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BRACHIARIA, UROCHLOA (GRAMINEAE–PANICEAE) IN MALESIA

J.F. VELDKAMP

Rijksherbarium / Hortus Botanicus, P.O. Box 9514, 2300 RA Leiden. The Netherlands

SUMMARY

A revision of the 17 species of *Urochloa* Beauv. (Gramineae) in Malesia is given. Because *Brachiaria* (Trin.) Griseb. has been nearly completely reduced to *Urochloa*, 3 new combinations are proposed. A new combination is also required for *Urochloa paspaloides* Presl. *Brachiaria eruciformis* (J.E. Sm.) Griseb. has been introduced in a few places in Malesia.

INTRODUCTION

As I have discussed elsewhere [Veldkamp, Taxon 45 (1986) 319] the genus *Brachiaria* (Trin.) Griseb. is to be nearly completely reduced to *Urochloa* Beauv. To summarize that paper, it must be noted that *B. eruciformis* (J.E. Sm.) Griseb. (sometimes referred to by its synonym *Panicum caucasicum* Trin.) has been cited as the type of *Brachiaria*, but that species under any name was not included in Trinius' original concept of *Panicum* L. sect. *Brachiaria*, and so cannot be its type. This species occurs in Africa and the Mediterranean, and is introduced widely elsewhere, e.g. here and there in Malesia. Together with *B. malacodes* (Mez & K. Schum.) H. Scholz and *B. schoenfelderi* C.E. Hubb. & Schweick. from Namibia and Zimbabwe it belongs to a distinct genus and if *Brachiaria* is not conserved somehow for them a new genus is to be described. The most simple way to avoid this and also to maintain the current, be it erroneous, use although in a very limited sense, is to appoint *B. eruciformis* as the conserved type. For an extensive discussion on the generic differences see Morrone & Zuloaga [Darwiniana 31 (1992) 43–109].

Because of the near total reduction of *Brachiaria* to *Urochloa* this requires 3 new combinations for Malesian taxa which are here proposed.

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KEY TO THE TAXA OF BRACHIARIA AND UROCHLOA

1a. Spikelets disarticulating below the glumes. Second lemma dull and variously sculptured: finely reticulately or longitudinally granular, longitudinally punctate-striate, or transversally rugulose. — First lemma 5–7-nerved 2

b. Spikelets disarticulating above the glumes. Second lemma shiny, smooth. — Culms 0.25–0.35 m high. Blades linear, base rounded. Rhachis of racemes margins scabrous, puberulous, axils puberulous. Spikelets solitary, 1.6–1.9 mm long. Lower glumes 0.2–0.4 mm long, 0.12–0.2 times as long as the first lemma, 0- or 1-nerved. First lemma 3–5-nerved ..... **Brachiaria eruciformis**

2a. Spikelets paired 3
b. Spikelets solitary 8

3a. Lower glumes 0- or 1-nerved 4
b. Lower glumes 5–7-nerved 5

4a. Blades linear, 14–30 cm long. Common axis 15–22 cm long. Rhachis of racemes 0.5–1.2 mm wide. Lowermost racemes branched, 6–12 cm long. Spikelets 2.8–3.3 mm long. Lower glumes acute. Upper glumes and first lemmas acuminate, with cross-veins. First lemma back slightly sulcate ... **9. U. mutica**
b. Blades ovate-lanceolate to -linear-lanceolate, 1–9 cm long. Common axis 1–8 cm long. Rhachis of racemes 0.2–0.4 mm wide. Lowermost racemes simple, 1.7–5 cm long. Spikelets 1.6–2.2 mm long. Lower glumes erose or truncate. Upper glumes and first lemma acutely 'pinched', without cross-veins. First lemma back flattened ..... **13. U. reptans**

5a. Lower glumes 0.3–0.6 times as long as the first lemma, base amplexicaul, acute. First lemma back slightly sulcate 6
b. Lower glumes 0.7–0.9 times as long as the first lemma, base not amplexicaul, acuminate to subcaudate. First lemma back flattened ..... **5. U. glumaris**

6a. Ligule with 0.8–1.5 mm long hairs. Blades base rounded. Lowermost racemes densely spikeled. Spikelets base either rounded or stipitate. Lower glumes with cross-veins 7
b. Ligule with c. 0.4 mm long hairs. Blades base subcordate. Lowermost racemes laxly spikeled. Spikelets base cuneate. Lower glumes without cross-veins .... **7. U. kurzii**

7a. Blades linear. Pedicels pilose. Spikelets 3.2–4.4 mm long. Glumes remote. Lower glumes 1.8–2.5 mm long, 0.5–0.6 times as long as the first lemma. Upper glumes and first lemmas acuminately 'pinched' or subcaudately 'pinched'. Second lemma apex 'pinched' ..... **11. U. pubigera**
b. Blades ovate-linear-lanceolate. Pedicels glabrous. Spikelets 2.8–3 mm long. Glumes approximate. Lower glumes 1–1.3 mm long, 0.3–0.4 times as long as the first lemma. Upper glumes and first lemmas acutely 'pinched'. Second lemma mucronate ..... **12. U. ramosa**

8a. Rhachis of racemes triquetrous, 0.2–0.4 mm wide. First lemma acutely to acuminately 'pinched' or mucronate 9
b. Rhachis of racemes ribbon-like, 0.4–5 mm wide. First lemma acute to acuminate 11

9a. Sheaths either glabrous, or more or less hirsute to pilose. Spikelets 2.6–3.4 mm long. Lower glumes 1–1.9 mm long, with cross-veins. Upper glumes and first lemmas acute or acuminately 'pinched' 10
b. Sheaths puberulous. Spikelets 2–2.2 mm long. Lower glumes c. 0.7 mm long, without cross-veins. Upper glumes and first lemmas acutely 'pinched' .... **17. U. villosa**

10a. Culms 1.2–2 mm wide at base. Peduncle either glabrous or pilose below the inflorescence. Spikelets base cuneate. Upper glumes and first lemmas acuminately 'pinched'. Second lemma acutish, finely longitudinally granular or transversally rugulose ..... **4. U. fusiformis**

b. Culms 0.7–1 mm wide at base. Peduncle puberulous below the inflorescence. Spikelets base rounded. Upper glumes acute. First lemma mucronate. Second lemma apex 'pinched', finely reticulately granular ..... **6. U. holosericea**

11a. Spikelets ellipsoid to obovate. Lower glumes 5–11-nerved. Second lemma rounded, acutish, or apiculate 12

b. Spikelets ovate. Lower glumes 3-nerved. Second lemma mucronate. — Spikelets 3.6–5.1 mm long. Lower glumes 1.95–3.3 mm long, often with 1–few median bristles ..... **8. U. mosambicensis**

12a. Spikelets 4.5–6 mm long. Lower glumes 2.2–4.1 mm long. Second lemma 3.6–4.6 mm long, shiny. Anthers 2–3.5 mm long 13

b. Spikelets 2.4–4.3 mm long. Lower glumes 1.3–1.9 mm long. Second lemma 1.9–2.8 mm long, dull. Anthers 0.7–1.7 mm long 15

13a. Blades 8–15 mm wide. Margins scaberulous to spinulose. Peduncle pilose below the inflorescence, rhachis of racemes 1.3–5 mm wide, margins and axils pilose. Pedicels glabrous or puberulous. Spikelets base stipitate. Glumes remote. Lower glumes 0.4–0.6 times as long as the first lemma, base amplexicaul, with cross-veins. Upper glumes distally pilose. Second lemma finely longitudinally punctate-striate 14

b. Blades 3–5 mm wide, margins smooth. Peduncle glabrous below the inflorescence. Rhachis of racemes c. 1 mm wide, margins and axils glabrous. Pedicels pilose. Spikelets base rounded. Glumes approximate. Lower glumes 0.8–0.9 times as long as the first lemma, base hemi-amplexicaul, without cross-veins. Upper glumes puberulous. Second lemma transversally rugulose ..... **2. U. dictyoneura**

14a. Rhachis of racemes 1.3–1.6 mm wide. Pedicels glabrous. Lower glumes truncate to rounded. Upper glumes and first lemmas acute. Second lemma acutish ..... **1. U. brizantha**

b. Rhachis of racemes 2.2–5 mm wide. Pedicels puberulous. Lower glumes acute. Upper glumes and first lemmas acuminate. Second lemma apiculate ..... **14. U. ruziziensis**

15a. Upper glumes distally pilose. Second lemma acutish 16

b. Upper glumes glabrous. Second lemma rounded 17

16a. Culms geniculate at base. Rhachis of racemes 0.7–1.0 mm wide. Lower glumes with cross-veins. Upper glumes 7-nerved ..... **10. U. piligera**

b. Culms erect. Rhachis of racemes 1.1–1.4 mm wide. Lower glumes without cross-veins. Upper glumes 9-nerved ..... **16. U. tanimbarensis**

17a. Spikelets 2.4–3.0 mm long. Second lemma 1.9–2.3 mm long. — Very rare in Malesia ..... **3. U. distachya**

b. Spikelets 3.2–4.3 mm long. Second lemma 2.6–2.8 mm long. — Widely spread in Malesia ..... **15. U. subquadripara**

BRACHIARIA

Brachiaria (Trin.) Griseb. in Ledeb., Fl. Ross. 4 (1853) 469. — *Panicum* L. sect. *Brachiaria* Trin., Diss. Alt. (1826) 51 (see note on p. 52!), 125, 266; Mém. Acad. Sc. St. Pétersb., VI, 3 (1834) 194, 233]; Trin. ex Steud., Syn. 1 (1853) 56. — *Panicum* L. sect. *Brachiaria* Stapf in Benth. & Hook. f., Gen. Pl. 3 (1883) 1102, p.p. — *Panicum* L. subg. *Brachiaria* Honda, J. Fac. Sc. Univ. Tokyo III, 3 (1930) 253. — Type: *Brachiaria eruciformis* (J.E. Sm.) Griseb. (typ. cons. prop.).

Annuals. Ligule a fringe of hairs. Inflorescence a panicle of racemes. Branches terminating in a spikelet. Bristles absent. Pedicels present. Spikelets more or less appressed to the rhachis, secund, adaxial, disarticulating above the glumes, dorsoventrally compressed, solitary, paired, 2-flowered. Callus not differentiated. Lower glume present, 0- or 1-nerved; upper glume 3–5-nerved. First lemma paleate, neuter to male, 3–5-nerved, muticous. Second lemma chartaceous to cartilaginous, shiny, smooth, margins recurved and clasping the palea, not noticeably thinner than body, apex rounded, muticous. x = 9.

