

gemma unica nodo culmi exorienti constanti *Schizostachyo* Nees et generibus cognatis affinis sed pseudospicula bractea magna (magna quam lemmate) subtenta, flore unico vel inferno super glumam magnam quam lemma inserto, ovario cylindraceo gracile glabro vel apice sparse pubescenti, stigmatibus sessilibus differt. Typus: *Kinabaluchloa wrayi* (Stapf) Wong.

The only genera with somewhat comparable characters are those of the *Bambusinae* and *Schizostachydinae* as circumscribed by Soderstrom & Ellis (1987), which are generally characterised by sympodial rhizomes, solitary primary branch buds, iterarctant inflorescences, 6 stamens and 3 lodicules.

Kinabaluchloa differs from *Bambusa* in having a reduced number of flowers, and in having primary-branch bud prophylls with free margins. It is distinguished from *Gigantochloa* by the reduced number of flowers and by having rachilla internodes that disarticulate below the lemma. It differs from *Dendrocalamus* and *Klemachloa* in that even with a reduced number of flowers in the spikelet, an extended rachilla internode bearing a terminal vestigial flower is always present, and in that all paleas are keeled. *Thyrsostachys* has the lowermost palea bifid, and *Dinochloa* and *Melocalamus* are characterised by fleshy fruits, whereas in *Kinabaluchloa* the paleas are not bifid and the fruit is an endosperm-filled caryopsis.

The *Schizostachyum* and *Melocanna* alliance of genera all have a distinctive glabrous ovary with an elongated and persistent style, whereas *Kinabaluchloa* has ovaries that are glabrous to slightly hairy at the summit, from which the stigmas arise directly. The large bract subtending each pseudospikelet in *Kinabaluchloa* is reminiscent of the spathe-like bracts that embrace each pseudospikelet in *Melocanna*; however, *Melocanna* has unkeeled paleas and only two lodicules in the flower, large fleshy fruits and secundly arranged pseudospikelet branches, and so is very different.

The genus is named after Mount Kinabalu, at the northern end of Sabah's Crocker Range and botanically one of the most spectacular mountains known, where the species *K. nebulosa* is common.

KEY TO THE SPECIES OF KINABALUCHLOA

- Pseudopetiole 1–1.5 mm long; leaf-sheath auricles bristly; pseudospikelet 10–12 mm long; spikelet with one perfect flower (Malay Peninsula). . . **1. *K. wrayi***
 Pseudopetiole 2–4 mm long; leaf-sheath auricles inconspicuous and glabrous; pseudospikelet 15–25 mm long; spikelet with two perfect flowers (Borneo). **2. *K. nebulosa***

1. *Kinabaluchloa wrayi* (Stapf) K. M. Wong, comb. nov.

Bambusa wrayi Stapf in Bull. Misc. Inform., Kew 1893: 14 (1893) & in Hooker's Ic. Pl. 23 pl. 2253 (1893); Gamble in Ann. Roy. Bot. Gard. (Calcutta) 7: 49, pl. 46 (1896); Ridley in Mat. Fl. Malay. Penins. 3: 183 (1907); E. G. Camus, Bambusées: 128, pl. 75 (fig. C) (1913); Ridley, Fl. Malay Penins. 5: 259 (1925); Holttum in Gard. Bull. Singapore 16: 73 (1958); Gilliland, Revised Flora of Malaya 3: 22 (1971). Type: Malay Peninsula, Perak, Gunong Inas, Wray 4166 (holotype K, isotype SING). Fig. 4.

