud complement 1. Branch complement three, thinner than stem. Culm-sheaths present, deciduous. Culm-sheath blade inconspicuous. Leaf-sheath oral hairs setose. Ligule an eciliate membrane. Leaf-blade base

with a brief petiole-like connection to sheath, petiole pubescent. Leaf-blades deciduous at the ligule, lanceolate, 5–15 cm long, 15–30 mm wide. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty, lax, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 6–8 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 20–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

Glumes. Glumes several, persistent, similar, shorter than spikelet. Upper glume ovate, coriaceous, without keels, 11–17 -veined. Upper glume apex acute.

Florets. Fertile lemma ovate, 10 mm long, coriaceous, without keel, 11–17 -veined, more than 3-veined. Lemma apex acute. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, veined. Anthers 6. Stigmas 3. Caryopsis with adherent pericarp.

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

Country /Province /State. **Brazil, Southern South America.** Brazil Southeast, Brazil South. Argentina Northeast, Uruguay.

Minas Gerais, Rio de Janeiro, Espirito Santo, Catarina, Rio Grande do Sul. Minas Gerais. Rio Grande do Sul, Santa Catarina. Buenos Aires, Corrientes, Entre Rios, Misiones.

Guadua uncinata Londono, L.G.Clark. *Novon* 12(1): 69 (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).

TYPE from Ecuador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Ecuador, San Francisco to Machay: McClure 21364 (US holo, COL, ISC, MO, NY).

Illustrations (Journals): *Novon* (12: 70, Fig. 2 (2002)).

Derivation (Clifford & Bostock 2007): *L. uncinus*, hook; *-ata*, possessing.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms scandent, 300–800 cm long, 20–60 mm diam., woody, with root thorns from the nodes. Culm-internodes terete, thick-walled or solid, 20–40 cm long, distally mealy or pubescent. Culm-nodes with distinct supra-nodal ridge, pubescent. Lateral branches dendroid, intravaginal. Bud complement 1. Branch complement two or three or several, with 1 branch dominant. Culm-sheaths present, deciduous, 13–28 cm long, 2.8–7.5 length of internode, coriaceous, pubescent, with dark brown hairs, hairy on margins, auriculate, with 4–6 mm high auricles, setose on shoulders, shoulders with straight hairs or curved hairs, shoulders with 3–7 mm long hairs. Culm-sheath ligule 0.5–1 mm high, ciliate. Culm-sheath blade ovate, demarcated but persistent, erect, 1.7–8.5 cm long, 10–60 mm wide, pubescent, mucronate. Leaves 7–9 per branch. Leaf-sheaths glabrous on surface or pubescent. Leaf-sheath oral hairs setose, erect or curly, 6–11 mm long, pale. Leaf-sheath auricles falcate. Ligule an eciliate membrane or a ciliolate membrane, 0.2–0.8 mm long, pubescent on abaxial surface, truncate. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.3–0.6 cm long, petiole glabrous. Leaf-blades lanceolate or oblong, 6.5–18 cm long, 14–42 mm wide, dark green and light green, discolorous with last colour beneath. Leaf-blade venation with 15–20 secondary veins, with distinct cross veins. Leaf-blade surface pilose, sparsely hairy, hairy abaxially. Leaf-blade margins scabrous. Leaf-blade apex attenuate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 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 1–2 basal sterile florets, 3–5 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, straight or curved, subterete, 3–8 mm long, 3–6 mm wide, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 4–9 mm long, pubescent, hairy at tip.

Glumes. Glumes several, comprising 1–4 gemmiferous bracts, 0 empty glumes, persistent, similar, shorter than spikelet. Upper glume ovate, 3–8 mm long, coriaceous, without keels, 10–15 -veined. Upper glume lateral veins with cross-veins. Upper glume surface glabrous or puberulous. Upper glume margins eciliate or ciliate. Upper glume apex acute, mucronate.

Florets. Basal sterile florets 1 or 2 or more, similar, barren, with palea. Lemma of lower sterile floret ovate, 7–11 mm long, chartaceous, 15–16 -veined, glabrous or puberulous, smooth on margins, acuminate, mucronate. Palea of lower sterile floret 1 mm long. Fertile lemma ovate, 10–15 mm long, 6–9 mm wide, coriaceous, without keel, 12–25 -veined, more than 3-veined. Lemma surface glabrous or puberulous, inner surface pubescent. Lemma apex acuminate, mucronate. Palea 9–14 mm long, 9–13 -veined, 2-keeled. Palea keels winged, conspicuously winged, ciliate, adorned above, with 0.33 of their length adorned. Apical sterile florets 1 in number, rudimentary.

Flower and Fruit. Lodicules 3, 4–6 mm long, membranous, veined, ciliate. Anthers 6, 4–6 mm long, pallid, anther tip apiculate. Stigmas 3. Ovary pubescent on apex. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

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

Guadua variegata Lazarazu. *Syst. Bot.* 38: 1063 (2013).

Illustrations (Journals): *Systematic Botany* (38: 1064, Fig.1, 1065, Fig.2 (2013).

Guadua velutina X. Londono & L.G. Clark. *Nordic J. Bot.*, 11(3): 328 (1991).

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

TYPE from Mexico. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Mexico, El Naranjo: King 3962 (US holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. velvety. Plant in whole or in part covered with dense short hairs.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 300–500 cm long, 50–100 mm diam., woody. Culm-internodes terete, thick-walled, mid-green, distally glabrous. Lateral branches dendroid. Culm-sheaths present, hispid, auriculate, with 10–40 mm high auricles, setose on shoulders, shoulders with 5–10 mm long hairs. Culm-sheath blade lanceolate, 11–17 cm long, pubescent. Leaf-sheaths pubescent. Leaf-sheath oral hairs setose, 5–10 mm long. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.3–0.5 mm long. Collar with external ligule. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades linear or lanceolate, 10–20 cm long, 11–22 mm wide. Leaf-blade surface glabrous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, lax, with glumaceous subtending bracts, prophyllate below lateral spikelets, leafy between clusters.

Fertile spikelets sessile.

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 linear, laterally compressed, 50–70 mm long, 3–5 mm wide, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, 4–7 empty glumes, persistent, shorter than spikelet. Upper glume ovate, 4–15 mm long.

Florets. Fertile lemma ovate, 12–15 mm long, coriaceous, without keel, 25–30 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex apiculate. Palea 8–13 mm long. Palea keels winged, conspicuously winged, ciliate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 6, 5–9 mm long. Stigmas 3. Ovary umbonate. Caryopsis with adherent pericarp.

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

Country /Province /State. Mexico. Northeast Mexico, Gulf (Mexico), Southwest Mexico, Southeast Mexico. Brazil. Brazil Southeast.

Sao Paulo. San Luis Potosi, Tamaulipas. Veracruz. Oaxaca. Tabasco.

Guadua venezuelae Munro. *Trans. Linn. Soc.* xxvi. 86. (1868).

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

TYPE from Venezuela. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Venezuela: Krueger (K holo, US).

Illustrations (Books): J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (110, Fig. 74).

Derivation (Clifford & Bostock 2007): from Venezuela.

Classification. Subfamily Bambusoideae. Tribe: Bambuseae.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, woody. Culm-internodes terete, thick-walled. Culm-nodes pubescent. Lateral branches dendroid. Branch complement several, in a clump. Culm-sheaths present. Leaf-sheaths hirsute, outer margin hairy. Leaf-sheath oral hairs ciliate, deciduous. 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, 3–12 cm long, 7–10 mm wide. Leaf-blade venation with 6–8 secondary veins. Leaf-blade surface scabrous, rough adaxially, glabrous or pilose, hairy abaxially. Leaf-blade margins scaberulous. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 2–3 cm between clusters, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets, leafless between branches.

Fertile spikelets sessile.