Distribution — 3 species in Africa and the Mediterranean, 1 introduced elsewhere, e.g. in Malesia.

Brachiaria eruciformis (J.E. Sm.) Griseb.

Brachiaria eruciformis (J.E. Sm.) Griseb. in Ledeb., Fl. Ross. 4 (1853) 469 ('*erucaeformis*'). — *Panicum eruciforme* J.E. Sm. in Sibth. & J.E. Sm., Fl. Graec. 1 (1808) 44, t. 59. — *Panicum cruciiforme* Sibth. ex Roem. & Schult., Syst. Veg. 2 (1817) 426 (sphalm.). — *Echinochloa eruciformis* Rchb., Fl. Germ. Excurs. 3 (1833) 45. — *Milium alternans* Bubani, Nuov. Giorn. Bot. Ital. 5 (1873) 317, nom. superfl. — Type: *Sibthorp s.n.* (holo OXF; L, photocopy, LP, photo).
Panicum isachne Roth ex Roem. & Schult., Syst. Veg. 2 (1817) 458. — *Brachiaria isachne* Stapf, Fl. Trop. Afr. 9 (1919) 552. — Type: *Heyne in Hb. Roth s.n.* (= Wallich 8693; iso K).

Plants annual. Culms geniculate at base, rooting in the nodes, 0.25–0.35 m high, 0.75–1.5 mm wide at base, nodes pilose. Sheaths sparsely pilose. Ligule a hairy rim, hairs 0.5–1.1 mm long. Blades flat (i.s.), linear, 3–9 cm by 4–6 mm, base rounded, margins scaberulous, glabrous below. Peduncle apically glabrous, common axis 3–6 cm long. Racemes 6–14, alternate, erecto-patent, the lowermost simple, rarely branched at the very base (paired), 1–3 cm long, densely spikeled, upper racemes approximate, axils hairy, rhachis triquetrous, 0.2–0.3 mm wide, hairy. Pedicels 0.3–0.45 mm long, hairy. Spikelets solitary, ellipsoid, 1.6–1.9 mm long. Glumes approximate. Lower glumes 0.2–0.4 mm long, 0.12–0.2 times as long as spikelet, base clasping, apex acute to truncate, sometimes cleft, 1-nerved, without cross-veins. Upper glumes acute, rounded on the back, 3–5-nerved, without cross-veins, without a fringe of silky hairs. First lemma apex acute, somewhat sulcate, 3–5-nerved, hairy on the keels. Palea 0.75–0.82 times as long as the lemma. Second lemma 1.35–1.4 mm long. Anthers 0.6–0.8 mm long. 2n = 18, 36.

Distribution — Originally from Africa and the Mediterranean, introduced elsewhere; in Malesia: Java (Surakarta, Semarang, Pasuruan), Madura, Papua New Guinea (Central Prov.).

Habitat — Waste places, fallow land, roadsides, locally ± common; 0–100 m alt.

Uses — In lawns, weedy, fairly good fodder.

Vernacular name — Sweet signal grass (E.).

UROCHLOA Beauv.

Annuals or perennials. Ligule rim- to collar-shaped with a fringe of hairs. Inflorescence a panicle of racemes. Branches terminating in a spikelet. Bristles absent. Pedicels present. Spikelets more or less appressed to the rhachis, secund, adaxial, disarticulating below the glumes, terete or dorsoventrally compressed, solitary, paired, or clustered, 2-flowered, lower floret epaleate to paleate, neuter to male, sometimes even bisexual; upper floret bisexual. Callus not differentiated. Lower glume present, 0-nerved. Upper glume 5-nerved. First lemma 5–7-nerved, muticous. Second lemma chartaceous to cartilaginous, dull, usually sculptured, margins recurved and clasping the palea, not noticeably thinner than body, muticous to mucronate. x = 9.

Distribution — About 120 pantropical species, 17 Malesian, 9 (11?) native.

1. Urochloa brizantha (Hochst. ex A. Rich.) R.D. Webster

Urochloa brizantha (Hochst. ex A. Rich.) R.D. Webster, Pan. Austr. (1987) 233. — *Panicum brizanthum* Hochst. ex A. Rich., Tent. Fl. Abyss. 2 (1851) 363. — *Brachiaria brizantha* Stapf, Fl. Trop. Afr. 9 (1919) 531. — Lectotype: *Schimper 89* [holo P; iso B (extant?), K, L, M, TUB].
Brachiaria decumbens Stapf, Fl. Trop. Afr. 9 (1919) 528. — Syntypes: *Dummer 1070, Grant 488* (K).

Plants perennial. Culms rhizomatous, erect (rarely geniculate and rooting in the nodes, see note), 0.55–1 m high, 3.5–4.5 mm wide at base, nodes glabrous to sparsely pilose. Sheaths glabrous to pilose (at least along the margins). Ligule with 0.5–1.1 mm long hairs. Blades linear, 9–35 cm by 8–14 mm, base rounded, margins scaberulous to spinulose, glabrous to pilose below. Peduncle pilose below the inflorescence. Common axis 3.5–11 cm long. Racemes 1–5, alternate, erecto-patent. Rhachis of racemes narrowly ribbon-like, 1.3–1.65 mm wide, margins smooth to scaberulous, pilose, axils pilose. Lowermost racemes simple, 2.5–7.5(–15) cm long, densely spikeled. Upper racemes distant. Pedicels 0.2–0.5 mm long, glabrous. Spikelets solitary, ellipsoid, base stipitate, 4.5–5.4 mm long. Glumes remote. Lower glumes 2.25–3 mm long, 0.43–0.57 times as long as the first lemma, base amplexicaul, apex truncate to rounded, 7–11-nerved, with cross-veins. Upper glumes slightly shorter than the second lemma, apex acute, faintly 7-nerved, with or without, distally pilose. First lemma paleate, male (maturing after the upper floret), back flattened, apex acute, faintly 5-nerved, with or without cross-veins, palea 0.93–1 times as long. Second lemma 3.9–4.65 mm long, apex acutish, finely longitudinally punctate-striate, shiny. Anthers 2.25–3.15 mm long. 2n = 18, 36, 54.

Distribution — Originally from tropical and South Africa, cultivated and escaping elsewhere; in Malesia: Malaya (e.g. Pahang), Java (Bogor), Cocos Keeling, Borneo (Sabah), Philippines (Quezon), New Guinea: Irian Jaya (Sentani), Papua New Guinea (Western Highlands, Morobe, Central, Solomons Prov.).

Habitat — Roadsides, coral sand, 0–1700 m altitude.

Uses — As a ground cover and an outstanding pasture grass, fairly resistant to drought, grazing, and cutting.

Vernacular names — Bread grass, large-seeded millet grass, palisade grass, signal grass, Surinam grass (E.).

Note — Closely related to *B. decumbens* and intermediates are difficult to separate. The forms introduced as pasture plants (usually as '*B. decumbens*') belong to these. The 'true' forms can be distinguished as follows:

- Stoloniferous, culms decumbent. Blades 5–20 cm by 7–15 mm. Common axis 1–8 cm long. Racemes 2–7, 1–5 cm long. Spikelets usually in 2 rows, rhachis more or less flat, 1–1.7 mm wide. Spikelets 4–5 mm long, distally usually pubescent. Upper glume and first lemma membranous, dull ..... ***B. decumbens***
- Tufted, culms erect to geniculate at base. Blades 10–100 cm by 3–20 mm. Common axis 3–20 cm long. Racemes (1–)2–16, 4–20 cm long. Spikelets usually in 1 row (sometimes 2 rows at base), rhachis more or less crescentic with narrow, inrolled wings, c. 1 mm wide. Spikelets 4–6 mm long, usually glabrous. Upper glume and first lemma chartaceous, somewhat shiny ..... ***U. brizantha***

2. Urochloa dictyoneura (Fig. & De Not.) Veldkamp, *comb. nov.*

Panicum dictyoneurum Fig. & De Not., Mem. Accad. Sc. Torino II, 14 (1854) 329, t. 8. — *Brachiaria dictyoneura* Stapf, Fl. Trop. Afr. 9 (1919) 512. — Type: *Figari s.n.* (holo FI).

Panicum humidicola Rendle, Cat. Afr. Pl. Welw. 2 (1889) 169. — *Brachiaria humidicola* Schweick., Kew Bull. (1936) 297. — *Urochloa humidicola* Morrone & Zuloaga, Darwiniana 31 (1992) 80. — Type: *Welwitsch 2678* (holo BM; iso K, LISU).

Plants perennial. Culms geniculate at base, rooting in the nodes or geniculate at base, not rooting in the nodes, or decumbent, c. 1.45 m high, c. 4 mm wide at base, nodes glabrous. Sheaths glabrous. Ligule with c. 0.4 mm long hairs. Blades linear, 18.5–32 cm by 3–5 mm, base rounded, margins smooth, glabrous below. Peduncle glabrous below the inflorescence. Common axis c. 6.5 cm long. Racemes 2, alternate, erecto-patent. Rhachis of racemes narrowly ribbon-like, c. 1 mm wide, margins scabrous, glabrous, axils glabrous. Lowermost racemes simple, c. 7 cm long, densely spikeled. Upper racemes distant. Pedicels c. 0.75 mm long, pilose. Spikelets solitary, ellipsoid, base rounded, 4.5–4.65 mm long. Glumes approximate. Lower glumes c. 4.1 mm long, 0.89–0.92 times as long as the first lemma, base hemi-amplexicaul, apex rounded, 11-nerved, without cross-veins. Upper glumes at least as long as the second lemma, apex acuminate, 7-nerved, with many cross-veins, puberulous, apical pubescence not different from that of body. First lemma paleate, male (maturing after the upper floret), back slightly sulcate, apex acuminate, 5-nerved, with many cross-veins, palea 1 time as long. Second lemma c. 3.75 mm long, apex apiculate, transversally rugulose, shiny. Anthers c. 3.4 mm long. 2n = 42, 72.

Distribution — Originally from Central and South Africa, cultivated elsewhere, e.g., in Malesia: Papua New Guinea.

Habitat — Woody grasslands, well adapted to wet lowlands; 40 m altitude in Papua New Guinea (up to 2300 m in Africa).

Uses — Good forage in permanently grazed pastures, potential as erosion control and ground cover.

