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A TAXONOMIC REVISION OF WILLUGHBEIA ROXB. (APOCYNACEAE)

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SUMMARY

The genus *Willughbeia* Roxb. is revised. A total of 15 species are recognised. One new combination is made. *Urnularia* Stapf is reduced to synonymy within *Willughbeia*. Species exclusae have been given as well as an index of exsiccatae.

INTRODUCTION

Willughbeia was first described by Roxburgh (1819) from a specimen collected in Chittagong, Bangladesh. However, the name turned out to be a later homonym of *Willughbeia* Scop. (1789) and the orthographic variant *Willughbaeya* Necker (1790). The latter is a synonym of, and has been rejected in favour of, *Mikania* in the Compositae and the former is a synonym of *Ambelania* Aublet in the Apocynaceae. *Willughbeia* Scop. has subsequently been rejected in favour of *Willughbeia* Roxb. following the recommendation by Green (1935). The 'genus' *Willughbeia* Klotzsch (1861) has no basis as the author published three new species which he erroneously referred to *Willughbeia* and did not give a revised description of the genus. These have subsequently been reduced to species of *Saba* Pichon and *Ancylobothrys* Pierre.

Wallich (1832) proposed the name *Ancylocladus* to encompass a possible new genus containing both *Willughbeia* and *Pacouria*. As these genera remain distinct and the rules of priority do not allow for the replacement of older names simply because genera have been united, the name *Ancylocladus* is superfluous.

Urnularia is not sufficiently distinct from *Willughbeia* to remain separate. Markgraf (1972) distinguished the two genera on the grounds that *Willughbeia* has a cylindric corolla tube and congested inflorescences which are shorter than the petioles whilst *Urnularia* has an inflated tube and elongated inflorescences, normally longer than the petiole. However, the inflated corolla tube is partly a result of the shorter length in *Urnularia* as the species of both genera have tubes inflated around the stamens. *Willughbeia anomala* Markgraf has inflorescences considerably longer than the petioles although Markgraf suggests that the inflorescence is more robust in this species compared to those species normally included in *Urnularia*. However, this is not particularly marked. There are also a number of other species where some individuals have elongated inflorescences, particularly in *W. tenuiflora* Dyer ex Hook.f., *W. cirrhifera* Abeywickr. and *W. coriacea* Wallich. *Willughbeia angustifolia* (Miq.) Markgraf

has the delicate inflorescences and short inflated corolla tubes normally characteristic of *Urnularia* species. However, it also has a very short inflorescence. *Willughbeia cirrhifera* also has an inflated corolla tube but usually has the relatively short robust inflorescence of *Willughbeia* sensu stricto. Other differences, mentioned by various authors, in stigma shape, stigmoid apex length and calyx dissection, were all found not to be different between the two genera. The stigma and stigmoid apex characters are shared by *W. angustifolia* and the calyx character simply does not hold up. *Urnularia* Stapf is a conserved name against the fungus genus *Urnularia* P. Karsten. The generic name *Willughbeiopsis* was proposed as a substitute by Rauschert (1982) before *Urnularia* Stapf was conserved.

Willughbeia has consistently been placed in the tribe Carisseae (Bentham & Hooker, 1873; Hooker, 1882; Pichon, 1948, 1950, 1953; Leeuwenberg, 1983). In addition Pichon (1948) placed it in the subtribe Willughbeiinae, initially on its own (although he recognised both *Willughbeia* and *Urnularia*), but later (Pichon, 1953) including the monotypic African genus *Cylindropsis* which he removed from the Landolphiinae. Leeuwenberg (1983) maintained this arrangement.

The greatest problem in the group is amongst those species formerly in *Urnularia*. *Willughbeia javanica, W. lanceolata, W. ovatifolia, W. beccariana* and *W. flavescens* are closely related and identification of sterile material is not always easy. There are only limited collections of fertile material for these species and *W. ovatifolia* is known from only one collection. Further collections, particularly in Borneo, Sulawesi, Sumatra and Java, are needed.