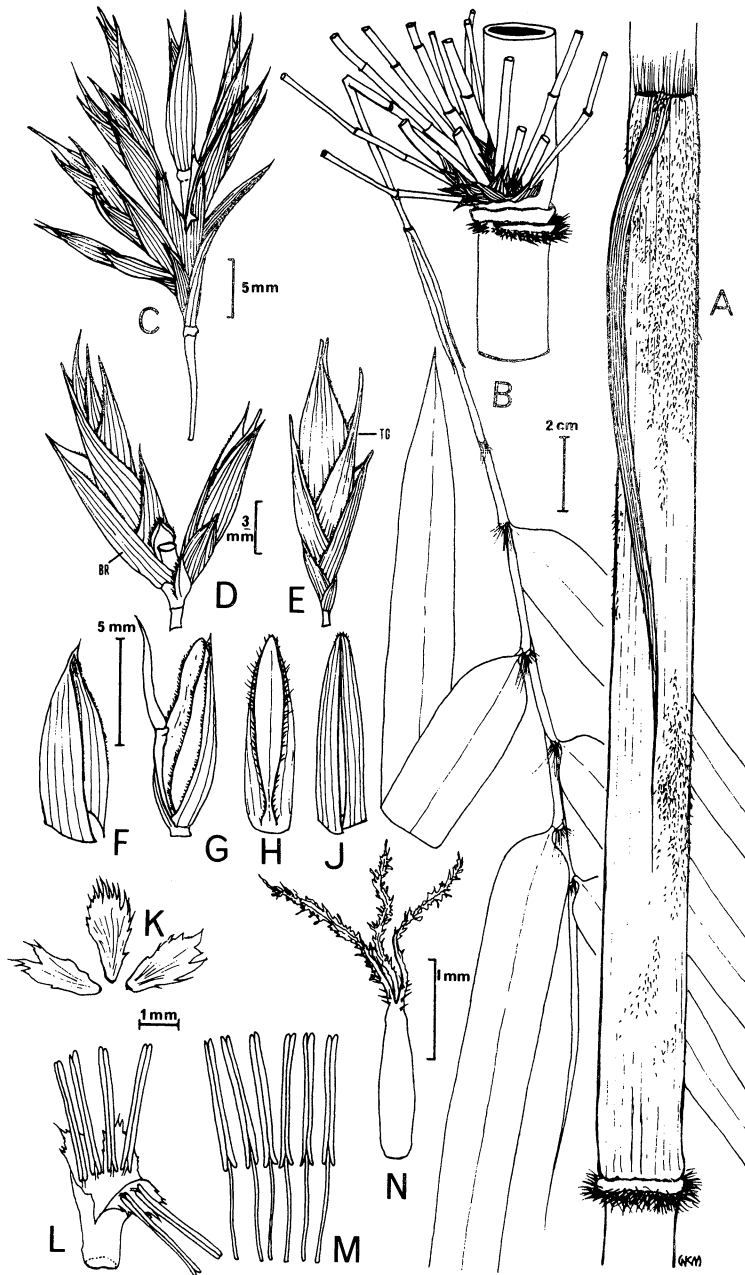


FIG. 4. *Kinabaluchloa wrayi*. A culm sheath; B branch complement and leafy branch; C inflorescence branch bearing clusters of pseudospikelets subtended by bracts; D pseudospikelets, bract (BR) subtending the left one intact, that on right removed; E pseudospikelet, with (from the base) 2 empty bracts, 2 gemmiferous bracts, one transitional glume (TG), one perfect flower and partially hidden terminal vestigial flower; F transitional glume; G perfect flower, intact, & rachilla internode bearing terminal vestigial flower; H palea, dorsal view; J palea, ventral view; K lodicule complement; L stamens attached to fused lodicules; M complement of free stamens. N pistil. A–B from *Gianno* E 339, C–N from *Wray* 4166. Drawn by author.

DISTRIBUTION. Endemic to Peninsular Malaysia, known from the Bintang Range (Perak) and the Main Range (Pahang).

HABITAT. Lower and upper montane forest.

PENINSULAR MALAYSIA. Perak: Gunong Inas, *Wray* 4166 (holotype K, isotype SING), *Yapp* 516 (K). Pahang: Pos Legop, *Gianno* E 339 (KLU).

2. *Kinabaluchloa nebulosa* K. M. Wong sp. nov. a *K. wrayi* (Stapf) K. M. Wong spiculis 2 flores et florem terminalem vestigialem ferentibus, pseudopetiole longiore (2–4 mm haud 1–1.5 mm), auriculis vaginalium foliorum inconspicuis glabrisque differt. Typus: Borneo, Sabah, Ranau, above Mosilau Camp, c. 6200 ft. (1940 m), *Mikil* SAN 38475 (holotypus K, isotypus SAN).