Vernacular name — Koronivia grass (E.).

Notes — 1. Said to be widely cultivated in Southeast Asia and the Pacific just as the closely related *B. humidicola* [Schultze-Kraft & Teitzel, PROSEA 4 (1992) 60–64]. Intermediary forms are known. They are supposed to differ as follows:

- Densely tufted, stolons absent, culms erect to geniculate, but not rooting in the nodes. Contra-ligule developed. Racemes usually more than 4, margins of rhachis long-pilose. Second lemma 3–3.5 mm long, distinctly apiculate, yellowish when mature ..... ***U. dictyoneura***
- Caespitose, stoloniferous, culms geniculate, usually rooting in the nodes. Contra-ligule absent. Racemes 2 or 3, rarely more, margins of rhachis glabrous. Second lemma 3.5–4 mm long, indistinctly apiculate, pure white when mature ..... ***U. humidicola***

2. The only Malesian collection seen, *LAE 72421*, lacks the base, but was said to have been 'decumbent' and seems to resemble '*B.*' *humidicola* most. It has contra-ligules, which is an unreliable character, as it is not always present in specimens otherwise attributed to *U. dictyoneura*. Stapf (1919) and, more recently, Parham [in A.C. Smith, Fl. Vit. Nov. 1 (1979) 330] have united the two.

3. Urochloa distachya (L.) T.-Q. Nguyen

Urochloa distachya (L.) T.-Q. Nguyen, Nov. Syst. Pl. Vasc. 13 (1966) 13. — *Panicum distachyon* L., Mant. Alt. (1773) 183. — *Digitaria distachya* Pers., Syn. Pl. 1 (1805) 85. — *Brachiaria distachya* Stapf, Fl. Trop. Afr. 9 (1919) 565. — Type: *Koenig in Hb. Linn. 80-41* (holo LINN; ? L, 908.92-1790).

Brachiaria subquadripara auct. non Hitchc.

Plants perennial (?). Culms tufted, not rhizomatous nor stoloniferous, geniculate at base, rooting in the nodes, 0.05–0.35 m high, 0.75–1.1 mm wide at base, nodes glabrous to pilose. Sheaths glabrous and ± hirsute on the margins. Ligule with 0.4–0.6 mm long hairs. Blades ovate-linear-lanceolate to linear, 2.2–8 cm long, 3–6 mm wide, base rounded, margins scaberulous, pilose at base, sparsely pilose below. Peduncle pubescent below inflorescence. Common axis 0.5–2.6 cm long. Racemes 2 or 3(–8), alternate, erecto-patent. Rhachis of racemes ribbon-like, 0.45–0.8 mm wide. Axils glabrous. Margins of rhachis glabrous (scaberulous) or pilose (at base). Lowermost racemes simple, 1.5–3 cm long, densely spikeled. Upper racemes distant. Pedicels 0.4–0.75 mm long, glabrous. Spikelets solitary, ellipsoid to slightly obovate, 2.4–3 mm long. Glumes remote. Lower glumes 1.3–1.6 mm long, 0.33–0.6 times as long as the sterile lemma, base clasping, rounded and acute, faintly 7-nerved, with or without cross-veins. Upper glumes apex acute, faintly 5-nerved, glabrous. Sterile lemma paleate, sterile, back slightly sulcate, apex acute, faintly 5-nerved, without cross-veins, palea 0.75–0.9 times as long. Fertile lemma 1.9–2.3 mm long, apex rounded, finely transversally rugulose, dull. Anthers 0.75–1.2 mm long. 2n = 36.

Distribution — India, Sri Lanka, to Thailand, introduced elsewhere, e.g. the Andaman & Nicobars; in Malesia: Malay Peninsula (Malacca, see note), Celebes (Palu), Philippines (Sulu, see note).

Habitat — Open sandy places, inundated fields, riverbanks, 0–20 m altitude.

Uses — Good forage grass, soil binder in sandy areas, e.g. dunes, but because of its rampant habit may develop into a troublesome weed.

Vernacular names — Armgrass millet, green summer grass (E.).

Note — Most Malesian records (and all Vietnamese in P) belong to *U. subquadripara*, which is a wide-spread species, differing mainly by being annual, with longer,

more ellipsoid spikelets (and longer fertile lemmas). The two may well be varieties of the same species, but a further analysis is required to answer this. At present the two are kept separate here mainly because of established custom. The only Malay collection seen (*Hervey s.n.*, 1891; K) may have been mislabelled as Malesian. One collection from Siasi, Sulu Archipelago, Philippines (*PNH 38979, Kondo & Edaño*) might belong here, because of the small spikelets. It differs from the description given above, based on Indian material by: pilose pedicels, 7-nerved upper glumes, a paleate male first floret, a second lemma with a slightly 'pinched' apex.

4. Urochloa fusiformis (Reeder) Veldkamp, *comb. nov.*

Brachiaria fusiformis Reeder, J. Arnold Arbor. 29 (1948) 274, f. 1. — Type: *Brass 3639* (holo GH; iso NY, US).

Brachiaria villosa (Lam.) Camus var. *pilicoronata* Ohwi, Bull. Sc. Mus. Tokyo 18 (1947) 5. — *Brachiaria fusiformis* Reeder var. *pilicoronata* Jansen, Reinwardtia 2 (1953) 236. — Type: *BS 11606 (Merrill)* (holo BO; iso K, L, P).

Brachiaria villosa auct. non Camus.

Plants annual. Culms tufted, not rhizomatous nor stoloniferous, geniculate at base, usually not rooting in the nodes, 0.15–0.5 m high, 1.2–2 mm wide at base, nodes puberulous to pilose. Sheaths subglabrous to sparsely pilose. Ligule with 0.5–1.5 mm long hairs. Blades ovate-lanceolate to -linear-lanceolate, 1.7–5.5 cm by 4–8 mm, base rounded to slightly pseudo-petiolate, margins spinulose, glabrous to finely puberulous below. Peduncle glabrous to pilose below the inflorescence. Common axis 3–6 cm long. Racemes 4–8, erecto-patent. Rhachis of racemes triquetrous, 0.2–0.4 mm wide, margins scabrous, puberulous and pilose, axils puberulous. Lowermost racemes simple to branched (at base), 1–2 cm long, densely spikeled. Upper racemes distant. Pedicels 0.4–0.5 mm long, puberulous and pilose. Spikelets solitary, ellipsoid, base cuneate, 2.6–3.4 mm long. Glumes approximate. Lower glumes 1–1.9 mm long, 0.32–0.5(–0.6) times as long as the first lemma, base amplexicaul, apex acute to acuminate, 3-nerved, with cross-veins. Upper glumes at least as long as the second lemma, apex acuminately 'pinched', 5-nerved, with or without cross-veins, subglabrous to pilose, apical pubescence distinctly longer than that of body, penicillate. First lemma epaleate to paleate, sterile, back flattened to slightly sulcate, apex acuminately 'pinched', 5-nerved, with or without cross-veins, palea (0–)0.7–0.9 times as long. Second lemma 1.9–2.25 mm long, apex acutish, finely longitudinally granular to sometimes transversally rugulose, dull. Anthers 0.9–1.3 mm long. 2n = ?

Distribution — Malesia: Philippines [Culion, Luzon (Abra, Benguet, Cavite, Lepanto, Nueva Vizcaya, Rizal, Zambales), Mindanao (Cotabato)], Lesser Sunda Islands (Timor), Papua New Guinea (Central Prov.).

Habitat — Weed in ricefields, roadsides, teak forests, logged-over pine forest, rocky savanna slopes, up to 1265 m altitude.

5. Urochloa glumaris (Trin.) Veldkamp, *comb. nov.*

Panicum glumare Trin., Gram. Pan. (1826) 143; Mém. Acad. Sc. St. Pétersb. VI, 3 (1834) 244. — Type: *Hb. Lindley in Hb. Trinius 0727.01* (holo LE, microfiche IDC BT-16/1, CGE) (See note).

Urochloa paspaloides Presl, Rel. Haenk. 1 (1830) 318. — *Panicum ambiguum* Trin., Mém. Acad. Sc. St. Pétersb., VI, 3 (1834) 243, non *P. paspaloides* Pers. (1805). — *Panicum urochloa* Steud., Nomencl., ed. 2, 2 (1841) 264, nom. superfl. — *Brachiaria ambigua* Camus, Fl. Gén. Indo-Chine 7 (1922) 433, nom. superfl. — *Brachiaria paspaloides* C.E. Hubb. in Hook., Icon. Pl. 34 (1938) t. 3363: 2. — *Urochloa ambigua* Pilg. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 14e (1940) 35, nom. superfl. — Type: *Haenke s.n.* (holo PR).

Urochloa glabra Brongn. in Duperrey, Voy. Monde, Phan. (1832) 121. — Type: ? *Dumont d'Urville s.n.* (holo P, but sheet not so labelled).

Panicum distachyon auct. non L.: Moritzi, Syst. Verz. (1846) 102 ('*distachyum*'). — *Panicum infidum* Steud., Syn. 1 (1853) 63. — Type: *Zollinger 238* (holo P).

Plants annual to perennial. Culms tufted, not rhizomatous nor stoloniferous, geniculate at base, rooting in the nodes to decumbent, 0.2–0.75 m high, 1.5–3 mm wide at base, nodes puberulous. Sheaths glabrous, pilose along the margins. Ligule with 0.7–1.1 mm long hairs. Blades linear, 6–28 cm by 3.5–11 mm, base rounded, margins at base smooth, sometimes pilose, upwards scaberulous, glabrous to pilose below. Peduncle puberulous below the inflorescence. Common axis 0.7–7 cm long. Racemes 2–7, alternate, appressed to erecto-patent. Rhachis of racemes triquetrous, 0.7–0.8 mm wide, margins scabrous, glabrous to pilose, axils puberulous. Lowermost racemes simple, 1.5–8 cm long, densely spikeled. Upper racemes approximate. Pedicels 0.2–2 mm long, puberulous to pilose. Spikelets paired, ellipsoid, base rounded, (3.15–)3.4–4.75 mm long. Glumes approximate. Lower glumes 2.5–4 mm long, 0.71–0.96 times as long as the first lemma, base not clasping, apex acuminate to subcaudate, 5–7-nerved, with or without cross-veins. Upper glumes at least as long as the second lemma, apex acuminate to subcaudately 'pinched', 7-nerved, with cross-veins, glabrous. First lemma rarely epaleate, usually paleate, sterile (sometimes male?), back flattened, apex acuminate to subcaudately 'pinched', 5-nerved, with cross-veins, palea (0–)0.25 times as long. Second lemma 2.4–2.75 mm long, apex mucronate (mucro 0.33–0.67 mm long, puberulous), transversally rugulose, dull. Anthers 0.9–1.35 mm long. 2n = 36, 42.