No chromosome numbers are reported for species of *Willughbeia* but, where known, all other members of the Carisseae are x = 11 (Van der Laan & Arends, 1985).

MATERIALS AND METHODS

Herbarium material was studied from the following herbaria: A, AAU, ABD, B, BKF, BM, BO, BR, BRI, C, CAL, E, FI, G, GH, K, K-W, KEP, L, M, MEL, MO, P, PNH, S, SING, TCD, U, US, Z (Holmgren et al., 1990).

The dimensions given in the descriptions are for dried material except for androecium and gynoecium characters which are measured from flowers boiled in water to reconstitute them.

SYSTEMATIC TREATMENT

WILLUGHBEIA

Willughbeia Roxb., Pl. Corom. 3 (1819) 77, t. 280, nom. cons., non Scop. (= *Ambelania* Aublet); G. Don, Gen. Syst. 4 (1837) 101; A. DC., Prod. 8 (1844) 321; Benth. & Hook. f., Gen. Pl. 2 (1873) 691; K. Schum. in Engler & Prantl, Nat. Pflanzenfam. 4, 2 (1895) 130; Pichon, Mém. Mus. Nat. Hist. Nat. n.s. 24 (1948) 153. *Willoughbeia* Hook. f., Fl. Brit. India 3 (1882) 623, orth. var. *Willoughbya* auct. plur., orth. var. *Willughbya* Merr., J. Str. Br. Roy. As. Soc. spec. no. (1921) 495, orth. var. *Willughbeia* subg. *Euwillughbeia* King & Gamble, J. As. Soc. Beng. 74 (1907) 391. *Pacuria* sect. *Willoughbya* (auct.) Kuntze in Post & Kuntze, Lex. (1904) 412. *Ancylocladus* Wallich, Pl. As. Rar. 3 (1832) 45; Kuntze, Rev. Gen. Pl. 1 (1891) 412; Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 94. *Ancistrocladus* Pierre, Bull. Soc. Linn. Paris II, 1 (1898)

100, lapsu non Wallich. *Ancylocladus* sect. *Euancylocladus* Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 94. *Willughbeia* sect. *Euancylocladus* (Pierre) K. Schum. in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 54. — *Ancylocladus* sect. *Hypoancylocladus* Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 97. *Willughbeia* sect. *Hypoancylocladus* (Pierre) K. Schum. in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. *Pacuria* sect. *Hypoancylocladus* Kuntze in Post & Kuntze, Lex. (1904) 412. — *Ancylocladus* sect. *Cyclopholis* Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 98. *Willughbeia* sect. *Cyclopholis* (Pierre) K. Schum. in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. *Urnularia* sect. *Cyclopholis* (Pierre) Pichon, Mém. Mus. Nat. Hist. Nat. n.s. 24 (1948) 155. — *Urnularia* Stapf, Hook. Ic. Pl. (1901) t. 2711, nom. cons.; Pichon, Mém. Mus. Nat. Hist. Nat. n.s. 24 (1948) 154. *Willughbeia* subg. *Urnularia* (Stapf) King & Gamble, J. As. Soc. Beng. 74 (1907) 391. *Urnularia* sect. *Urnula* Pichon, Mém. Mus. Nat. Hist. Nat. n.s. 24 (1948) 155. *Willughbeiopsis* Rauschert, Taxon 31 (1982) 556, nom. rejec. — Type species: *Willughbeia edulis* Roxb.