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, subterete, 18–24 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, comprising 2–3 gemmiferous bracts, persistent, similar, shorter than spikelet.

Florets. Fertile lemma ovate, 5–8 mm long, coriaceous, without keel, 9–11 -veined, more than 3-veined. Lemma margins ciliolate. Lemma apex acute. Palea 1 length of lemma. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

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

Guadua virgata (Trin.) Rupr. *Mem. Acad. Sc. Petersb. Ser.* VI. v. 130. (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. **Basionym or Replaced Name:** *Bambusa virgata* Trin., *Mem. Acad. Petersb. Ser.* VI. 1: 624 (1835). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil, Serra da Geralda: Riedel (LE holo, US).

Illustrations: None found.

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, 750 cm long, 5–7.5 mm diam., woody. Culm-internodes terete, solid. Lateral branches dendroid. Branch complement several, in a clump. Culm-sheaths present. Leaf-sheaths puberulous, outer margin hairy. Leaf-sheath oral hairs setose, 2–4 mm long. Leaf-sheath auricles erect, 1 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 0.3–0.4 cm long, petiole pubescent. Leaf-blades

lanceolate, 10–15 cm long, 10–14 mm wide. Leaf-blade surface scabrous, rough adaxially, pubescent, hairy on both sides. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, clustered at the nodes, in untidy tufts, 1–2 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 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 lanceolate, subterete, 12–20 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes several, comprising 2 gemmiferous bracts, persistent, similar, shorter than spikelet.

Florets. Fertile lemma ovate, 7–8 mm long, coriaceous, without keel, 9–17 -veined, more than 3-veined. Lemma margins ciliate. Lemma apex acute, mucronate. Palea 1 length of lemma. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3. Anthers 6. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil West Central.

Goiás.

Guadua weberbaueri Pilger. Fedde, *Repert. Nov. Sp.* 1:152 (1905).

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

TYPE from Peru. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Peru, Moyobamba: Weberbauer 4562 (B holo).

Recent Synonyms: *Bambusa weberbaueri* (Pilger) McClure, *Smithsonian Contrib. Bot.*, 9: 68 (1973).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (30, Fig 2).

Illustrations (Journals): *Ruizia* (13:35, Fig.2g-i (1993)).

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.

Habit, Vegetative Morphology. Perennial, woody bamboo, caespitose. Rhizomes short, pachymorph. Butt sheaths absent. Culms erect, 1000–1800 cm long, woody, with root thorns from the nodes. Culm-internodes thin-walled. Lateral branches dendroid. Bud complement 1. Branch complement three, thinner than stem. Culm-sheaths present, without auricles. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath, petiole 0.5–0.6 cm long. Leaf-blades lanceolate or elliptic, 13–17 cm long, 20–35 mm wide. Leaf-blade apex acuminate.

Inflorescence. Synflorescence bractiferous, scanty, with glumaceous subtending bracts, with axillary buds at base of spikelet, prophyllate below lateral spikelets.

Fertile spikelets sessile.

Fertile Spikelets. Spikelets comprising 3 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic, laterally compressed, 17–25 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 0.25 length of upper glume. Lower glume surface pubescent. Lower glume apex acute. Upper glume ovate, 0.5 length of spikelet, coriaceous, without keels. Upper glume surface pubescent. Upper glume apex acute.

Florets. Fertile lemma ovate, 13–16 mm long, coriaceous, without keel, 9–13 -veined, more than 3-veined. Lemma surface pubescent. Lemma apex acute. Palea 1 length of lemma. Palea keels winged, conspicuously winged. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, veined. Anthers 6. Stigmas 3. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. South America.

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

Amazonas, Acre, Rondonia. Acre.

Guaduella densiflora Pilger. *Engl. Jahrb.* . 123. (1902).

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: Cameroon, Bantago: Dinklage 1343.

Illustrations: None found.

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

Classification. Subfamily Puelioideae. Tribe: Guaduelleae.

Habit, Vegetative Morphology. Perennial. Rhizomes short, pachymorph, knotty. Butt sheaths absent. Culms erect, 40–90 cm long, firm. Lateral branches lacking or sparse. Branch complement one, solitary. Culm-sheaths present. Leaves cauline, 4–14 per branch. Ligule a ciliolate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades elliptic or oblong, 9–20 cm long, 20–60 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade surface glabrous or pubescent, hairy abaxially. Leaf-blade apex acuminate.

Inflorescence. Synflorescence on a separate leafless culm.

Inflorescence a panicle, comprising 2–12 fertile spikelets. Panicle contracted, ovate, 5–7 cm long. Panicle branches pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 4–14 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets elliptic or ovate, laterally compressed, 20–30 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long, obscured by lemmas. Floret callus evident, 1.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 2–3 mm long, 0.4–0.5 length of upper glume, herbaceous, without keels, 11–13 -veined. Lower glume apex acute. Upper glume ovate, 5–6 mm long, 0.6–0.8 length of adjacent fertile lemma, herbaceous, without keels, 11–13 -veined. Upper glume apex acute.

Florets. Fertile florets divergent. Fertile lemma obovate, 6–9 mm long, herbaceous, without keel, 13–21 -veined, more than 3-veined. Lemma surface puberulous, hairy below. Lemma margins ciliolate. Lemma apex obtuse. Palea 1 length of lemma, 4 -veined. Palea keels winged, narrowly winged, ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, obovate, membranous, veined, obtuse. Anthers 6. Stigmas 2, papillose.

Distribution (TDWG). Continent. Africa.

Country /Province/State. West Tropical Africa, West-Central Tropical Africa, South Tropical Africa. Nigeria. Cabinda, Cameroon, Gabon. Angola.

Guaduella dichroa T.A. Cope. *Kew Bull.*, 37(4): 660 (1983).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Angola. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Angola, Zanza: Gossweiler 7767 (K holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): *Gk. dis*, twice; *chroia*, color. Leaf-blades green above, reddish-purple below.

Classification. Subfamily Puelioideae. Tribe: Guaduelleae.

Habit, Vegetative Morphology. Perennial. Culms erect, 45–80 cm long. Culm-internodes striate, distally glabrous. Lateral branches lacking. Culm-sheaths present, persistent, 4–10 cm long, chartaceous. Leaves cauline, 3–4 per branch. Leaf-sheaths inflated, mostly shorter than adjacent culm internode, striately veined, puberulous. Ligule an eciliate membrane, 0.2–0.5 mm long, scarious, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades elliptic or oblong, 12–24 cm long, 25–85 mm wide, mid-green and purple, discolourous with last colour beneath. Leaf-blade venation with obscure cross veins. Leaf-blade surface puberulous, hairy abaxially. Leaf-blade apex attenuate.

Inflorescence. Inflorescence a panicle. Peduncle pubescent above. Panicle linear or ovate. Primary panicle branches indistinct the panicle almost racemose or simple. Panicle axis pubescent. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 7–14 fertile florets. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear or lanceolate, laterally compressed, 30–40 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 3.5–4.5 mm long, 0.75 length of upper glume, herbaceous, without keels. Lower glume surface glabrous or pubescent. Lower glume apex acute. Upper glume ovate, 5–6.5 mm long, herbaceous, without keels. Upper glume surface glabrous or pubescent. Upper glume apex acute.

Florets. Fertile florets divergent. Fertile lemma ovate, 7.5–9 mm long, herbaceous, without keel, 7 - veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface pilose, hairy below. Lemma margins ciliolate, hairy above. Lemma apex obtuse. Palea oblong, 4 -veined. Palea keels winged, narrowly winged, ciliolate. Palea surface pilose, hairy on back. Palea apex obtuse.

Flower and Fruit. Lodicules 2, oblong or cuneate, 2 mm long, membranous, truncate. Anthers 6, 2.5 mm long. Filaments free. Stigmas 2, papillose.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-Central Tropical Africa, South Tropical Africa. Cabinda. Angola.