Distribution — From India to S China, Polynesia, throughout Malesia; New Caledonia, but not in Australia.

Habitat — Moist, not too dry places, sunny to slightly shaded, road sides, lawns, dikes in ricefields, open waste places, clearings, thickets, forest margins, locally common, 0–1200 m alt.

Uses — Good fodder both green and dry, relished by cattle, increases milk yield; suitable for lawns.

Note — It has been suggested that *Panicum javanicum* Poir. (1816) would refer to this species (e.g. by Mez, *Paniceae* msc. 471). If this would be accurate, *Urochloa javanica* (Poir.) ... would be the correct combination, which has not been made validly so far. Others have it as a synonym of *Urochloa panicoides* (see 'Dubious Species'), which was never found again in Malesia. Trinius (1826) described *Panicum glumare* and stated that it came from New Zealand, but this name has not been accounted for in any New Zealand flora that I have seen. It is also not in the paper by Edgar & Shand on panicoids introduced in New Zealand [New Zeal. J. Bot. 25 (1987) 343]. No doubt the specimen was mislabeled. Dr. N.N. Tzvelev (LE; pers. comm.) has studied the holotype and from his comments and the photocopy of the IDC file that I have received through the kind cooperation of Dr. R.J. Soreng (BH)

I have become convinced that it represents the present species, whereby a new combination is required. *Urochloa glabra* has been regarded as a synonym of this, and so it appears from the description. Trinius (1834) equated it with his *P. glumare*.

6. Urochloa holosericea (R. Br.) R.D. Webster

Urochloa holosericea (R. Br.) R.D. Webster, Pan. Austr. (1987) 239. — *Panicum holosericeum* R. Br., Prodr. 1 (1810) 190. — *Brachiaria holosericea* Hughes, Kew Bull. (1923) 315. — Type: *R. Brown 6094* (holo BM; iso K, P).

Brachiaria fusiformis Reeder var. *pilicoronata* auct. non Jansen

Plants annual. Culms erect to geniculate at base, then rooting in the nodes, 0.5–0.75 m high, 0.75–1 mm wide at base, nodes pilose. Sheaths sparsely pilose. Ligule with 1–1.8 mm long hairs. Blades flat (i.s.), linear-lanceolate to linear, 2.5–7.5 cm by 2.6–6 mm, base rounded to truncate, margins spinulose, sparsely pilose to glabrous. Peduncle apically puberulous, common axis 2–7 cm long. Racemes 3–6, more or less secund, erecto-patent, the lowermost simple, 0.6–1 cm long, densely spikeled, upper racemes distant; rhachis triquetrous, c. 0.2 mm wide, puberulous and pilose; pedicels 0.5–0.75 mm long, puberulous and pilose. Spikelets solitary, ellipsoid, 2.65–3.2 mm long (incl. pubescence). Glumes approximate; lower glumes 1.35–1.5 mm long, 0.5–0.6 times as long as spikelet, base clasping, apex acute, obscurely 3-nerved, apically anastomosing; upper glumes acute, obscurely 5-nerved, without cross-veins, villous, with a dense tuft of transverse, erect to patent, long hairs more or less overtopping the apex. Sterile lemma similar, paleate, back rounded, apex mucronate, mucro 0.5–0.9 mm long; palea c. 0.95 times as long as the lemma; fertile lemma 1.6–1.9 mm long, apex apiculate, dull, finely reticulately granular. Anthers 0.75–1.4 mm long. 2n = ?

Distribution — Australia (W Australia to Queensland); Malesia: Aru Islands, Papua New Guinea (Western Prov.).

Habitat — Damp woodlands and coastal grasslands, 0–40 m altitude.

Note — The two subspecies distinguished by Webster (1987) on the presence or absence of strigose hairs on the leaves and pedicels seem untenable because of the variability present.

7. Urochloa kurzii (Hook. f.) R.D. Webster

Urochloa kurzii (Hook. f.) R.D. Webster, Pan. Austr. (1987) 241. — *Panicum kurzii* Hook. f., Fl. Br. India 7 (1896) 38. — *Brachiaria kurzii* A. Camus, Fl. Gén. Indo-Chine 7 (1922) 438. — Lectotype: *Kurz s.n.* (holo K).

Brachiaria lanceata Ohwi, Bull. Sc. Mus. Tokyo 18 (1947) 4. — Type: *Backer 27829* (holo BO; iso K, L).

Brachiaria timorensis Ohwi, Bull. Sc. Mus. Tokyo 18 (1947) 4. — *Brachiaria lanceata* Ohwi var. *timorensis* Jansen, Reinwardtia 2 (1953) 237. — Type: *Walsh 37* (holo BO, as *675* in ZT).

Plants annual (?, fide auct.). Culms tufted, not rhizomatous nor stoloniferous, geniculate at base, rooting in the nodes, 0.3 m high, 1–1.2 mm wide at base, nodes puberulous. Sheaths glabrous to pilose (especially along margins). Ligule with c. 0.4 mm long hairs. Blades ovate-lanceolate to ovate-linear-lanceolate, 2–6(–8) cm by 6.5–12(–18) mm, base subcordate, margins scaberulous or pilose (at base), glabrous

below. Peduncle glabrous below the inflorescence. Common axis 3–10 cm long. Racemes 3–6, alternate, appressed to erecto-patent. Rhachis of racemes triquetrous, c. 0.3 mm wide, margins scabrous, glabrous to sparsely pilose, axils glabrous to pilose. Lowermost racemes simple, 1.3–5 cm long, laxly spikeled. Upper racemes distant. Pedicels 0.4–3.75 mm long, glabrous. Spikelets paired, ellipsoid, base cuneate, 3.5–4.1 mm long. Glumes approximate. Lower glumes 1.65–2.1 mm long, 0.42–0.6 times as long as the first lemma, base clasping, acute, 5–7-nerved, without cross-veins. Upper glumes at least as long as the second lemma, apex acuminately 'pinched', 7-nerved, without cross-veins, glabrous to puberulous. First lemma paleate, sterile, back slightly sulcate, apex acuminately 'pinched', 7-nerved, without cross-veins, palea 0.8–0.86 times as long. Second lemma 2.25–2.55 mm long, apex apiculate to mucronate, transversally rugulose, dull. Anthers 1.1–1.3 mm long. 2n = ?

Distribution — NE India, Madras, to Thailand, ?Vietnam; Malesia: Java (Rembang, Madiun), Kangean Islands, Lesser Sunda Islands (Timor, Wetar), Moluccas (Halmaheira).

Habitat — Teak forests, roadsides, beneath scrub, 100–880 m altitude.

Notes — 1. *Urochloa lanceata* was compared to *U. kurzii* by Ohwi, and I cannot find any significant differences.

2. Note the resulting disjunct distribution typical for drought grasses. The species was reported for Australia by Blake (1969), but Webster (1987) noted that one of the vouchers was *U. ramosa*, while a duplicate of the other one in L is this, too, so this species seems absent from Australia.

3. *Brachiaria lanceata* var. *timorensis* differs only by being more pubescent.

8. Urochloa mosambicensis (Hack.) Dandy

Urochloa mosambicensis (Hack.) Dandy, J. Bot. 69 (1931) 54. — *Panicum mosambicense* Hack. in Carvalho, Bol. Soc. Brot. 6 (1888) 140. — *Urochloa pullulans* Stapf, Fl. Trop. Afr. 9 (1920) 590, nom. superfl. — *Urochloa pullulans* Stapf var. *mosambicensis* Stapf, Fl. Trop. Afr. 9 (1920) 590, comb. incorr. — Type: *De Carvalho s.n.* (holo W; iso COI, K).

Plants perennial. Culms rhizomatous and stoloniferous, geniculate at base, not rooting in the nodes, 0.2–1.5 m high, 2.5–5 mm wide at base, nodes puberulous to pilose. Sheaths sparsely pilose. Ligule with 1.65–2.6 mm long hairs. Blades linear, 2–30 cm by 3–20 mm, base rounded, margins scaberulous to pilose, glabrous to pilose below. Peduncle glabrous below the inflorescence. Common axis 3–12 cm long. Racemes 3–15, erecto-patent. Rhachis of racemes narrowly ribbon-like, 0.9–1.6 mm wide, margins scabrous, glabrous to pilose at base, axils glabrous. Lowermost racemes simple, 2–9 cm long, densely spikeled. Upper racemes distant. Pedicels 0–0.5 mm long, glabrous or with 1 or 2 setae. Spikelets solitary, ovate, base rounded, 3.6–5.1 mm long. Glumes approximate. Lower glumes 1.95–3.3 mm long, often with 1–few median bristles, 0.54–0.67 times as long as the first lemma, base hemi-amplexicaul, apex rounded to truncate, 3-nerved, with cross-veins. Upper glumes at least as long as the second lemma, acuminate, 5-nerved, with cross-veins, glabrous to puberulous, apical pubescence absent to not different from that of body. First lemma paleate, male, back flattened, glabrous or with a fringe of bristles on

both sides, acuminate, 5-nerved, without cross-veins, palea 0.85–0.9 times as long. Second lemma 2.25–2.85 mm long, apex mucronate, mucro 0.3–0.75 mm long, finely longitudinally punctate-striate to transversally rugulose towards the margins, dull. Anthers 1.9–2.3 mm long. 2n = 28, 30, 42.

Distribution — South to tropical East Africa, introduced elsewhere, said to have been introduced in Indonesia [McIvor, PROSEA 4 (1992) 230].

Habitat — Woody grassland, often on seasonally flooded clay, waste places, roadsides, 0–1400 m altitude in Africa.

Uses — Forage crop, and for hay.

Vernacular name — Sabi grass (E.).

Note — Description based on literature and the few specimens available in L.

9. **Urochloa mutica** (Forssk.) T.-Q. Nguyen

Urochloa mutica (Forssk.) T.-Q. Nguyen, Nov. Syst. Pl. Vasc. 13 (1966) 13. — *Panicum muticum* Forssk., Fl. Aegypt.-Arab. (1775) 20. — *Brachiaria mutica* Stapf, Fl. Trop. Afr. 9 (1919) 526. — Type: *Forsskål 86* (holo C, IDC microfiche 2200, BM).