Woody climbers, producing latex. *Branches* lenticillate, glabrous or puberulent, bearing tendrils formed from modified inflorescences. *Leaves* opposite, those of a pair equal, entire, petiolate; colleters absent from leaf axils; blade papery to coriaceous. *Inflorescence* of axillary and, rarely, terminal cymes, often very short, appearing fasciculate; axes puberulent or glabrous; bracts small, ovate or oblong. *Flowers* 5-merous, actinomorphic. *Sepals* connate at the base; lobes free and erect or slightly reflexed; colleters absent. *Corolla*: lobes in bud overlapping to the left forming a cone or cylinder of erect lobes; tube cylindric, somewhat inflated around the stamens, or short and inflated; lobes spreading and ovate, elliptic or oblong. *Stamen* insertion variable, completely included within the tube; free from the pistil head; filament varying in length; anthers ovate to lanceolate, apex acute or obtuse, base rounded. *Disk* absent. *Ovary* single, unilocular, with 2 parietal placentas; glabrous; superior to semi-inferior; style columnar; stigma ellipsoid or cylindric; stigmoid apex as long as or longer than the stigma. *Fruit* a fleshy berry; spherical, ellipsoid or pear-shaped; few to many seeded; indehiscent. *Seed* compressed ovoid; without a coma; smooth, with a very thin endosperm and thick horny cotyledons.

KEY TO THE SPECIES

1a. Corolla tube inflated, usually ≤ 3 mm long 2
b. Corolla tube cylindric, inflated only around stamens, ≥ 3 mm long 8
2a. Peduncle brown puberulent; Java . . . . . **10. W. javanica**
b. Peduncle glabrous or sparsely white puberulent; not in Java 3
3a. Corolla tube puberulent within, only weakly inflated, lobes coming to a point in bud; stigma well developed. Sri Lanka . . . . . **4. W. cirrhifera**
b. Corolla tube glabrous within, strongly inflated, lobes forming a cylinder in bud; stigma inconspicuous. Not in Sri Lanka 4
4a. Inflorescence axis shorter than or as long as subtending petiole **1. W. angustifolia**
b. Inflorescence axis longer than subtending petiole 5
5a. Tertiary leaf venation largely obscure; leaves glaucous beneath; corolla lobes 3–3.5 mm long . . . . . **13. W. ovatifolia**
b. Tertiary leaf venation clearly visible; leaves not glaucous beneath; corolla lobes 1.4–2.8 mm long 6

6a. Lateral nerves in leaf almost perpendicular to midrib with 1–3 intercalcated veins between; leaves dull above and beneath ..... **7. W. flavescens**
b. Lateral nerves in leaf bent strongly forwards or, if not, then without intercalcated nerves and shiny above 7
7a. 18–30 flowers per inflorescence; leaves dull above, 1.4–2.8 × as long as wide **3. W. beccariana**
b. 8–15 flowers per inflorescence; leaves shiny above, 2.3–3.8 × as long as wide **11. W. lanceolata**
8a. Inflorescence brown pubescent; calyx lobes brown pubescent..... 9
b. Inflorescence glabrous or white puberulent; calyx lobes normally glabrous 12
9a. Inflorescence axis longer than the subtending petiole; leaves dull ochre beneath when dry ..... **2. W. anomala**
b. Inflorescence axis shorter or as long as the subtending petiole; leaves not dull ochre beneath when dry 10
10a. Leaves with 1 or 2 intercalcated veins parallel to the lateral nerves; stamens inserted in middle of tube ..... **12. W. oblonga**
b. Leaves with obscure tertiary venation or with veins perpendicular to the lateral nerves; stamens inserted below middle of tube 11
11a. Corolla tube > 7.5 mm long, lobes > 8 mm long; stamens inserted in lower quarter of tube; fruit pear-shaped; leaves shiny above, venation mostly obscure **15. W. tenuiflora**
b. Corolla tube < 6.5 mm long, lobes < 6.5 mm long; stamens inserted at about a third of the way up the tube; fruit spherical; leaves dull above, venation clearly visible ..... **14. W. sarawacensis**
12a. Leaves with distinct intercalcated veins between the lateral nerves 13
b. Leaves with indistinct venation or with veins perpendicular to lateral nerves and no intercalcated veins..... 14
13a. Inflorescence axis as long as or longer than the subtending petiole; pedicels glabrous; corolla tube ≤ 3.5 mm long, lobes ≤ 4.5 mm long; leaf apex long acuminate or subcaudate. Sri Lanka ..... **4. W. cirrhifera**
b. Inflorescence axis mostly shorter than subtending petiole; pedicels puberulent; corolla tube ≥ 3.8 mm long, lobes ≥ 4.5 mm long; leaf apex acuminate to rounded. India to SE Asia ..... **6. W. edulis**
14a. Leaves glaucous beneath; corolla tube 9.7–15 mm long, lobes 14–24 mm long **9. W. grandiflora**
b. Leaves not glaucous beneath; corolla tube 3–8 mm long, lobes 4–10 mm long 15
15a. Leaves thickly coriaceous; tertiary venation clearly visible perpendicular to and connected between nerves; calyx lobes < 1 × as long as wide **8. W. gigantea**
b. Leaves papery to coriaceous; tertiary venation faint or obscure; calyx lobes > 1 × as long as wide ..... **5. W. coriacea**