Guaduella humilis W. D. Clayton. *Kew Bull.* xvi. 248 (1962).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Nigeria. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Nigeria, Oban: Coombe 173 (K holo).

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. low growing. Short-statured in comparison with related species often prostrate.

Classification. Subfamily Puelioideae. Tribe: Guaduelleae.

Habit, Vegetative Morphology. Perennial. Rhizomes short, pachymorph, knotty. Butt sheaths absent. Culms geniculately ascending, 8–14 cm long, firm. Culm-nodes pubescent. Lateral branches lacking or sparse. Branch complement one, solitary. Culm-sheaths present. Leaves cauline, 6–20 per branch. Leaf-sheaths longer than adjacent culm internode, pilose. Leaf-sheath oral hairs bearded. Ligule a ciliolate membrane, 0.5 mm long, truncate. Leaf-blade base broadly rounded, with a brief petiole-like connection to sheath. Leaf-blades elliptic or oblong, 2–4 cm long, 6–12 mm wide, light green. Leaf-blade venation with distinct cross veins. Leaf-blade surface pilose, hairy on both sides. Leaf-blade apex acute.

Inflorescence. Synflorescence on a separate leafless culm.

Inflorescence comprising only a few spikelets, comprising 1–2 fertile spikelets. 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 elliptic, laterally compressed, 10–20 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes obscured by lemmas.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 3–4 mm long, 0.6–0.8 length of upper glume, herbaceous, without keels, 3 -veined. Lower glume surface puberulous. Lower glume margins ciliate. Lower glume apex acute. Upper glume ovate, 5 mm long, 0.9 length of adjacent fertile lemma, herbaceous, without keels, 5–9 -veined. Upper glume margins ciliate. Upper glume apex acute, mucronate.

Florets. Fertile florets divergent. Fertile lemma ovate, 5.5 mm long, herbaceous, without keel, 11 - veined, more than 3-veined. Lemma surface scaberrulous, pubescent, hairy below. Lemma margins ciliolate, hairy above. Lemma apex obtuse. Palea 1.2 length of lemma, 4 -veined. Palea keels winged, narrowly winged, ciliolate. Palea apex truncate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, obovate, 1 mm long, membranous, veined, obtuse. Anthers 6. Stigmas 2, papillose. Ovary pubescent all over.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West Tropical Africa, West-Central Tropical Africa. Nigeria. Cameroon.

Guaduella macrostachys (K. Schum.) Pilger, in obs. *Wiss. Ergebn. Deutsch.-Zentr.-Afr. Exped.* 1910–11, 2: 93 (1922).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Cameroon. **Basionym or Replaced Name:** *Microbambus macrostachys* K. Schum., *Engl. Jahrb.* 24: 336 (1887). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Cameroon, Barombi: Preuss.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): Gk. *makros*, large; *stachys*, ear of corn. Inflorescence large.

Classification. Subfamily Puelioideae. Tribe: Guaduelleae.

Habit, Vegetative Morphology. Perennial. Rhizomes short, pachymorph, knotty. Butt sheaths absent. Culms erect, 30–60 cm long, firm. Lateral branches lacking or sparse. Branch complement one, solitary. Culm-sheaths present. Leaves cauline, 4–7 per branch. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades elliptic or oblong, 10–18 cm long, 25–50 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes. Racemes 1, single, bilateral, 7–15 cm long. Spikelet packing broadside to rachis, distant. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 6–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, laterally compressed, 20–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1.5 mm long, obscured by lemmas. Floret callus evident, 1 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume ovate, 3–4 mm long, 1 length of upper glume, herbaceous, without keels, 5–7 -veined. Lower glume apex acute. Upper glume ovate, 3–4 mm long, 0.4–0.5 length of adjacent fertile lemma, herbaceous, without keels, 5–7 -veined. Upper glume apex acute.

Florets. Fertile florets divergent. Fertile lemma obovate, 7–10 mm long, herbaceous, without keel, 11 -veined, more than 3-veined. Lemma surface pubescent, hairy all along. Lemma apex acute. Palea 1 length of lemma, 6 -veined. Palea keels winged, narrowly winged, ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, obovate, membranous, veined, obtuse. Anthers 6. Stigmas 2, papillose.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West Tropical Africa, West-Central Tropical Africa. Ghana, Nigeria. Cameroon, Gabon.

Guaduella marantifolia Franch. *Bull. Soc. Linn. Paris*, i. 676 (1887).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Gabon. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Gabon: Duparquet.

Illustrations: None found.

Derivation (Clifford & Bostock 2007): L. *folium*, leaf. The leaf-blades resemble those of *Maranta*.

Classification. Subfamily Puelioideae. Tribe: Guaduelleae.

Habit, Vegetative Morphology. Perennial. Rhizomes short, pachymorph, knotty. Butt sheaths absent. Culms erect, 20–60 cm long, firm. Lateral branches lacking. Culm-sheaths present. Leaves cauline, 2(–3) per branch. Ligule an eciliate membrane. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades elliptic or oblong, 9–20 cm long, 35–80 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade apex acuminate.

Inflorescence. Inflorescence a panicle. Panicle contracted, oblong, 5–10 cm long. Primary panicle branches indistinct the panicle almost racemose. Panicle branches pilose. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present.

Fertile Spikelets. Spikelets comprising 8–12 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the

upper sterile. Spikelets lanceolate, laterally compressed, 30–40 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 1 mm long, obscured by lemmas. Floret callus evident, 1.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet. Lower glume lanceolate, 6 mm long, 0.6 length of upper glume, herbaceous, without keels, 5–9 -veined. Lower glume surface pubescent. Lower glume apex obtuse. Upper glume ovate, 10 mm long, 1 length of adjacent fertile lemma, herbaceous, without keels, 11 -veined. Upper glume surface pubescent. Upper glume apex obtuse.

Florets. Fertile florets divergent. Fertile lemma obovate, 10 mm long, herbaceous, without keel, 13–15 -veined, more than 3-veined. Lemma surface puberulous, hairy below. Lemma margins ciliolate. Lemma apex acute. Palea 1 length of lemma, 6 -veined. Palea keels winged, narrowly winged, ciliolate. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, obovate, membranous, veined, obtuse. Anthers 6. Stigmas 2, papillose.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West-Central Tropical Africa. Cameroon, Gabon.

Guaduella oblonga Hutchinson ex W. D. Clayton. *Kew Bull.* xvi. 247 (1962).

Accepted by: W.D.Clayton & K.Harman, *GrassBase* (2008) and online, U.Quattrocchi, *CRC World Dictionary of Grasses* (2006).

TYPE from Sierra Leone. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Sierra Leone, Bumbuna: N.V.Thomas 3888 (K holotype).

Illustrations (Books): H.Jacques-Felix, *Les Graminees d'Afrique tropicale* (1962) (115, Fig. 40), F.N.Hepper, *F.W.T.A.* 3(2) (1972) (361, Fig.418).

Classification. Subfamily Puelioideae. Tribe: Guaduelleae.

Habit, Vegetative Morphology. Perennial. Rhizomes short, pachymorph, knotty. Butt sheaths absent. Culms erect, 25–120 cm long, firm. Lateral branches lacking or sparse. Branch complement one, solitary. Culm-sheaths present, purple, pubescent. Leaves cauline, 5–16 per branch. Leaf-sheaths glabrous on surface. Leaf-sheath oral hairs lacking. Leaf-sheath auricles erect, 7 mm long. Ligule an eciliate membrane, 3–4 mm long, truncate. Leaf-blade base with a brief petiole-like connection to sheath. Leaf-blades oblong, 8–20 cm long, 20–70 mm wide. Leaf-blade venation with distinct cross veins. Leaf-blade apex abruptly acute.