Panicum numidianum Lam., Tabl. Encycl. 1 (1791) 172. — *Brachiaria numidiana* Henrard, Blumea 3 (1940) 434. — Type: *Poiret s.n.* ('ex Numidiae') (holo P; iso BAA, fragm., SI).

Panicum purpurascens Raddi, Agrost. Bras. (1823) 47. — *Panicum pictigluma* Steud., Syn. 1 (1853) 72, nom. superfl. — *Brachiaria purpurascens* Henrard, Blumea 3 (1940) 434. — Type: *Raddi s.n.* (holo FI; iso US, fragm.).

Panicum barbinode Trin., Sp. Gram. (ante 1834) t. 318 [earlier, because cited in Mém. Acad. Sc. St. Pétersb., VI, 3 (1834) 256]. — Type: *Riedel* A° 1831 in Hb. Trinius 0601.01 (holo LE; microfiche IDC BT-16/1; iso K, US, fragm.).

Panicum amphibium Steud., Syn. 1 (1853) 61. — Type: *Zollinger 416* (holo P; iso K, L).

Panicum molle auct. non Sw.

Panicum sarmentosum auct. non Roxb.: Hassk., Pl. Jav. Rar. (1848) 17. — *Panicum limnaeum* Steud., Syn. 1 (1853) 72. — Type: *Hasskarl s.n.* (holo B, extant?). Name and specimen not found in L, P.

Paspalum mollicomum auct. non Kunth.

Plants perennial. Culms tufted, not rhizomatous, stoloniferous (stolons up to 5 m long), geniculate at base, rooting in the nodes, 1–2 m high, 3–7(–10) mm wide at base, nodes pilose. Sheaths pilose. Ligule with 0.75–1.1 mm long hairs. Blades linear, 14–20(–30) cm by 7–10(–25) mm, base rounded to slightly pseudo-petiolate, margins scaberulous, below glabrous to pilose. Peduncle glabrous below the inflorescence. Common axis 15–22 cm long. Racemes 9–15(–25), alternate, erecto-patent. Rhachis of racemes triquetrous to narrowly ribbon-like, 0.5–1.2 mm wide, margins scabrous, glabrous, axils pilose. Lowermost racemes branched, 6–12 cm long, densely spikeled. Upper racemes distant. Pedicels 0.4–1.3 mm long, pilose. Spikelets paired, ellipsoid, base rounded, 2.85–3.3 mm long. Glumes approximate. Lower glumes 0.75–1.2 mm long, 0.25–0.37 times as long as the first lemma, base hemi-amplexicaul, apex acute, 0- or 1-nerved. Upper glumes at least as long as the second lemma, apex acuminate, 5–7-nerved, with cross-veins, glabrous. First lemma paleate, male, back slightly sulcate, apex acuminate, 5-nerved, with cross-veins, palea about as long. Second lemma 2.1–2.25 mm long, apex mucronate, transversally rugulose, dull. Anthers 1.2–1.9 mm long, yellow (those of the upper floret maturing first). 2n = 18, 36.

Distribution — Originally from Brazil, introduced elsewhere; naturalized throughout Malesia (not seen from the Lesser Sunda Islands).

Habitat — Swampy places, e.g. marshes, rice fields, ditches, also in open, more or less lightly shaded places, e.g. coconut plantations, sandy beaches, vegetation-forming, 0–1530 m altitude.

Uses — Readily eaten by cattle, horses, and sheep, considered one of the best tropical fodder grasses. In moist areas it is better than *Panicum maximum*. Used as ground cover in coconut plantations, in reclamation areas, probably salt-resistant, as also found in the pes-caprae formation of beaches; prevents soil erosion, but once present, difficult to eradicate from sugarcane and coffee plantations.

Vernacular names — Buffalo grass, Dutch grass, Giant couch, Mauritius grass, Para grass, Scotch grass, Water grass (E.).

Note — Ripe fruits never seen as yet.

10. Urochloa piligera (F. Muell. ex Benth.) R.D. Webster

Urochloa piligera (F. Muell. ex Benth.) R.D. Webster, Pan. Austr. (1987) 246. — *Panicum piligerum* F. Muell. ex Benth., Fl. Austr. 7 (1878) 477. — *Brachiaria piligera* Hughes, Kew Bull. (1923) 315. — *Brachiaria subquadripara* Hitchc. var. *piligera* Reeder, J. Arnold Arbor. 29 (1948) 273. — Type: *F. von Mueller s.n.* (holo MEL).

Panicum intercedens Domin, J. Linn. Soc. Bot. 41 (1912) 271. — *Brachiaria piligera* Hughes var. *intercedens* Hughes, Kew Bull. (1923) 315. — Type: *Clement s.n.* (holo K).

Plants annual. Culms tufted, not rhizomatous nor stoloniferous, geniculate at base, rooting or not in the nodes, 0.2–0.6 m high, 1–3 mm wide at base, nodes glabrous. Sheaths glabrous, or sparsely hirsute along the margins. Ligule with 0.75–1.65 mm long hairs. Blades linear, (5–)10.5–25 cm by 5–10 mm, base rounded, margins scaberulous, rarely pilose at base, glabrous below. Peduncle glabrous below the inflorescence. Common axis 6–19 cm long. Racemes 3–5, alternate, erecto-patent, rhachis of racemes ribbon-like, 0.75–1 mm wide, axils glabrous, margins glabrous. Lowermost racemes simple, 3.5–4 cm long, densely to laxly spikeled. Upper racemes distant. Pedicels 0.5–0.9 mm long, glabrous. Spikelets solitary, ellipsoid, 3.1–3.75 mm long. Glumes remote; lower glumes 1.35–1.5 mm long, 0.37–0.47 times as long as the first lemma, base clasping, acute, 9–11-nerved, with cross-veins; upper glumes acute, 7-nerved, pilose, apical hairs longest. First lemma epaleate to paleate, bisexual (and fruiting!), back slightly sulcate, apex acute, 5-nerved, without cross-veins, palea 0–1 times as long. Second lemma 2.4–2.7 mm long, acutish, transversally rugulose, dull. Anthers 1.3–1.7 mm long. 2n = ?

Distribution — Australia (W Australia to New South Wales); Malesia: Celebes (Talaud I.), Moluccas (Ternate), New Guinea: Aru Islands (P. Trangan), Irian Jaya (Kofiau I., Manokwari, Merauke), Papua New Guinea (Western, Central Prov.).

Habitat — Open sandy places near the sea shore, dry ricefields; 0–70 m altitude.

Note — The spikelets of the Malesian representatives are relatively small compared to the Australian ones (3.3–4.9 mm long), especially the lower glume (1.9–2.7 mm long). Regarded as a species distinct from *U. subquadripara* by Webster (1987), e.g., because of absence of the first palea, which is not always true: it may be present, bearing a male or even bisexual, fruiting flower, exceptional for the tribe.

In Australia hairy and glabrous plants occur; *B. piligera* var. *intercedens* is the glabrous form, the only one found in Malesia, so recognition as a distinct taxon might be warranted.

11. Urochloa pubigera (Roem. & Schult.) R.D. Webster

Urochloa pubigera (Roem. & Schult.) R.D. Webster, Pan. Austr. (1987) 250. — *Panicum pubescens* R. Br., Prodr. 1 (1810) 190, non Lam. (1798). — *Panicum pubigerum* Roem. & Schult., Syst. Veg. 2 (1817) 460. — *Brachiaria ramosa* (L.) Stapf var. *grandiflora* Hughes, Kew Bull. (1923) 315, nom. superfl. — *Brachiaria pubigera* S.T. Blake, Proc. Roy. Soc. Queensl. 81 (1969) 5. — Lectotype: *R. Brown 6111* (holo BM; iso BRI, E, K, MEL).
Brachiaria holotricha Ohwi, Bull. Sc. Mus. Tokyo 18 (1947) 4. — Type: *Beguin 134* (holo BO; iso K).
Brachiaria ramosa auct. non Stapf.

Plants annual. Culms tufted, not rhizomatous nor stoloniferous, geniculate at base, rooting in the nodes to erect, 0.15–1 m high, 2–3.5 mm wide at base, nodes puberulous. Sheaths glabrous to puberulous, or villous. Ligule with 0.8–1.1 mm long hairs. Blades linear, 3.5–19 cm by 4–8 mm, base rounded, margins scaberulous, puberulous to pilose below. Peduncle puberulous below the inflorescence. Common axis 4–12 cm long. Racemes (5–)8–12(–16), alternate, erecto-patent. Rhachis of racemes triquetrous, 0.3–0.6 mm wide, margins scabrous, glabrous to pilose, axils puberulous. Lowermost racemes simple to branched (at base), (3–)4–5(–6) cm long, usually densely spikeled. Upper racemes distant. Pedicels 0.4–2.5 mm long, pilose. Spikelets paired, ellipsoid, base stipitate, 3.2–4.4 mm long. Glumes remote. Lower glumes 1.8–2.55 mm long, 0.5–0.6 times as long as the first lemma, base clasping, broadly acute, 5–7-nerved, with cross-veins. Upper glumes at least as long as to slightly shorter than the second lemma, apex acuminately to subcaudately 'pinched', 5–7-nerved, with or without cross-veins, puberulous, apical pubescence absent. First lemma paleate, sterile to male (?), back slightly sulcate, apex acuminately to subcaudately 'pinched', 5-nerved, with or without cross-veins, palea 0.75–0.82 times as long. Second lemma 2.25–3 mm long, apex 'pinched' (crested), transversally rugulose, dull. Anthers 1–1.6 mm long. 2n = ?

Distribution — India, Sri Lanka to Vietnam to Australia (W Australia, Northern Territory, Queensland); Malesia: Malay Peninsula (Penang), Java (Jakarta, Pasuruan, Banyuwangi), Lesser Sunda Islands (Flores, Timor, Wetar), New Guinea (Irian Jaya: Merauke; Papua New Guinea: Morobe Prov.).

Habitat — Dry ditches, roadsides, grass fields, dry savanna forests, locally common, 0–200 m altitude.

Notes — 1. The distribution and habitat of this species is not clear, as it is usually confused with *U. ramosa* from which it differs especially by the stipitate and acuminate spikelets. If more material can be studied, it may turn out to be indistinguishable. No mixed collections were seen.