1. Willughbeia angustifolia (Miq.) Markgraf

Willughbeia angustifolia (Miq.) Markgraf, Blumea 20 (1972) 414. — *Vahea angustifolia* Miq., Fl. Ind. Bat. 2 (1857) 394. — Type: *Diepenhorst 2088* (U lecto; L iso).

Willughbeia apiculata Miq., Sum. (1861) 227, 551; Boerl., Handl. 2 (1899) 392; Bull. Inst. Bot. Buitenzorg 5 (1900) 6; Hallier, Jahrb. Hamb. Wiss. Anst. 17, Beih. 3 (1900) 144; Posth., Leidsche Geol. Meded. 5 (1931) 503; Heyne, Nutt. Pl. Ned. Indië ed. 2 (1927) 1272. — Type: *Diepenhorst 2140* (U lecto; L iso).

Willughbeia rufescens Dyer ex Hook. f., Fl. Brit. India 3 (1882) 326, syn. nov.; King & Gamble, J. As. Soc. Beng. 74 (1907) 398; Ridley, Fl. Mal. Pen. 2 (1923) 325. — *Ancylocladus rufescens* (Hook. f.) Kuntze, Rev. Gen. Pl. 1 (1891) 412. — *Urnularia rufescens* (Hook. f.) Stapf ex S. Moore, J. Bot. 63, Suppl. (1925) 67; Markgraf, Blumea 20 (1972) 409. — *Willughbeia flavescens* var. *rufescens* Ridley, Fl. Mal. Pen. 2 (1923) 325. — *Willughbeiopsis rufescens* (Hook. f) Rauschert, Taxon 31 (1982) 556. — Type: *Maingay 1092* (K lecto; K iso).

Willughbeia elmeri Merr., Univ. Calif. Publ. Bot. 15 (1929) 253, syn. nov.; Tsiang, Sunyatsenia 2 (1934) 94; Markgraf, Blumea 20 (1972) 414. — Type: *Elmer 21038* (BM lecto; A, BR, G, GH, K, L, M, MO, P, S, U, Z iso).

Willughbeia angustifolia var. *gracilior* Markgraf, Blumea 20 (1972) 414, syn. nov. — Type: *Endert 3562* (L lecto; A, K iso).