Clumps in forest understorey 7–8 m tall with culm tips entangled with tree crowns, rigid and erect at base, or with culms drooping over to the ground. Culms 7–10 m long, 1.5–2.5 cm diameter; internodes to 40–105 cm long, green, slightly white-waxy, glabrous; nodes prominent with a thick girdle at the sheath base, encircled by a ring of golden brown hairs to 10 mm long in young culms. Buds none at the lowermost 5–6 nodes, solitary at the middle and upper nodes; branch complement a cluster of slender subequal branches. Culm sheaths pale purplish green, with scattered short black hairs, clothing a third to half the internode; auricle a low inconspicuous glabrous rim; ligule with pale brown bristles to 20 mm long; blade linear, reflexed, green. Leaf blades 13–25 cm × 2–3 cm, glabrous except for scattered short hairs at the base and along the midrib on the upper side, green; pseudopetiole 2–4 mm long; auricles inconspicuous and glabrous; ligule a rim to 1 mm high bearing pale bristles to 15 mm long. Pseudospikelet clusters subtended by large bracts 10–20 mm long on the inflorescence branches; each pseudospikelet 15–25 mm long, subtended by a large bract 12–18 mm long (almost as long as the lemma), consisting of 1–2 bracts subtending a prophyllate bud, 1 transitional glume as long as the lemma (10–18 mm long), 2 perfect flowers and a vestigial terminal flower consisting of only a lemma, or a palea as well; spikelet rachilla internodes flattened, short (c. 0.5 mm long) except for the internode below the upper perfect flower (5–8 mm long) and the one below the terminal vestigial flower (c. 2–3 mm long), glabrous. Lemma of perfect flowers to 10–18 mm long, with a minute apical cusp, edges with fine short pale hairs, pale short hairy on the inside near the apex, otherwise glabrous, with c. 14 nerves. Palea to c. 15 mm long, 2-keeled with the wing-like margins infolded, each wing with c. 3 nerves and c. 5 nerves between the keels, the keels pale fine-hairy and widely separated near the apex and much closer near the base, the back of the palea strongly sulcate. Lodicules 3, glabrous, the margins irregularly serrate, each c. 3 mm × 1.5 mm long, the nerves not very distinct. Stamens 6, the anthers c. 4 mm long with emarginate tips, yellow, the filaments filiform and free, basifixed. Ovary slender-cylindric and tapering upwards, scattered-hairy at the summit, c. 3 mm long; stigmas 3, arising directly from the ovary summit, plumose. Fig. 5.

DISTRIBUTION. Endemic to Borneo, occurring on Sabah's Crocker Range (including Mount Kinabalu) and Brunei's Pagon range.

HABITAT. Lower montane forest.