2. The first lemma may occasionally bear staminodes; these may be immature anthers, which then maturate much later than those of the second lemma.

12. Urochloa ramosa (L.) T.-Q. Nguyen

Urochloa ramosa (L.) T.-Q. Nguyen, Nov. Syst. Pl. Vasc. 13 (1966) 13. — *Panicum ramosum* L., Mant. (1767) 29. — *Brachiaria ramosa* Stapf, Fl. Trop. Afr. 9 (1919) 542. — *Echinochloa ramosa* Roberty, Bull. I.F.A.N. 17 (1955) 64. — Type: *Hb. Linn. 80.44* (LINN, holo).

Plants annual. Culms tufted, not rhizomatous nor stoloniferous, geniculate at base, rooting in the nodes to erect, 0.3–0.5 m high, 1–3 mm wide at base (or more), the nodes puberulous. Sheaths glabrous to puberulous (to sparsely pilose). Ligule with 1–1.5 mm long hairs. Blades ovate-linear-lanceolate, 4–19 cm by 6.5–18 mm, base rounded, margins scaberulous, glabrous to puberulous below. Peduncle glabrous to puberulous below the inflorescence. Common axis 1–10 cm long. Racemes 4–16, alternate or clustered, erecto-patent, rhachis of racemes triquetrous, 0.4–0.5 mm wide, margins scabrous, glabrous or puberulous, axils puberulous. Lowermost racemes simple, 2–6.5 cm long, densely spikeled. Upper racemes distant. Pedicels 1.5–2.1 mm long, glabrous to pilose. Spikelets paired, ellipsoid, 2.8–3.2 mm long. Glumes approximate. Lower glumes 1–1.3 mm long, 0.37–0.52 times as long as the first lemma, base clasping, apex broadly acute, 5-nerved, with cross-veins. Upper glumes at least as long as the second lemma, apex acutely 'pinched', 7-nerved, puberulous, rarely glabrous, apical pubescence absent. First lemma epaleate or paleate, sterile, usually herbaceous, rarely crustaceous (see note), back slightly sulcate, apex acutely 'pinched', 5–7-nerved, without cross-veins, palea 0–0.85 times as long. Second lemma 2.2–2.6 mm long, apex 'pinched' mucronate, transversally rugulose, dull. Anthers 0.75–0.8 mm long. 2n = usually 36, also 14, 28, 32, 42, 46, 72.

Distribution — Tropical Africa to Asia, possibly introduced in Malesia: Java (Pasuruan, Besuki), Lesser Sunda Islands (Sumba, Timor, Sawu), Christmas Island.

Habitat — Dry places with a distinct dry season, along roads, burned teak forest, grassy slopes, *Casuarina* savanna, abandoned fields, 0–400 m altitude.

Uses — Cultivated in India as a short-duration crop. The grain is considered superior to that of *Panicum sumatrense* Roem. & Schult. The forage is said to be one of the best but the value decreases with maturity.

Vernacular name — Browntop millet (E.).

Note — Very variable in the pubescence of the pedicels and spikelets. Apparently over the whole range of the species a curious form may occur. In this the first lemma resembles the second one and is (sub)glabrous, inflated, transversally rugulose, and indistinctly nerved. Probably introduced at least in Java, where the first collection was made in 1922. There is a collection of the 'indurated' form made by R. Brown in Kupang in 1803 (L), though the next collection from the Lesser Sunda Islands was in 1923.

13. Urochloa reptans (L.) Stapf

Urochloa reptans (L.) Stapf, Fl. Trop. Afr. 9 (1920) 601. — *Panicum reptans* L., Syst. Nat., ed. 10, 2 (1759) 870. — *Panicum grossarium* L., Syst. Nat., ed. 10, 2 (1759) 871, nom. superfl. (see note). — *Brachiaria reptans* Gardn. & C.E. Hubb. in Hook., Icon. Pl. 34 (1938) t. 3363: 3. — *Echinochloa reptans* Roberty, Bull. Inst. Fondam. Afr. Noire, A, 17 (1955) 66. — Type: *P. Browne s.n. in Hb. Linn. 80.52, upper part* (holo LINN).

Panicum umbrosum Retz., Obs. Bot. 4 (1786) 16. — *Digitaria umbrosa* Pers., Syn. 1 (1805) 85. — *Setaria umbrosa* Beauv., Agrost. (1812) 51, 178. — Type: *Koenig in Hb. Retz.* (holo LD).

Panicum prostratum Lam., Tabl. Enc. 1 (1791) 171. — *Brachiaria prostrata* Griseb., Abh. Kön. Ges. Wiss. Gött. 7 (1857) 263. — Type: *Anon. in Hb. Lamarck* ('St. Dominique') (holo P, microfiche IDC 6207, fiche 691/9; BAA, fragm., K, photo; Hitchc. & Chase, Contr. U.S. Nat. Hb. 15 (1910) 36, t. 17).

Panicum luxurians Willd. ex Nees, Agrost. Bras. (1829) 233. — Syntypes: *Klein s.n., Bory de St. Vincent s.n. in Hb. Willdenow 18786* (B, microfiche IDC 7440), *Haenke s.n.* (PR?) (see note 1).

Panicum calaccanzense Steud., Syn. 1 (1853) 65. — Type: *Cuming 498* (holo P; iso K, L).

Panicum parvum Buse in Miq., Pl. Jungh. 3 (1854) 373. — Type: *van den Bosch 6/1843* (holo L).

Brachiaria reptans (L.) Gardn. & C.E. Hubb. var. *hispida* Basappa & Muniyamma, Proc. Ind. Nat. Sc. Acad., B, 49 (1983) 380. — Type: *Basappa & Muniyamma 2302* (holo CAL; iso BSI, BSJo, MGM, MH).

Urochloa reptans (L.) Stapf var. *glabra* Chen & Jin, Acta Phytotax. Sin. 22 (1984) 475. — Type: *Lious 7* (holo JSBI).

Panicum prostratum Lam. var. *setigerum* auct. non Buse.

Panicum setigerum auct. non Retz.

Plants annual (?). Culms tufted, not rhizomatous nor stoloniferous, geniculate at base, rooting in the nodes, 0.1–0.65 m high, 0.7–2.5 mm wide at base, nodes glabrous to pilose. Sheaths glabrous, pilose along the margins. Ligule with 0.4–1.5 mm long hairs. Blades ovate-lanceolate to ovate-linear-lanceolate, 1–9 cm by 3–12 mm, base subcordate, margins scaberulous, pilose at base, usually glabrous below. Peduncle glabrous below the inflorescence. Common axis 1–8 cm long. Racemes 2–17, alternate, erecto-patent to patent. Rhachis of racemes triquetrous, 0.2–0.4 mm wide, axils glabrous, margins glabrous. Lowermost racemes simple, 1.7–5 cm long, densely spikeled. Upper racemes usually approximate. Pedicels 0.1–1.5 mm long, glabrous to pilose. Spikelets paired, ellipsoid, 1.65–2(–2.25) mm long. Glumes approximate. Lower glumes 0.3–0.5(–0.75) mm long, 0.15–0.27(–0.4) times as long as the sterile lemma, base clasping, erose and truncate, 0- or faintly 1-nerved, without cross-veins. Upper glumes apex acutely 'pinched', 7–9-nerved, glabrous (rarely puberulous), apical pubescence absent. Sterile lemma paleate, sterile or male (see note 3), back rounded, apex acutely 'pinched', 5-nerved, without cross-veins, palea c. 0.9 times as long. Fertile lemma 1.3–1.5 mm long, apex rounded, mucronate (mucro easily detached), transversally rugulose, dull. Anthers 0.5–1 mm long. 2n = 14, 18.

Distribution — Pantropical, throughout Malesia.

Habitat — Open waste places, beaches, old clearings, pastures, ditches, thickets, jati forest, locally abundant, 0–1000 m altitude.

Uses — Usually found as a weed, but reported as an excellent fodder. Grain sometimes eaten in India, but said to contain cyanides. Ashes from the whole plant used against snake bite in Tanzania.

Vernacular names — Creeping panic grass, Running grass (E.).

Notes — 1. Hitchcock [Contr. U.S. Nat. Hb. 12 (1908) 119] has claimed that Linnaeus described this species twice on successive pages, and that the names are homotypic. *Panicum luxurians*: Merr. [Philipp. J. Sc. 4 (1909) 249] reported to have seen the Willdenow herbarium, where there are three sheets: two from Klein from S India, and one from Bory de St. Vincent, both identified by Mez as *Panicum reptans* L. Merrill regarded the locality 'Luzoniae' as an 'apparent error', but *U. reptans* occurs widely in the Philippines.

2. As the pedicels often lack the long hairs while mixed collections were seen, the recognition of *U. reptans* var. *glabra* seems unwarranted.

3. The first floret may be staminate; the second floret is probably bisexual, but the anthers were usually already lost.

4. The spikelets may be densely puberulous, as in *B. reptans* var. *hispida*, possibly represented in Malesia by *Dorgelo 2329* (Surabaya; L) (Backer, 1928, records several more instances, probably in BO), *Schmutz 5721, p.p.* (Flores) has puberulous spikelets reminiscent of *U. villosa*. As the latter collection is mixed with 'normal' forms, a special status does not seem acceptable.

14. Urochloa ruziziensis (Germain & Evrard) Morrone & Zuloaga

Urochloa ruziziensis (Germain & Evrard) Morrone & Zuloaga, Darwiniana 31 (1992) 101. — *Brachiaria ruziziensis* Germain & Evrard, Bull. Jard. Bot. Brux. 23 (1953) 373, t. 36, 37. — *Brachiaria decumbens* Stapf var. *ruziziensis* Ndabeneze, Lejeunea n.s. 132 (1989) 16. — Type: *Germain 6214* (holo BR).