Inflorescence. Inflorescence a panicle or composed of racemes, comprising 3–12 fertile spikelets. Panicle open, elliptic, 7–11 cm long, bearing few spikelets. Primary panicle branches 0.5–1.5 cm long. Panicle branches pubescent. Racemes 1, single, 5–10 cm long, bearing few fertile spikelets. Rhachis pubescent on surface. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 1–3 mm long.

Fertile Spikelets. Spikelets comprising 2–3 basal sterile florets, 5–25 fertile florets, with diminished florets at the apex. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets linear, curved, laterally compressed, 30–120 mm long, breaking up at maturity, disarticulating below each fertile floret. Rhachilla internodes 2 mm long, eventually visible between lemmas. Floret callus elongated, 1.5 mm long.

Glumes. Glumes persistent, similar, shorter than spikelet, similar to fertile lemma in texture. Lower glume ovate, 2–3 mm long, 0.66–0.75 length of upper glume, herbaceous, without keels, 7 -veined. Lower glume apex acute. Upper glume ovate, 3–4 mm long, 0.5 length of adjacent fertile lemma, herbaceous, without keels, 9 -veined. Upper glume apex acute.

Florets. Basal sterile florets 2 or more, similar, barren, without significant palea, persisting on inflorescence. Lemma of lower sterile floret similar to fertile lemma. Fertile florets appressed to rhachilla. Fertile lemma ovate, 7–9 mm long, herbaceous, without keel, 11 -veined, more than 3-veined. Lemma lateral veins with cross-veins. Lemma surface pubescent, hairy below. Lemma apex obtuse, pubescent. Palea oblong, 0.75 length of lemma, 3–4 -veined. Palea keels winged, narrowly winged, ciliolate. Palea surface pubescent. Palea apex obtuse. Apical sterile florets resembling fertile though underdeveloped.

Flower and Fruit. Lodicules 3, obovate, 1.5 mm long, membranous, veined, obtuse. Anthers 6, 3 mm long. Stigmas 2, papillose.

Distribution (TDWG). Continent. Africa.

Country /Province /State. West Tropical Africa, West-Central Tropical Africa. Guinea, Ivory Coast, Liberia, Sierre Leone. Cameroon, Gabon.

Gymnopogon ambiguus (Michx.) Britton, Stern & Pogg. *Prelim. Catal.* 69 (1888).

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

TYPE from USA. **Basionym or Replaced Name:** *Andropogon ambiguus* Michx., *Fl. Bor.-Amer.* 1: 58 (1803)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Michaux s.n.*, USA: in sabulosis Carolinae (P; IT: P (US-photo)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (233), F.W.Gould, *The Grasses of Texas* (1975) (236, Fig. 124), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (120, Fig. 76).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:304, Fig.1 (2011)).

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: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect or geniculately ascending, 20–100 cm long. Leaves distichous. Leaf-sheaths mostly shorter than adjacent culm internode, without keel. Ligule a ciliate membrane, 0.2 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate, flat or conduplicate, (1.5–)2.5–7(–9) cm long, (2–)4–10(–15) mm wide, stiff or firm. Leaf-blade midrib indistinct.

Inflorescence. Inflorescence composed of racemes. Racemes few or numerous, (8–)12–37(–47), borne along a central axis, spreading or deflexed, straight, unilateral, (3–)7–19(–24) cm long. Central inflorescence axis 7–25 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, distant. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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, 4.1–6.9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, 3.5–5.2 mm long, 0.7–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberrulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, (4.1–)4.6–6.1(–6.9) mm long, 1.1–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberrulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, (2.7–)3.1–3.9(–4.2) mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins eciliate or ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, flexuous, (3.8–)5–9.6(–11) mm long overall. Palea 1.1 length of lemma. Rhachilla extension 1.5–3 mm long. Apical sterile florets 1 in number, barren, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns (0.7–)2.4–5.9(–6.4) mm long.

Flower and Fruit. Anthers 3, 0.8–1.2 mm long. Caryopsis with adherent pericarp, 2–3 mm long.

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

Country /Province /State. North-central USA, Northeast USA, South-central USA, Southeastern USA. New Jersey, Pennsylvania. New Mexico, Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia. **Caribbean.** Dominican Republic, Haiti.

Gymnopogon aristiglumis Hitchcock. *Proc. Biol. Soc. Wash.* xl. 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).

TYPE from El Salvador. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: S. Caldersn 1924, Jan 1924, El Salvador: Rosario (US-1169956).

Illustrations: None found.

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:305, Fig.2 (2011)).

Derivation (Clifford & Bostock 2007): *L. arista*, bristle; *gluma*, husk. With awned subtending glumes or lemmas.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms decumbent, 70–100 cm long. Leaves distichous. Leaf-sheaths without keel, outer margin glabrous. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 0.2 mm long. Leaf-blade base broadly rounded. Leaf-blades linear or lanceolate, 4–10 cm long, 4–12 mm wide, stiff. Leaf-blade midrib indistinct. Leaf-blade surface glabrous. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 8–12, borne along a central axis, spreading or drooping, flexuous, unilateral, 20–40 cm long. Central inflorescence axis 10–20 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, distant. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

Sterile Spikelets. Basal sterile spikelets rudimentary.

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, 2.5–4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, 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 acuminate, awned, 1 -awned, awn 5–10 mm long. Upper glume linear, 2.5–4 mm long, 1.2–1.6 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate, awned, 1 -awned, awn 5–15 mm long.

Florets. Fertile lemma elliptic, 2–2.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins eciliate or ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, flexuous, 10–20 mm long overall. Palea 0.9 length of lemma. Apical sterile florets 1 in number, barren, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 10–20 mm long.

Flower and Fruit. Anthers 3, 0.5 mm long. Caryopsis with adherent pericarp, 1.7 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica. El Salvador.

Gymnopogon brevifolius Trin. *Gram. Unifl.* 238. (1824).

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

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Bernhardi*, USA: Delaware (LE-TRIN-2118.01 (& fig.)).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (233).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:306, Fig.3 (2011)).

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. Perennial. Rhizomes elongated. Culms decumbent, 10–100 cm long. Leaves distichous. Leaf-sheaths without keel, outer margin glabrous. Leaf-sheath oral hairs lacking. Ligule a ciliate membrane, 0.5 mm long. Leaf-blades flat or conduplicate or involute, (1–)2–5(–6.5) cm long, 2–8(–10) mm wide, stiff. Leaf-blade midrib indistinct. Leaf-blade apex acute.

Inflorescence. Inflorescence composed of racemes. Racemes (6–)9–25(–31), borne along a central axis, ascending or spreading or deflexed, unilateral, (6–)10–17(–20) cm long. Central inflorescence axis 4–10 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, distant. Raceme-bases filiform, 30–150 mm long. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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, 2.5–4.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, (2–)2.5–3.7(–4) mm long, 0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, (2.5–)2.7–4(–4.4) mm long, 1.4–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, 2–2.9(–3.7) mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein pubescent. Lemma margins pubescent. Lemma apex dentate, 2 -fid, muticous or mucronate or awned, 1 -awned. Principal lemma awn subapical, 0.4–2.5 mm long overall. Palea 1–1.1 length of lemma. Rhachilla extension 1–2(–2.5) mm long.

Flower and Fruit. Anthers 3, 0.8–1 mm long. Caryopsis with adherent pericarp, 1.6–1.9 mm long.

Distribution (TDWG). Continent. North America.

Country /Province /State. Northeast USA, South-central USA, Southeastern USA. New Jersey. Texas. Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia.

Gymnopogon burchellii (Doell.) Ekman. *Arkiv Bot. Stockh.* xi. No. 4, 35 (1912).