Woody climber to 60 m. *Branchlets* glabrous, very rarely minutely puberulent; lenticillate. *Leaves*: petiole 0.4–1.7 cm long; blade elliptic, ovate or oblong, apex obtuse to acuminate, base rounded to cuneate; 1.5–4.2 × as long as wide, 2.6–14.3 × 0.9–4.4 cm; subcoriaceaous to thickly coriaceous; glabrous; 9–24 pairs of lateral nerves at 60–85°, reaching margin or anastomosing shortly before it, tertiary venation of 1, rarely to 3, intercalcated veins and then with further reticulate venation or almost obscure. *Inflorescence* axillary, rarely up to 3 in one leaf axil; axis shorter or as long as subtending petiole, to 1.7 cm long; axes glabrous; 5–19 flowers per inflorescence; pedicel 0.8–3.7 mm long. *Sepals* ovate, apex obtuse to acuminate; 0.9–1.8 mm long, lobes 0.5–1 × 0.4–0.7 mm, 1–2.5 × as long as wide; glabrous, ciliate. *Corolla* white or greenish; tube inflated, 1.2–3 mm long, outside and inside glabrous; lobes oblong or elliptic, 1.7–4.5 mm long, glabrous. *Stamens* inserted at 0.6–1.7 mm from base, 0.40–0.63 of tube length; filaments 0.3–0.6 mm long; anthers 1.3–1.8 × as long as wide, 0.4–0.9 × 0.3–0.5 mm, ovate to elliptic. *Ovary* 0.5–0.8 mm long; style 0.3–0.5 mm long, not impressed on ovary; stigma 0.1–0.2 mm long; stigmoid apex 0.1–0.2 mm long. *Fruit* spherical; 1.9–9.9 cm diameter; pale green, yellow, orange or reddish. *Seed* 1.2–2.4 × 0.6–1.4 × 0.6–1.1 cm.

Distribution – Southern Thailand, Malay Peninsula, Borneo, Sumatra, Buru, Nicobar Islands.

Notes – This species is very variable in leaf shape, size and venation. It can readily be distinguished from the other species of *Willughbeia* by its combination of a small inflated corolla tube and short delicate inflorescence.

Four specimens, two in L and two in U, have the same collection number (*HB 990*). They represent, however, two distinct collections from Sumatra, one of *W. angustifolia* and one of *W. coriacea*. Furthermore Blume himself is not reported to have collected in Sumatra (Van Steenis-Kruseman, 1950).

Geographical selection of the c. 80 specimens studied:

INDIA. Great Nicobar Island: Laful Forest, *Hore 8720* (L).

THAILAND. Pattani, Betong, *Kerr 7683* (BM, E, K, L).

MALAYSIA. Peninsula: s.l., *Maingay 1092* (K, type of *W. rufescens*). Johor: Tg. Penawar, *Cockburn FRI 7626* (KEP, L). Kelantan: Ulu Sungei Aring, Sungei Tapah, *Cockburn FRI 7175* (L, SING). Negri Sembilan: Tampin, *Burkill 1304, 3206* (K, SING). Pahang: Bukit Teresch, Tamora Negara, *Keng et al. 42* (SING). Penang: Balik Pulau, *Ridley s.n.* (SING). Perak: *King's Col-*

lector 7848 (K). Selangor: Bukit Lagong, *Jaamat 47060* (KEP). — Sarawak: Bintulu, Similajau Forest Reserve, *Brunig S 8637* (L); Baram, Sungei Tutoh, *Chew Wee Lek 1089* (A, SING); Lanbir National Park, Miri, *Lee S 46452* (L); Ulu Mayeng, Kakus, *Luang S 21822* (SING); Kalabit Highlands, Hills near Kampong Pa Lungan, *Nooteboom & Chai 2087* (L, US); Kapit, Sungei Mengiang Balleh, *Ismawi & Jugah S 29608* (L). Sabah: Tawau Dist., Kalabakan Forest Reserve, *Bakar SAN 24957* (L); Tawau. Dist., Elphinstone Prov., *Elmer 21038* (A, BM, BR, G, GH, K, L, M, MO, P, S, U, Z; type of *W. elmeri*), *Elmer 21486* (A, B, BM, BR, GH, L, MO, P, S, U, Z); Lamag Dist., Abai Kinabatangan, *Banang SAN 51951* (SING); Lamag Dist., Lake below Gunong Lotung Inorat, *Gibot SAN 83410* (L); Kuala Penyu, Kepagan Forest Area, *Amin & Heya SAN 86325* (L); Sandakan Dist., Sepilok Forest Reserve, Hujong Taping, *Ampon & Aban SAN 73681* (K, L); Sandakan Dist., Bukit Senilakan, Ulu Mananam, *Meijer 51234* (K, L); Sandakan Dist., Kabili Forest Reserve, *Puasa 4856* (A, SING, US); Sandakan Dist., Jalan Hujong Tanjong, *Sikar SAN 39803* (L); Tongod Dist., Bukit Tinker, Kuala Keramut, *Sundaling SAN 96666* (A, L); Papar Dist., Mandahan, *Talib Bidin 80658* (C); Kuala Pengu Dist., Kepayan, *Talip SAN 50985* (L); Sipitang Dist., Sibulu River, 3.5 miles SSW of Sipitang, *Wood SAN 15258* (A, L, SING).