Plants perennial. Culms rhizomatous, tufted, erect to geniculate at base, rooting in the nodes, 0.6–1.5 m high, 3–5 mm wide at base, nodes glabrous. Sheaths pilose. Ligule with 0.8–1 mm long hairs. Blades linear, 10–25 cm by 10–15 mm, the base rounded, margins scaberulous, pilose below. Peduncle pilose below the inflorescence. Common axis 9.5–15 cm long. Racemes 3–8, often terminated by rudimentary spikelet(s), alternate, erecto-patent. Rhachis of racemes broadly ribbon-like, 2.25–5 mm wide, margins scaberulous, pilose, axils pilose. Lowermost racemes simple, 4–10 cm long, densely spikeled. Upper racemes distant. Pedicels 0.4–1 mm long, puberulous. Spikelets solitary, ellipsoid, base stipitate, 4.7–6 mm long. Glumes remote. Lower glumes 2.4–3.15 mm long, 0.5–0.67 times as long as the first lemma, base amplexicaul, apex acute, 11-nerved, with cross-veins. Upper glumes at least as long as the second lemma, apex acuminate, 7-nerved, with cross-veins, distally pilose. First lemma paleate, male (maturing after the upper floret), back flattened, apex acuminate, 5-nerved, with cross-veins, palea 0.9–0.95 times as long. Second lemma 3.6–4.35 mm long, the apex apiculate, finely longitudinally punctate-striate, shiny. Anthers 2–3.5 mm long. 2n = 18, 36.

Distribution — Originally from Africa (Congo, Ruanda, Burundi), cultivated elsewhere, e.g. in Malesia: Philippines (Luzon), Papua New Guinea (Madang, Morobe, Northern Prov.), no doubt elsewhere.

Habitat — Open areas, pastures, under coconut, 30–140 m altitude.

Uses — Pasture and fodder grass of excellent quality, drought resistant.

Vernacular name — Congo (signal) grass, itonto, Kennedy grass, ndundwa, Ruzi grass (E).

15. Urochloa subquadripara (Trin.) R.D. Webster

Urochloa subquadripara (Trin.) R.D. Webster, Pan. Austr. (1987) 252. — *Panicum subquadriparum* Trin., Gram. Pan. (Oct. 1826) 145; Mém. Acad. Imp. Sc. St. Pétersb. 10 (1826) 334. — *Brachiaria subquadripara* Hitchc., Lingn. Sc. J. 7 (1931) 214. — *Brachiaria subquadrifida* Stehle, Not. Syst. 13 (1947) 78, sphalm. — Lectotype: *Chamisso s.n. in Hb. Trinius 0974.01* (holo LE, microfiche IDC BT-16/1).

Panicum miliiforme Presl, Rel. Haenk. 1 (1830) 300. — *Brachiaria miliiforme* Chase, Contr. U.S. Nat. Hb. 22 (1920) 35. — *Brachiaria subquadripara* Hitchc. var. *miliiformis* Chen & Jin, Acta Phytotax. Sin. 22 (1984) 472. — Type: *Haenke s.n.* (holo PR; iso MO, US, fragm.).

Panicum radicans Llanos, Fragm. Fl. Filip. (1851) 43, non Retz. (1786). — Type: not extant. Neotype: *Merrill Sp. Blanc. 711* (holo L; iso BM, BO, K, P, U).

Brachiaria subquadripara Hitchc. var. *pubescens* Jansen, Reinwardtia 2 (1953) 241. — Type: *A.H. Jansen 19* (holo L).

Brachiaria subquadripara Hitchc. var. *hirsuta* Jansen, Reinwardtia 2 (1953) 241. — Type: *Lörzing 6153* (holo L; iso BO).

?*Brachiaria hybrida* Basappa & Muniyamma, Proc. Ind. Nat. Sc. Acad., B, 49/4 (1983) 379. — Type: *Basappa & Muniyamma 2851* (holo CAL; iso BSI, BSJo, MGM) (see note 4).

Brachiaria distachya auct. non Stapf.

Panicum distachyon auct. non L. (*'distachyum'*).

Panicum ramosum auct. non L.

Panicum remotum auct. non Retz.

Panicum umbrosum auct. non Retz.

Plants annual (?). Culms tufted, not rhizomatous nor stoloniferous, geniculate at the base, rooting in the nodes, 0.25–0.6 m high, 1–2.25 mm wide at the base, nodes glabrous. Sheaths glabrous and more or less hirsute along the margins. Ligule with 0.5–0.75 mm long hairs. Blades ovate-linear-lanceolate to linear, 3–13(–27) cm by 3.5–7(–12) mm, base rounded, margins scaberulous, pilose at the base, glabrous to sparsely pilose below. Peduncle glabrous or pilose below the inflorescence. Common axis 2.5–9(–22) cm long. Racemes 3–6(–9), alternate, erecto-patent to reflexed, rhachis of racemes ribbon-like, 0.75–1 mm wide, axils glabrous to pilose, margins glabrous, scaberulous. Lowermost racemes simple, 2–6.5 cm long, densely spikeled; upper racemes distant. Pedicels 0.4–0.75 mm long, glabrous, sometimes pilose. Spikelets solitary, ellipsoid, base cuneate to shortly stipitate, 3.2–4.35 mm long. Glumes remote; lower glumes 1.35–1.95 mm long, 0.38–0.5 times as long as the first lemma, base clasping, erose and rounded to acute, 5–7(–9)-nerved, with or without cross-veins; upper glumes acute, 5–7-nerved, glabrous (once puberulous). First lemma epaleate to paleate, sterile (rarely male), back slightly sulcate, apex acute, faintly 5-nerved, without cross-veins; palea, when present, usually 0.67–0.8 times as long. Second lemma 2.6–2.85 mm long, apex rounded, finely transversally rugulose, dull. Anthers 1.1–1.35 mm long. 2n = 36, 54, 72, 84.

Distribution — Kashmir to S China, throughout Malesia, to Queensland, in New Guinea apparently in areas with a pronounced dry season, introduced elsewhere, e.g. tropical Africa and the New World.

Habitat — Open waste places, roadsides, damp grass fields, 0–600(–900) m altitude.

Uses — Good to excellent forage grass; because it is drought resistant, a good soil-binder in sandy areas, e.g. coconut plantations, dunes, sometimes cultivated as a lawn-grass, where it may become a troublesome weed because of its rampant habit.

Vernacular names — Armgrass millet, Green summer grass, Two-spiked panic grass (E.).

Notes — 1. In Malesia confused with *U. distachya*, which is a Continental Asian species, differing mainly by being a highly branched perennial, with shorter, slightly more obovate spikelets (and shorter fertile lemmas). The two may well be varieties of each other, but a further analysis is required to answer this. At present the two are

kept separate here mainly because of established custom. Pohl [Fieldiana, Bot., n.s. 4 (1980) 103] has united the two.

2. *Panicum radicans* is included here on the authority of Merrill, but the description is so vague that it might as well be another *Urochloa* species.

3. Jansen distinguished *Brachiaria subquadripara* var. *hirsuta* for an exceptionally pilose specimen (but with glabrous spikelets) from Sumatra's East Coast [compare *B. subquadripara* var. *setulosa* Chen & Jin, Acta Phytotax. Sin. 22 (1984) 472, from Yunnan with puberulous spikelets], and *B. subquadripara* var. *pubescens* for one with puberulous spikelets from Buru. Of both Malesian forms only the types have been seen.

4. I have not seen original material of *Brachiaria hybrida*, but from the descriptions given it seems to be a form with large spikelets.

16. Urochloa tanimbarensis (Ohwi) Veldkamp, *comb. nov.*

Brachiaria tanimbarensis Ohwi, Bull. Tokyo Sc. Mus. 18 (1947) 5. — Type: *Buwalda 4050* (holo BO).

Plants annual (?). Culms tufted, not rhizomatous nor stoloniferous, erect, rooting in the lower nodes, 0.4–1 m high, 3–5 mm wide at base, nodes glabrous. Sheaths glabrous. Ligule with 0.75–1.2 mm long hairs. Blades linear, 10–20 cm by 8–10 mm, base rounded, margins scaberulous, glabrous below. Peduncle glabrous below the inflorescence. Common axis 8.5–10 cm long. Racemes 3–10, erecto-patent. Rhachis of racemes narrowly ribbon-like, 1.1–1.4 mm wide, margins scabrous, glabrous, axils glabrous. Lowermost racemes simple, 3–4.5 cm long, densely spikeled. Upper racemes approximate. Pedicels 0.4–0.6 mm long, glabrous. Spikelets solitary, ellipsoid, base cuneate, 3–3.3 mm long. Glumes remote. Lower glumes 1.35–1.5 mm long, 0.4–0.45 times as long as the first lemma, base amplexicaul, apex rounded to acute, 9–11-nerved, without cross-veins. Upper glume at least as long as the second lemma, the apex acute, 9-nerved, without cross-veins, distally pilose, pilose, apical hairs longest. First lemma paleate, male, back flattened, apex acute, 5-nerved, without cross-veins, palea c. 0.8 times as long. Second lemma c. 2.25 mm long, apex acutish, transversally rugulose, dull. Anthers 1–1.5 mm long. 2n = ?

Distribution — Lesser Sunda Islands (Tanimbar).

Habitat — Along roads, grassfields, thickets, low altitudes.

17. Urochloa villosa (Lam.) T.-Q. Nguyen

Urochloa villosa (Lam.) T.-Q. Nguyen, Nov. Syst. Pl. Vasc. 13 (1966) 14. — *Panicum villosum* Lam., Tabl. Enc. 1 (1791) 173. — *Brachiaria villosa* Camus, Fl. Gén. Indo-Chine 7 (1922) 433. — Type: *Sonnerat s.n. in Hb. Lamarck* (holo P, microfiche IDC 6207, fiche 694/9).

Panicum coccospermum Nees in Steud., Syn. 1 (1853) 62. — *Brachiaria coccosperma* Stapf ex Reeder, J. Arnold Arbor. 29 (1948) 273. — Type: *Hb. Royle* sub '*Panicum vestitum* Nees' 'Ind. Or.' (iso K, P).

Brachiaria villosa (Lam.) Camus var. *glabriglumis* Ohwi, Acta Phytotax. Geobot. 5 (1936) 51. — *Brachiaria villosa* (Lam.) Camus forma *glabriglumis* Ohwi, Acta Phytotax. Geobot. 11 (1942) 43. — Type: *Koidzumi s.n.* (holo KYO).

Brachiaria villosa (Lam.) Camus var. *glaberrima* Basappa & Muniyamma, Proc. Ind. Nat. Sc. Acad., B, 49 (1983) 381. — Type: *Basappa & Muniyamma 2911* (holo CAL; iso BSI, BSJo, MGM, MH).

Brachiaria villosa (Lam.) Camus var. *glabrata* Chen & Jin, Acta Phytotax. Sin. 22 (1984) 472. — Type: *Hu 7900562* (holo JSBI).