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

TYPE from Brazil. **Basionym or Replaced Name:** *Leptochloa burchellii* Munro ex Dvll, *Fl. Bras.* 2(3): 93 (1878)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Burchell 4462*, Brazil: Sco Paulo (K; IT: BAA (fragm.), BR, US (fragm. ex K), US (fragm. ex BR)).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (126), S.A.Renvoize, *Gramineas de Bolivia* (1998) (359, Fig. 77), B.Rosengurt, *Gramineas Uruguayas I* (1970) (244, Fig. 99).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:310, Fig.4 (2011)).

Derivation (Clifford & Bostock 2007): in honor of William John Burchell (1781–1863), English traveller and plant collector in southern Africa and Brazil.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rootstock evident. Rhizomes short. Culms geniculately ascending or decumbent, 35–80 cm long. Leaves distichous. Leaf-sheaths without keel. Ligule an eciliate membrane or a ciliate membrane. Leaf-blade base broadly rounded. Leaf-blades spreading, lanceolate, 1.6–6 cm long, 2–6 mm wide, stiff. Leaf-blade midrib indistinct. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 2–7(–10), digitate, unilateral, 8–21 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, distant. Raceme-bases filiform. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.5 mm long, scaberulous.

Fertile Spikelets. Spikelets comprising (1–)2(–3) fertile florets, with a barren rhachilla extension. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 2.3–4.8 mm long, breaking up at maturity, disarticulating below each fertile floret.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 1.9–4.7 mm long, 0.8–1 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, 2.3–4.8 mm long, 1.4–1.8 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 1.6–2.6 mm long, hyaline, keeled, 3 -veined, 0–3 -veined. Lemma apex entire or dentate, 2 -fid, obtuse or acute, muticous. Palea 0.9 length of lemma, hyaline. Rhachilla extension 0.5 length of fertile floret.

Flower and Fruit. Anthers 3, 0.3–1 mm long. Caryopsis with adherent pericarp, 1–1.8 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Western South America, Brazil, Southern South America. Bolivia. Brazil West Central, Brazil Southeast, Brazil South. Argentina Northeast, Paraguay, Uruguay. Sao Paulo Parana, Catarina, Rio Grande do Sul. Distrito Federal, Mato Grosso do Sul. Minas Gerais, Rio de Janeiro, Sao Paulo. Paraná, Rio Grande do Sul, Santa Catarina. Chaco, Corrientes, Misiones.

Gymnopogon chapmanianus Hitchcock. *Amer. Journ. Bot.* 1915, ii. 306. (1915).

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

TYPE from USA. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: A. Chase 4135, 25 Sep 1907, USA: Florida: Seminole Co., Sandford (US-733684).

Recent Synonyms: *Gymnopogon floridanus* Swallen, *N. Am. Fl.* 17: 607 (1939).

Illustrations (Books): M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (233).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:311, Fig.5 (2011)).

Derivation (Clifford & Bostock 2007): L. -ana, indicating connection. In honor of Alvan Wentworth Chapman (1809–99) United States botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual or perennial, culms solitary or caespitose. Rhizomes absent. Culms geniculately ascending or decumbent, 20–60 cm long. Leaves distichous. Leaf-sheaths without keel, outer margin glabrous. Leaf-sheath oral hairs lacking. Ligule a ciliate membrane, 0.2–0.3 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate, (1.3–)2–7(–8.5) cm long, 2–6 mm wide, stiff. Leaf-blade midrib indistinct.

Inflorescence. Inflorescence composed of racemes. Racemes (5–)12–26, borne along a central axis, ascending, straight, unilateral, (6–)11–17(–21) cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, lax. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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, 2.7–5.9 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, (2.7–)3.2–4.2(–5.9) 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 linear, (2.7–)2.9–4.5(–4.9) mm long, 1.8–2.2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, (1.2–)1.6–2(–2.2) mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein ciliate. Lemma margins ciliate. Lemma apex dentate, 2 -fid, mucicous or mucronate or awned, 1 -awned. Principal lemma awn subapical, 0–2 mm long overall. Palea 1 length of lemma. Apical sterile florets 1–2 in number, barren, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 0.5–1.5 mm long.

Flower and Fruit. Anthers 3, 0.5–0.7 mm long. Caryopsis with adherent pericarp.

Distribution (TDWG). Continent. North America.

Country /Province /State. Southeastern USA. Florida.

Gymnopogon delicatulus (C. B. Clarke) Bor. *Grasses Burma, Ceyl., Ind. & Pakist.* 472 (1960).

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

TYPE from India & Myanmar. **Basionym or Replaced Name:** *Chloris delicatula* C.B. Clarke ex Hook. f., *Fl. Brit. India* 7(22): 290 (1897) [1896]

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Burma, Pegu-Yomah: Kurz (K syn) ; India, Hazarabagh: Clarke 33855 (K syn).

Illustrations: None found.

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:313, Fig.6 (2011)).

Derivation (Clifford & Bostock 2007): *L. delicatus*, dainty; *-ula*, diminutive. Small and dainty as of habit.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual. Culms erect, 13–15 cm long. Leaves distichous. Leaf-sheaths without keel, outer margin glabrous. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 0.2–0.3 mm long. Leaf-blade base broadly rounded. Leaf-blades flat or involute, 1–2.5 cm long, 1–3 mm wide, stiff. Leaf-blade midrib indistinct. Leaf-blade surface glabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 6–12, digitate, ascending, unilateral, 5 cm long. Central inflorescence axis 0.5–2 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, distant. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pilose.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, 2 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scaberulous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 2 mm long, 1 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, 2 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma lateral veins obscure. Lemma surface pubescent. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, flexuous, 6 mm long overall. Palea 1 length of lemma. Apical sterile florets 2–3 in number, barren, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 4–7 mm long.

Flower and Fruit. Anthers 3, 0.2 mm long. Caryopsis with adherent pericarp, 0.7–0.9 mm long.

Distribution (TDWG). Continent. Tropical Asia.

Country /Province /State. Indian Subcontinent, Indo-China. India. Laos, Myanmar, Thailand, Vietnam.

Bihar. Madhya Pradesh.

Gymnopogon doellii S. de C. Boechat & J.F.M. Valls. *Bradea*, 5(28): 314 (1990).

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

TYPE from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Brazil: Distrito Federal: Área de Proteção Ambiental da Bacia do Rio São Bartolomeu, cerca de 5 km S do local onde se construiu a barragem do futuro lago, em leito seco de um csrego temporario, 6 Jun 1989, T.S. Filgueiras & S.P. Azaiz 1803 (HT: CEN. IT: IBGE).

Illustrations: None found.

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:314, Fig.7 (2011)).

Derivation (Clifford & Bostock 2007): in honor of Johann Christoph Doell (1808–85) German botanist.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 55–95 cm long. Lateral branches lacking. Leaves distichous. Leaf-sheaths 3–12 cm long, longer than adjacent culm internode, scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.2 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate, 5–10 cm long, 5–10 mm wide. Leaf-blade midrib indistinct. Leaf-blade margins scabrous. Leaf-blade apex acuminate.

Inflorescence. Inflorescence composed of racemes, embraced at base by subtending leaf. Peduncle 10–13 cm long. Racemes few or numerous, 15–30, borne along a central axis, unilateral, 15–20 cm long. Central inflorescence axis 7.5–9.5 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis. Raceme-bases pilose. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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 linear, laterally compressed, 6–9.5 mm long, 1–1.2 mm wide, breaking up at maturity, disarticulating below each fertile floret. Floret callus glabrous, obtuse.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume lanceolate, 5.1–9 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 linear, 5.2–9.6 mm long, 2–3 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 lanceolate, 2.4–3.1 mm long, 0.4–0.5 mm wide, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, 7–10.6 mm long overall. Palea 2–2.9 mm long. Palea apex dentate, 2 -fid. Rhachilla extension 1–1.7 mm long. Apical sterile florets 1 in number, barren, linear, 0.5–1 mm long. Apical sterile lemmas pilose, adorned on margins, awned, 1 -awned. Apical sterile lemma awns 2.2–6.6 mm long.