SINGAPORE. Changi, *Ridley 3996* (K, MEL); Sungei Jurong, *Ridley 6047* (BM); Chan chu Kang, *Ridley 6143* (BM); Mandai Road, *Kiah 37135* (A, KEP).

BRUNEI. *Ashton BRUN 845* (L, SING); Ulu Belalong, Temburong, *Ashton BRUN 440, 447* (L, SING); Belait Dist., Seria, *van Niel 4274* (L); Andalau Forest Reserve, *Sinclair & Kadim 10449* (A, E, L, SING); Badas Forest Reserve, *Vermeulen 1240* (L).

INDONESIA. Kalimantan: Tengah: Bukit Raya, *Veldkamp 8594* (L, US). Timur: Longtesak, *Wiriadinata 1215* (AAU, L). West Kutai, near Mt Kemul, *Endert 3562* (A, K, L, type of *W. angustifolia* var. *gracilior*), *3854* (B, L); East Kutai, G. Tepian Lobang, NE of Sangkulirang, *Kostermans 6037* (L). — Sumatra. Atjeh: Gunung Leuser Nature Reserve, *de Wilde & de Wilde-Duyfjes 13635* (K). Bangka: Lobok-besar, *Kostermans & Anta 129* (A, K, L, SING), *234* (A, L), *404* (A, K, L, SING). Barat: Padang, Sungeibula *Beccari 938* (BM, FI, L, MEL); Priaman, *Diepenhorst 2140* (L, U, type of *W. apiculata*), *2088* (L, U, type of *Vahea angustifolia*). Selatan: Palembang, Rawas River, *Forbes 3232* (A, L). — Buru. Wae Lang, *Nooteboom 5180* (L). — Ambon. Hitoe, *Warburg 17462* (E).

CULTIVATED. Java: Bogor Botanic Garden X.C.42.Aa (L).

2. Willughbeia anomala Markgraf

Willughbeia anomala Markgraf, Blumea 20 (1972) 415. — Type: *Wood, Smythies & Ashton SAN 17525* (L holo; BRI, K iso).

Woody climber to 20 m. *Branchlets* glabrous or sparsely rufous pubescent; branches lenticillate. *Leaves*: petiole 0.7–1.6 cm long; blade elliptic oblong, apex acuminate, base cuneate; 2.6–4.2 × as long as wide, 6–18.5 × 2.1–4.9 cm; papery to subcoriaceous; glabrous or with a few brown hairs on midrib beneath, dull ochre beneath when dry; 12–23 pairs of lateral nerves at 55–80°, reaching margin, tertiary venation faint and perpendicular to nerves, occasionally with one intercalcated vein. *Inflorescence* axillary and terminal, axis longer than subtending petiole, to 4 cm long; 4–19 flowers per inflorescence; axes rufous pubescent; pedicels 1.7–3.8 mm long. *Sepals* ovate, apex rounded, thick; 1–1.4 mm long, lobes 0.5–0.7 × 0.3–1 mm, 0.6–2 × as long as wide; rufous pubescent, ciliate. *Corolla* tube cylindric, 10–14 mm long, rufous puberulent in 5 rows down tube or glabrous, pubescent in throat; lobes oblong or elliptic 6–8.2 mm long, ciliate or not. *Stamens* inserted at 1.1–1.7 mm from base, 0.11–0.14 of tube length; filaments 0.4–0.8 mm long; anthers 2.6–2.8 × as long as wide, 1.3–1.4 × 0.5 mm, lanceolate. *Ovary* 0.6–0.9 mm; style 0.1–0.2 mm long, impressed on ovary; stigma 0.3–0.4 mm long; stigmoid apex 0.5–0.6 mm long. *Fruit* spherical; 6.6 cm diameter. *Seed* 2.6 × 1.5 × 1.3 cm.