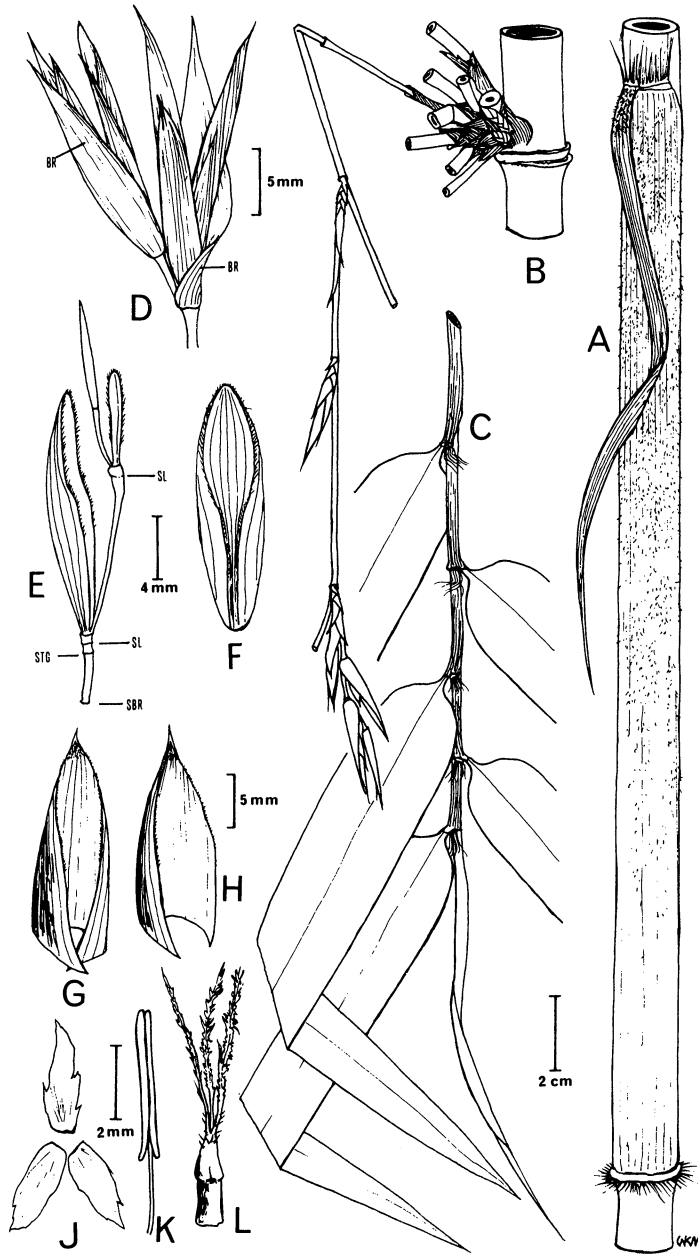


FIG. 5. *Kinabaluchloa nebulosa*. A culm sheath; B branch complement & flowering branch; C branch; D two pseudospikelet clusters each subtended by bract (BR); E pseudospikelet dissected, with two perfect flowers (lemmae removed) & terminal vestigial flower remaining; scars of lemmae insertion (SL), transitional glume (STG), gemmiferous bract (SBR); F palea, dorsal view; G transitional glume. H lemma; J lodicule complement; K stamen; L pistil. A–C from Wong FRI 35158, D–L from Mikil SAN 38475. Drawn by author.

SABAH. Crocker Range: Mount Kinabalu, near Park Headquarters, *Wong* FRI 35158 (KEP, KLU, SAN), Tenompok, *Clemens & Clemens* 28283 (K), above Mosilau Camp, c. 6200 ft. (1940 m), *Mikil* SAN 38475 (holotype K, isotype SAN), upper Kinabalu, *Clemens & Clemens* 27984 (K, L), 29172 (L); mile 31 Sinsuron Road, 1600 m, *S. Dransfield* SD 713 (K). BRUNEI. Temburong, Bukit Pagon, east ridge, *Wong* WKM 1798 (BRUN, K).

K. nebulosa may also be present in Sarawak's Kelabit Highlands (*vide* S. Dransfield, *in litt.* 5 Sept. 1986, based on a sterile specimen sent to Kew by K. G. Pearce).

***Maclurochloa* K. M. Wong** genus novum rhizomatibus sympodialibus, inflorescentiis iterauctantibus, spicula florem terminalem vestigialem ferenti, 3 lodiculis, 6 staminibus filamentis liberis, 3 stigmatibus sessilibus, systemate ramorum a gemma unica exorienti et ramum distinctum dominantem ferenti *Bambusae* Schreber affinis, sed spicula 3–5 glumas (2 distales quam lemmata longae) tantum 2 flores ferenti, ovario apice non incrassato recedit. Typus: *Maclurochloa montana* (Ridley) K. M. Wong.

This genus can be included in the *Bambusinae* in the scheme of Soderstrom & Ellis (1987). There are, however, distinctive differences from the other genera in that subtribe. *Maclurochloa* differs from *Bambusa* in having only one or two perfect flowers in the spikelet, which also has 3–5 transitional (empty) glumes, of which the upper ones are as large as the lemma. In *Bambusa* there are more perfect flowers in the spikelet and the transitional glumes are fewer and always small in comparison with the lemmas. Also, the primary-branch bud prophyll has free margins in *Maclurochloa*, and fused margins in *Bambusa*. *Maclurochloa* differs from *Gigantochloa* in having flowers with free filaments and emarginate anther apices (in *Gigantochloa* the filaments are invariably fused and the anther apices are apiculate).

Maclurochloa also differs from *Dendrocalamus* and *Klemachloa* (which Clayton & Renvoize (1986) regard as part of *Dendrocalamus*, and Soderstrom & Ellis (1987) list as separate) in that an extended rachilla internode bearing a vestigial terminal flower is always present even though the spikelet has a reduced number of flowers, and that all paleas are keeled. The non-fleshy fruit of *Maclurochloa* immediately distinguishes it from *Dinochloa* and *Melocalamus*, which are also climbing bamboos.

The generic name commemorates Dr. F. A. McClure (1897–1970) for his pioneering analysis of the structure of the bamboo plant, the sound foundations of which now have important ramifications for understanding bamboo structure, growth and ecology. It is perhaps apt that a bamboo with repeatedly reiterative growth of the primary branch axes, allowing it to climb into tree crowns in the forest, an unusual habit which can only be understood in terms of modifications to the basic growth patterns in bamboos, be named after McClure.

***Maclurochloa montana* (Ridl.) K. M. Wong**, comb. nov.

Dinochloa montana Ridl. in J. Straits Branch Roy. Asiat. Soc. 44: 210 (1905) & in Mat. Fl. Malay. Penins. 3: 193 (1907), & in Fl. Malay Penins. 5: 267 (1925).