Flower and Fruit. Anthers 3, 0.6–1 mm long. Caryopsis with adherent pericarp, linear, sulcate on hilar side, 2.3 mm long, dark brown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Brazil. Brazil West Central, Brazil Southeast. Distrito Federal, Goiás. Minas Gerais.

***Gymnopogon fastigiatus* Nees. *Agrost. Bras.* 430 (1829).**

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

TYPE from Brazil. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Anonymous s.n.*, Brazil: São Paulo (B; IT: LE-TRIN-2119.01 (fragm. ex B)).

Illustrations (Books): S.A.Renvoize, *Gramineas de Bolivia* (1998) (359, Fig. 77), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (250, Fig 88 spp. *fastigiatus*).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:316, Fig.8 (2011)).

Derivation (Clifford & Bostock 2007): *L. fastigio*, sharpen to a point. Panicle branches or culms held erect.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, caespitose. Culms 35–80 cm long. Leaves distichous. Leaf-sheaths without keel. Ligule a ciliolate membrane, 0.1–0.2 mm long. Leaf-blade base cordate. Leaf-blades flat or involute, 2–4.5 cm long, 1–4 mm wide, stiff. Leaf-blade midrib indistinct.

Inflorescence. Inflorescence composed of racemes. Racemes 3–11, digitate, unilateral, 3–7 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, lax, 2 -rowed. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

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.

Glumes. Glumes persistent, similar, exceeding apex of florets, similar to fertile lemma in texture, gaping. Lower glume lanceolate, 2.5 mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume primary vein scabrous. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 2.5 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 acuminate.

Florets. Fertile lemma elliptic, 1.5 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins ciliate, hairy above. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, flexuous, 8–15 mm long overall. Rhachilla extension 0.75 length of fertile floret.

Flower and Fruit. Anthers 3, 0.7 mm long. Caryopsis with adherent pericarp, ellipsoid, 1.3–1.8 mm long.

2n = 40 (1 ref TROPICOS).

Distribution (TDWG). Continent. South America.

Country /Province /State. Mesoamerica, Northern South America, Western South America, Brazil. Venezuela. Bolivia, Colombia. Brazil West Central, Brazil North, Brazil Southeast. Amazonas, Acre, Rondonia, Mato Grosso, Goias. Mato Grosso, Goiás, Mato Grosso do Sul. Amazonas, Rondonia. Sao Paulo.

Gymnopogon foliosus (Willd.) Nees. *Agrost. Bras.* 426. (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 Virgin Islands. **Basionym or Replaced Name:** *Chloris foliosa* Willd., *Sp. Pl.* 4: 924 (1806). T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Ventenat s.n.*, Virgin Islands: St. Thomas (B; IT: US (fragm. ex B)).

Illustrations (Books): S.A.Renvoize, *The Grasses of Bahia*, 1984 (83, Fig. 30), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (112, Fig. 75), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (245, Fig. 40), R.Pilger, *Die Natürlichen Pflanzenfamilien* 14d (1956) (93, Fig. 25).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:318, Fig.9 (2011)), *Ruizia* (13:284, Fig 34j-k (1993)).

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

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Annual, culms solitary or caespitose. Culms 10–30(–75) cm long. Leaves distichous. Leaf-sheaths without keel. Leaf-sheath oral hairs lacking or bearded. Ligule a ciliate membrane. Leaf-blade base broadly rounded. Leaf-blades spreading, lanceolate, 1–3.5 cm long, 1–3 mm wide, stiff. Leaf-blade midrib indistinct.

Inflorescence. Inflorescence composed of racemes, embraced at base by subtending leaf. Racemes 9–17, digitate, ascending or erect, unilateral, 2–6 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, contiguous, 2 -rowed. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, cuneate, 0.7 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, 2.5–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, glabrous or pubescent, pungent.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume lanceolate, (2.5–)3–4.5(–5.1) mm long, 1 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, (2.5–)3.2–4.4(–7) mm long, 2–3 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, 1.6–2.3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma surface glabrous or pubescent. Lemma apex dentate, 2 -fid, incised 0.2 of lemma length, awned, 1 -awned. Principal lemma awn subapical, flexuous, (8.5–)10–15.2(–22.2) mm long overall. Rhachilla extension 0.75 length of fertile floret. Apical sterile florets 2 in number, barren, in a clump, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 3.8–13.7 mm long.

Flower and Fruit. Anthers 3, 0.3–0.6 mm long. Caryopsis with adherent pericarp, 1.2–1.8 mm long.

Distribution (TDWG). Continent. South America.

Country /Province /State. Caribbean, Northern South America, Western South America, Brazil. Dominican Republic, Puerto Rico. French Guiana, Guyana, Surinam, Venezuela. Colombia, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North.

Para, Amapa, Amazonas, Acre, Rondonia, Mato Grosso, Goias, Bahia, Maranhao, Piaui, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana. Distrito Federal, Mato Grosso, Goiás, Mato Grosso do Sul. Bahia, Ceará, Maranhão, Pernambuco, Paraíba, Piaui, Rio Grande do Norte (RN). Amapa, Amazonas, Pará, Roraima, Rondonia, Tocantins. Minas Gerais, Rio de Janeiro, Sao Paulo.

Gymnopogon glaber J.A. Caro. *Dominguezia*, 5: 17 (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 Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Argentina: Salta: Dpto. Anta: Cerro Maldonado, Jun 1934, *Ragonese 131* (HT: BA).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (127).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:320, Fig.10 (2011)).

Derivation (Clifford & Bostock 2007): L. smooth. Leaf-blades lacking hairs.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms erect, 30–40 cm long. Culm-internodes terete, distally glabrous. Lateral branches lacking. Leaves distichous. Leaf-sheaths longer than adjacent culm internode, glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or involute or convolute, 2.5–6.5 cm long, 2–5 mm wide, stiff. Leaf-blade midrib indistinct. Leaf-blade surface glabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 7–10, digitate or borne along a central axis, unilateral, 6–8 cm long. Central inflorescence axis 1–2 cm long. Rhachis angular. Spikelet packing broadside to rhachis, lax. Raceme-bases filiform, 30–40 mm long. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong, 0.5–1 mm long.

Fertile Spikelets. Spikelets comprising 1–2 fertile florets, with diminished florets at the apex. Spikelets of 1 fertile floret with or without additional sterile florets, or of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets lanceolate, laterally compressed, 4–4.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, 3–3.5 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 setaceously acuminate. Upper glume linear, 4–4.5 mm long, 1.3–1.5 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, 3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma apex awned, 1 -awned. Principal lemma awn 7 mm long overall. Palea 1 length of lemma. Apical sterile florets 1 in number, barren, rudimentary.

Flower and Fruit. Lodicules 2, 0.2 mm long. Anthers 3. Caryopsis with adherent pericarp, fusiform, plano-convex, 2 mm long, dark brown.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America. Argentina Northwest. Catamarca, Jujuy, Salta, Tucuman.

Gymnopogon grandiflorus Roseng., Arrill. de Maffei & Izag. de Artucio. *Bol. Univ. Republ. Fac. Agron. Montevideo*, No. 103, 20 (1968).

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

TYPE from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Rosengurt B-6347*, 8 Apr 1955, Uruguay: Maldonado: Arroyo Solms, prxima a la barra (MVFA; IT: BAA, US-2946505).

Recent Synonyms: *Gymnopogon brevisetus* (Hack.) J.P. Smith, *Iowa State J Sci.*, 45(3): 344 (1971).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (128), B.Rosengurt, *Gramineas Uruguayas I* (1970) (242, Fig. 98).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:322, Fig.11 (2011)).