Plants annual. Culms geniculate at base, usually rooting in the nodes, 0.07–0.4 m high, 0.7–1.2 mm wide at base, nodes densely puberulous. Sheaths puberulous at least along the margins. Ligule with 0.3–1.1 mm long hairs. Blades flat (i.s.), lanceolate to linear-lanceolate, 1.5–4.5 cm by 4–9.25 mm, base rounded to subcordate, margins scaberulous to spinulose, usually densely puberulous on both sides. Peduncle puberulous, common axis 1.5–8 cm long. Racemes 4–12, alternate or secund, erecto-patent, the lowermost simple, 0.7–3.25 cm long, densely spikeled, upper racemes distant; rhachis triquetrous, 0.2–0.3 mm wide, puberulous and pilose; pedicels 0.3–0.6 mm long, puberulous and pilose. Spikelets solitary, ellipsoid, 2–2.85 mm long. Glumes approximate; lower glumes 0.75–1.5 mm long, 0.38–0.54 times as long as spikelet, base clasping, apex acute, faintly 3-nerved, without cross-veins; upper glumes apex 'pinched', 5-nerved, hairy or glabrous (see note), without an apical fringe of silky hairs. Sterile lemma paleate, back rounded to somewhat sulcate, apex 'pinched', 5-nerved; palea 0.86–0.93 times as long as the lemma; fertile lemma 1.8–2.1 mm long, apex 'pinched', dull, finely reticulately granular. Anthers 0.9–1.3 mm long. 2n = 36.

Distribution — West Africa (Mauritania to Zaïre), Sudan, India (Himalayas) to China, Taiwan, Japan; Malesia: Sumatra (E Coast, N of Toba), Java (Besuki: Ijen), Lesser Sunda Islands (Bali), Philippines (Luzon: Benguet), Irian Jaya (Arfak, Kebar), Papua New Guinea (Central Prov.). The distribution suggests introduction, but the species was already found in Luzon in 1905 and in the Arfaks in 1912.

Habitat — Open grassy slopes, savannas, riverbanks, waste places, and fields, 40–1600 m altitude.

Uses — Weed on better soil.

Notes — 1. The indument of the spikelets is variable; sometimes it is completely absent (var. *glaberrima*, var. *glabrata*, var. or forma *glabriglumis*). Ohwi remarked that a paratype was mixed, and so is the Ijen population.

2. Bor [Grasses (1960) 286] described a *B. villosa* var. *barbata* from Nepal with an apical row of silvery hairs on the upper glume and lower lemma (he mixed up the words 'upper' and 'lower'), reminiscent of *U. fusiformis*. I have seen representatives also from the Punjab, Darjeeling, and Yunnan.

DUBIOUS SPECIES

D.1. Urochloa foliosa (R. Br.) R. D. Webster was recorded for New Guinea as *Panicum foliosum* R. Br. by K. Schum., Bot. Jahrb. 9 (1887) 196; K. Schum. & Hollr., Fl. Kaiser Wilhelmsland (1889) 21, for *Hollrung 83*, the latter erroneously sub *Paspalum foliosum* (R. Br.) K. Schum. & Hollr. Reeder (p. 383) compounded the confusion by saying it would be '*Digitaria foliosa*' (R. Br.) Hughes. It has never been found again in New Guinea, so most likely it was a misidentification of a specimen belonging perhaps to *U. subquadripara*.

D.2. Urochloa panicoides Beauv.

Urochloa panicoides Beauv., Agrost. (1812) 53, 181, t. 11, f. 1. — Lectotype: *Beauvois' plate*, as the specimen, *Commerson in De Jussieu s.n.* could not be found in G or P.

?*Panicum javanicum* Poir., Encycl., Suppl. 4 (1816) 274. — *Oplismenus javanicus* Roem. & Schult., Syst. Veg. (1817) 891. — *Urochloa javanica* Stapf, Fl. Trop. Afr. 9 (1920) 597, nom. inval., in anticipation. — *Hemigymnia javanica* Alston, Suppl. Fl. Ceyl. (1931) 323. — Type: *Hb. Desfontaines* (not found in FI, P).

Distribution — South Africa to Sudan, Yemen, India. Introduced elsewhere, e.g. N Australia.

Habitat — Abandoned fields, overgrazed pastures, disturbed areas, 0–1800 m altitude in Africa.

Note — In P there is a Guichenot and an 'ex Kunth' collection of the '*pubescens*' form labeled 'Timor', while *Panicum javanicum* was described from Java. The latter has been equated, e.g. by Stapf (1920) and Gould [Fl. Ceylon 8 (1994) 447], with *U. panicoides*. These specimen(s) most likely have been mislabelled, as the species was never collected in Malesia again. In absence of the type(s) it cannot be resolved how the epithet '*javanicum*' is to be applied.

INDEX TO SPECIMENS SEEN

bri	=	1. *Urochloa brizantha* (A. Rich.) R.D. Webster
dic	=	2. *Urochloa dictyoneura* (Fig. & De Not.) Veldkamp
dis	=	3. *Urochloa distachya* (L.) T.-Q. Nguyen
eru	=	*Brachiaria eruciformis* (J.E. Sm.) Griseb.
fus	=	4. *Urochloa fusiformis* (Reeder) Veldkamp
glu	=	5. *Urochloa glumaris* (Trin.) Veldkamp
hol	=	6. *Urochloa holosericea* (R. Br.) R.D. Webster
kur	=	7. *Urochloa kurzii* (Hook. f.) R.D. Webster
mos	=	8. *Urochloa mosambicensis* (Hack.) Dandy (none scored)
mut	=	9. *Urochloa mutica* (Forssk.) Stapf
pil	=	10. *Urochloa piligera* (Benth.) R.D. Webster
pub	=	11. *Urochloa pubigera* (Roem. & Schult.) R.D. Webster
ram	=	12. *Urochloa ramosa* (L.) T.-Q. Nguyen
rep	=	13. *Urochloa reptans* (L.) Stapf
ruz	=	14. *Urochloa ruziziensis* (Germain & Evrard) Morrone & Zuloaga
sub	=	15. *Urochloa subquadripara* (Trin.) R.D. Webster
tan	=	16. *Urochloa tanimbarensis* (Ohwi) Veldkamp
vil	=	17. *Urochloa villosa* (Lam.) T.-Q. Nguyen

A 2692 (Kadir): mut — A.O. Cameron Highlands SP/B: bri — Adj. Veearts Gorontalo 23: rep — Alston 17137: rep — Amman 861: mut.

Backer 1387: sub; 5963: rep; 6511: rep; 7597: eru; 7656: rep; 7770: pub; 7783: mut; 7947: mut; 7936: sub; 7958: rep; 9120: mut; 9330: glu; 10184: sub; 14428: mut; 14533: sub; 18596: rep; 18958: glu; 19731: eru; 25259: vil; 26905: ram; 27767: (kur); 27829 (T): kur; 36553: ram; 37130: mut — Bakhuizen v.d. Brink 4/1917: glu; 24/2/1924: sub; 9a: glu; 385: rep; 758: mut; 899: rep; 1085: sub; 1446: sub; 1685: mut; 1882: rep; 2043: mut; 2713: glu; 3468: sub; 4321: glu; 4898: mut; 5462: sub — Balansa 30/11/1886: glu — Bartlett 15849: rep — Bartlett & La Rue 380: rep — Beguin 14: sub; 134 (T): pub; 168: ram; 198: pub — Beumée A-186: mut; 2221: (kur) — BF 4173 (Curran): rep; 16159 (Curran et al.): fus — Bicknell 195: rep — Bloembergen 3307: ram; 3757-a: fus — Bor S-12: mut; S-25: sub; S-25-a: sub — van den Bosch 6/

1843 (T): rep — Bovien & Kooper 78: sub — Brass 3639 (T): (fus); 5910: hol; 6301: sub; 6303: rep; 7810: hol; 21751: rep; 24431: rep — van Breemen 9: glu; 68: mut — BS 3332: (rep); 4000 (Vanoverbergh): rep; 4281 (Merrill): fus; 4360 (Merrill): vil; 4396 (Merrill): fus; 4459 (Merrill): fus; 4492 (Mearns): vil; 7692 (Merrill): vil; 7696 (Merrill): rep; 7775 (Ramos): rep; 8118 (Ramos): rep; 8214 (Ramos): fus; 9590 (Merrill): glu; 11606 (Merrill) (T): fus; 12231 (Ramos): sub; 14511 (Ramos): glu; 27395 (Ramos): rep; 41281 (Ramos): sub; 41339 (Ramos): fus; 41345 (Lopez): sub; 42903 (Ramos): glu; 42950 (Ramos): rep; 44155 (Ramos & Edaño): rep; 46412 (Ramos): glu; 44646 (Ramos & Edaño): fus; 53698 (Merrill): rep; 80769 (Ramos): sub — Bünnemeijer 8016: glu; 8170: glu; 10909: glu — Buwalda 2690: rep; 2716: mut; 2725: sub; 3037: glu; 4050 (T): tan; 4115: rep; 4122: glu; 4614: glu; 4681: rep; 5493: hol; 5796: rep; 5947: glu; 7477: ram — BW 8381 (Versteegh & Vink): glu.

Carr 11091: rep; 11398: pil — Chalmers & Bridge 1/1885: sub — Cinatti 161: pub — Clason A-25: sub — Clason-Laarman E-34: vil; E-42: vil; F-130: rep — Clemens 21/2/1940: (vil); 882: mut; 10475-L: rep; 11121: vil; 18000: fus; 51170: sub — Co 2328: fus — Coert 506: rep; 755: mut; 1774: sub — Coode 5919: rep — Cruttwell 101: sub — Cuming 498 (T): rep; 1667 p.p.: (rep) — Curtis 3550: mut.

Darbyshire 698: rep — Darbyshire & Hoogland 7791: rep — Didrichsen 3908: rep — van Dillewijn 8/4/1928: sub — Dorgelo 2329: rep.

Elmer 5605: rep; 10414: sub; 18217: rep — Enoh 322: mut — Everaarts 10: bri; 379: bri.

Forsten 174: glu — Forster 3: mut; 18: rep; 61: rep; 71: sub.

Gilmour 4: dis/rep — Gjellerup 1222: vil — Goetghebeur & Coppejans 3839: rep; 4140: mut; 4173: rep — Goetghebeur & Vyverman 6102: mut; 6109: rep — Gouvern. Veearts Soembawa 12: sub.

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