Derivation (Clifford & Bostock 2007): L. grandis, large; *flos*, flower. Florets large.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 20–40 cm long. Leaf-sheaths without keel, glabrous on surface. Ligule a ciliolate membrane, truncate. Leaf-blades lanceolate, 2–6 mm wide, stiff. Leaf-blade midrib indistinct. Leaf-blade surface glabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 8–12, borne along a central axis, spreading, straight, unilateral, 10–14 cm long. Central inflorescence axis 3–9 cm long. Rhachis angular. Spikelet packing broadside to rhachis, distant. Raceme-bases filiform. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

Fertile Spikelets. Spikelets comprising 2 fertile florets, with a barren rhachilla extension. Spikelets of 2 or more fertile florets. Spikelets one-many-flowered - if two-flowered then both fertile or the upper sterile. Spikelets cuneate, laterally compressed, 4.5–6.5 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, thinner than fertile lemma, gaping. Lower glume lanceolate, 3–6 mm long, 0.66–0.9 length of upper glume, membranous, 1-keeled, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume lanceolate, 4.5–6.5 mm long, 1.2–1.4 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma ovate, 3.8–4.8 mm long, hyaline, keeled, 3 -veined, 0–3 -veined. Lemma surface pubescent, hairy below. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 5–10 mm long overall. Palea 0.9 length of lemma, hyaline. Rhachilla extension 1 length of fertile floret.

Flower and Fruit. Anthers 3. Caryopsis with adherent pericarp, lanceolate, 2.6–3 mm long.

Distribution (TDWG). Continent. South America.

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

Catarina, Rio Grande do Sul. Rio Grande do Sul, Santa Catarina. Buenos Aires, Cordoba, Entre Rios, La Pampa, Santa Fe.

Gymnopogon legrandii Roseng., Arrill. de Maffei & Izag. de Artucio. *Bol. Univ. Republ. Fac. Agron. Montevideo*, No. 103, 22 (1968).

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

TYPE from Uruguay. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *B. Rosengurt B-5291*, 4 Mar 1949, Uruguay: Canelones: Carrasco, Aeropuerto, en arenas (MVFA; IT: BAA, SI, US).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (129), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (410, Fig. 145), B.Rosengurt, *Gramineas Uruguayas I* (1970) (244, Fig. 99).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:323, Fig.12 (2011)).

Derivation (Clifford & Bostock 2007): in honor of Legrand who collected in Uruguay.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Culms erect, 20–45 cm long. Leaves distichous. Leaf-sheaths without keel or keeled, outer margin glabrous. Leaf-sheath oral hairs lacking or ciliate. Ligule a ciliate membrane, 0.3–0.4 mm long. Leaf-blade base broadly rounded. Leaf-blades 2–10 cm long, 2–6 mm wide, stiff. Leaf-blade midrib indistinct.

Inflorescence. Inflorescence composed of racemes. Racemes 5–9, borne along a central axis, ascending or erect, unilateral, (4.5–)8–15(–17) cm long. Central inflorescence axis 5–10 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, distant. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

Sterile Spikelets. Basal sterile spikelets absent or rudimentary.

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, 3.6–5.4 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, (2.1–)2.9–4.8 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 acuminate. Upper glume linear, 3.6–5.4 mm long, 1.6–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, 2.2–2.9 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma midvein eciliate or pubescent. Lemma margins ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, 2.2–3.8(–4.5) mm long overall. Apical sterile florets 1–2 in number, barren, rudimentary or linear, 0–1.5 mm long. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 0.5–3 mm long.

Flower and Fruit. Anthers 3, 0.7–1.1 mm long. Caryopsis with adherent pericarp, 1.5–1.8 mm long.

Distribution (TDWG). Continent. South America.

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

Rio Grande do Sul, Santa Catarina. Cordoba, Corrientes, Entre Rios, Misiones.

Gymnopogon spicatus Kuntze. *Rev. Gen.* 773 (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).

TYPE from Brazil. **Basionym or Replaced Name:** *Polypogon spicatus* Spreng., *Syst. Veg.* 1: 243 (1824)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *F. Sellow s.n.*, Brazil (B; IT: BAA (fragm.), US (fragm. ex B)).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (129), S.A.Renvoize, *Gramineas de Bolivia* (1998) (359, Fig. 77), S.A.Renvoize, *The Grasses of Bahia*, 1984 (83, Fig. 30), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (395, Fig. 90), A.Burkat, *Flora Illustrada de Entre Rios (Argentina)*, Pt II, Gramineas (1969) (239, Fig. 91 & 240, Fig. 92 as *G. biflorus* var. *biflorus* & *G. biflorus* var. *ciliatilemma*), B.Rosengurtt, *Gramineas Uruguayas I* (1970) (242, Fig. 242 as *G. biflorus*), E.Judziwicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (245, Fig. 40).

Illustrations (Journals): *Ann. Missouri Bot. Gard.* (98:325, Fig.13 (2011)).

Derivation (Clifford & Bostock 2007): *L. spica*, thorn; *-ata*, possessing; Inflorescence a spike or spicate panicle.

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial, culms solitary or caespitose. Rhizomes elongated. Culms erect or geniculately ascending, 30–100 cm long. Leaves distichous. Leaf-sheaths without keel, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 0.1–0.2 mm long. Leaf-blade base broadly rounded. Leaf-blades lanceolate, flat or involute, 1.5–9 cm long, 2–10 mm wide, stiff or firm. Leaf-blade midrib indistinct.

Inflorescence. Inflorescence composed of racemes. Racemes few or numerous, 6–40, borne along a central axis, drooping, flexuous, unilateral, 5–15 cm long. Central inflorescence axis 5–25 cm long. Rhachis angular, scabrous on margins. Spikelet packing broadside to rhachis, distant. Spikelets appressed, solitary. Fertile spikelets pedicelled. Pedicels present, oblong.

Sterile Spikelets. Basal sterile spikelets absent or rudimentary.

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 linear, laterally compressed, 2.7–7 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus pubescent.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, (2.6–)3–5.5 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 acuminate. Upper glume linear, (2.7–)3.5–6(–7) mm long, 1.6–2 length of adjacent fertile lemma, membranous, 1-keeled, 1 -veined. Upper glume primary vein scaberulous. Upper glume lateral veins absent. Upper glume apex acuminate.

Florets. Fertile lemma elliptic, (2–)2.2–3(–3.7) mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma margins eciliate or pubescent. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn subapical, flexuous, 7–12(–30) mm long overall. Apical sterile florets 1(–2) in number, barren, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns 1–10 mm long.

Flower and Fruit. Anthers (2–)3, 1–1.5 mm long. Caryopsis with adherent pericarp, linear, 2 mm long. $2n = 40$ (1 ref TROPICOS).

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

Country /Province /State. Mexico. Gulf (Mexico), Southeast Mexico. Mesoamerica, Caribbean, Northern South America, Western South America, Brazil, Southern South America. Belize, Guatemala, Honduras. Trinidad-Tobago. Guyana, Venezuela. Bolivia, Colombia, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Argentina Northeast, Paraguay, Uruguay.

Roraima, Mato Grosso, Goiás, Bahia, Sao Paulo Parana, Catarina, Rio Grande do Sul. Distrito Federal, Mato Grosso, Goiás, Mato Grosso do Sul. Bahia, Paraíba, Rio Grande do Norte (RN). Roraima. Minas Gerais, Sao Paulo. Paraná, Rio Grande do Sul, Santa Catarina. Jujuy, Salta, San Luis, Tucuman. Chaco, Cordoba, Corrientes, Entre Rios, Formosa, Misiones, Santa Fe. Veracruz. Chiapas.

Gymnopogon toldensis Sulekic & Rúgolo. *Darwiniana* 44: 504 (2006).

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

TYPE from Argentina. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: Salta: Santa Victoria, El Angosto, 5 km al E de Los Toldos, 1600 m, 17-III-1986, *Sulekic, Novara & Neumann 810* (HT: SI; IT: Hb. Sulekic).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (130).

Illustrations (Journals): *Darwiniana* (44: 505, fig. 1 (2006)), *Ann. Missouri Bot. Gard.* (98:327, Fig.14 (2011)).

Classification. Subfamily Chloridoideae. Tribe: Cynodonteae.

Habit, Vegetative Morphology. Perennial. Rhizomes short. Culms 5–25 cm long. Leaf-sheaths striately veined, outer margin hairy. Leaf-sheath oral hairs ciliate. Ligule a ciliate membrane, 0.6–0.8 mm long. Leaf-blades 0.8–5 cm long, 1.5–4.5 mm wide, stiff. Leaf-blade midrib indistinct. Leaf-blade margins scabrous.

Inflorescence. Inflorescence composed of racemes. Racemes 4–6, borne along a central axis, spreading or deflexed, arcuate or flexuous, unilateral, 2.5–9 cm long. Central inflorescence axis 6–20 cm long. Rhachis angular, scabrous on surface. Spikelet packing broadside to rhachis, lax. Raceme-bases filiform, pilose, hairy in axils, with 1–1.3 mm long hairs. Spikelets solitary. Fertile spikelets pedicelled. Pedicels present, 0.5–1.5 mm long, scabrous.

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, 4–6 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus 0.2 mm long, pubescent, hairy in 2 tufts.

Glumes. Glumes persistent, similar, exceeding apex of florets, gaping. Lower glume linear, (3–)3.5–4.8(–6.5) 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 or acuminate. Upper glume linear, (4–)4.5–6(–7) 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 acute or acuminate.

Florets. Fertile lemma elliptic, 2.5–3 mm long, membranous, keeled, 3 -veined, 0–3 -veined. Lemma surface scaberulous, rough above. Lemma margins ciliate. Lemma apex dentate, 2 -fid, awned, 1 -awned. Principal lemma awn from a sinus, 18–26(–33) mm long overall. Palea 1 length of lemma. Palea keels scabrous, adorned above. Rhachilla extension 1.5 mm long. Apical sterile florets 1 in number, barren, rudimentary. Apical sterile lemmas awned, 1 -awned. Apical sterile lemma awns (4–)5–15(–18) mm long.

Flower and Fruit. Lodicules 2, cuneate, 0.25 mm long. Anthers 3, 0.8–0.9 mm long. Caryopsis with adherent pericarp, fusiform, concavo-convex, 1.8 mm long, light brown. Embryo 0.5 length of caryopsis. Hilum punctiform.

Distribution (TDWG). Continent. South America.

Country /Province /State. Southern South America.

Salta.

Gynerium sagittatum (Aubl.) Beauv. *Agrost.* 138 (1812).

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

TYPE from Brazil & French Guiana. **Basionym or Replaced Name:** *Saccharum sagittatum* Aubl., *Hist. Pl. Guiane* 1: 50 (1775)

. T:<Type of Basionym>: *fide* TROPICOS and Kew Synonymy Database: HT: *Marcgraf s.n.*, Brazil: Pernambuco (C; IT: OXF (fragm.)).

T: *Aublet s.n.*, French Guiana (P).

Illustrations (Books): F.O.Zuloaga, Z.E.Rugolo & A.M. Anton, *Flora Argentina* 3 – 1, Aristidoideae a Pharoideae (2012) (253), M.E.Barkworth et al, *Flora of North America north of Mexico* Vol 25 *Poaceae*, part 2 (2003) (354), A.S.Hitchcock, *Manual of the Grasses of the West Indies* (1936) (50, Fig. 26), S.A.Renvoize, *Gramineas de Bolivia* (1998) (264, Fig 53), S.A.Renvoize, *The Grasses of Bahia*, 1984 (47, Fig.16), J.A.Steyermark et al, *Flora of the Venezuelan Guayana* Vol. 8 (2004) (114, Fig. 76), E.G.Nicora, *Los Generos de Gramineas de America Austral* (1987) (142, Fig. 32 & 143, Fig. 33), L.B. Smith, D.C. Wasshausen, R.M. Klein *Flora Illustrada Catarinensis Gramineas* (1981–1982) (324, Fig. 74), W.Burger, *Flora Costaricensis* 15, Gramineae: *Fieldiana Botany New Series* 4 (1980) (252, Fig 89), G.Harling & C.Persson, *Flora of Ecuador* (2006) (57: 32, Fig. 6 (1997)), E.Judziewicz, *Flora of the Guianas*, 187. *Poaceae* (1990) (248, Fig 41).

Illustrations (Journals): *Ruizia* (13:227, Fig 25c (1993)).

Derivation (Clifford & Bostock 2007): *L. sagitta*, arrow; -ata, possessing. The inflorescence resembles an arrow-head.

Classification. Subfamily Panicoideae. Tribe: Arundineae. Tribe: Gynerieae.

Habit, Vegetative Morphology. Perennial. Rhizomes elongated. Butt sheaths absent. Culms erect, reed-like, 300–1000 cm long, 20–80 mm diam. Culm-internodes solid. Leaves cauline, distichous. Ligule a ciliate membrane. Collar with external ligule. Leaf-blades 40–200 cm long, 20–80 mm wide. Leaf-blade margins scabrous. Dioecious.

Inflorescence. Inflorescence a panicle. Panicle open, ovate, 100–150 cm long. Primary panicle branches profusely divided. 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, 7–10 mm long, breaking up at maturity, disarticulating below each fertile floret. Floret callus elongated, 0.5 mm long, glabrous or pilose.

Glumes. Glumes deciduous, dissimilar, exceeding apex of florets, similar to fertile lemma in texture, recurved at apex (upper glume). Lower glume linear, 3 mm long, 0.3–0.5 length of upper glume, membranous, without keels, 1 -veined. Lower glume lateral veins absent. Lower glume apex acuminate. Upper glume linear, 7–10 mm long, 1.5–2 length of adjacent fertile lemma, membranous, without keels, 3 -veined. Upper glume apex caudate.

Florets. Fertile florets recurved at tip, female. Fertile lemma elliptic, 5 mm long, membranous, without keel, 3 -veined, 0–3 -veined. Lemma surface plumose, hairy below. Lemma margins involute. Lemma apex caudate. Palea 0.25 length of lemma, 2 -veined.

Flower and Fruit. Lodicules 2. Anthers 2, 1.5–2 mm long. Stigmas 2.

Male inflorescence similar to female, a panicle. Male spikelets distinct from female (glabrous), 3 mm long. Male spikelet glumes 2.

$2n = 44$ (2 ref TROPICOS).

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

Country /Province /State. **West Tropical Africa.** Ghana. **Mexico.** Central Mexico, Northeast 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, Windward Islands, Puerto Rico, Trinidad-Tobago. French Guiana, Guyana, Surinam, Venezuela. Bolivia, Colombia, Ecuador, Peru. Brazil West Central, Brazil Northeast, Brazil Southeast, Brazil North, Brazil South. Chile Central, Paraguay.

Roraima, Para, Amapa, Bahia, Minas Gerais, Rio de Janeiro, Espirito Santo, Sao Paulo Parana, Catarina, Rio Grande do Sul. Mato Grosso, Goiás, Mato Grosso do Sul. Bahia. Amazonas. Minas Gerais,

Sao Paulo. Paraná. Jujuy, Salta. Chaco, Corrientes, Formosa, Misiones. Puebla. Hidalgo, San Luis Potosi.
Veracruz. Oaxaca. Campeche, Chiapas, Tabasco.