Distribution – Borneo, Philippines (Mindanao).

Specimens studied:

MALAYSIA. Sarawak: Santubang, *Sinclair 5578* (E), *38326* (K); Bau, Kampong Kerokong, *Othman et al. S 37544* (L, MO); Kuching, G. Matang, *Smythies 12502* (L, SING).

BRUNEI. Kuala Belait, Andalau For. Res. (mislabelled Sabah), *Wood et al. SAN 17525* (BRI, K, L, type), *Nangkat NN175* (K), *Ashton BRUN 600* (K, L).

PHILIPPINES. Mindanao: Zamboanga *Lay s.n.* [BM; the label says only 'Philippines' but Van Steenis-Kruseman (1950) suggests that the above site was his only collecting locality in the Philippines].

3. Willughbeia beccariana (Kuntze ex Pierre) K. Schum.

Willughbeia beccariana (Kuntze ex Pierre) K. Schum. in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. — *Ancylocladus beccarianus* Kuntze, Rev. Gen. Pl. 1 (1891) 412, nom. nud.; Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 98. — *Urnularia beccariana* (Kuntze ex Pierre) Stapf, Hook. Ic. (1901) t. 2711: 1; Markgraf, Blumea 20 (1972) 409. — *Willughbeiopsis beccariana* (Kuntze ex Pierre) Rauschert, Taxon 31 (1982) 556. — Type: *Beccari 3764* (K lecto; FI, P iso).

Woody climber to 35 m. *Branchlets* glabrous; densely lenticillate. *Leaves*: petiole 0.8–2.4 cm long; blade broad elliptic, short acuminate, base cuneate to rounded; 1.4–2.8 × as long as wide, 7.7–17.5 × 2.5–7.2 cm; subcoriaceous to coriaceous; dull above and beneath; glabrous; 8–15 pairs of strong lateral nerves at 40–70° reaching margin, tertiary venation almost perpendicular to the midrib, oblique to the nerves, several in each space. *Inflorescence* axillary, sometimes 2 in an axil; axis longer than the subtending petiole; to 5 cm long; 18–30 flowers per inflorescence; axes glabrous or sparsely and minutely puberulent; pedicel 1.4–5.5 mm long. *Sepals* ovate, apex rounded; 1–2 mm long, lobes 0.6–1 × 0.9–1 mm, 0.67–1 × as long as wide; glabrous, ciliate. *Corolla* tube inflated, 1.8–2.8 mm long, glabrous outside and inside; lobes ovate, obtuse, 2–2.8 mm long, glabrous. *Stamens* inserted at 1.3–2.2 mm, 0.57–0.71 of tube length; filaments 0.3–0.9 mm long; anthers 1.4–3 × as long as wide, 0.7–0.9 × 0.3–0.5 mm, lanceolate to ovate. *Ovary* 0.9–1.1 mm long; style 0.5–0.9 mm long, not impressed on ovary; stigma 0.1 mm long, inconspicuous; stigmoid apex 0.1–0.2 mm long. *Fruit* spherical; 3–7 cm long, 2.2–7 cm wide; green, yellow or orange. *Seed* 1.1–1.7 × 0.7–1.1 × 0.6–0.7 cm.

Distribution – Borneo, Sulawesi.

Specimens studied:

MALAYSIA. Sabah: Mt Kinabalu: Tenom Pok, *Clemens 26209A* (BM, G, L); Mt Kinabalu, *Foster-Puasa 3607* (K); Penatoram basin, *Clemens 40197* (L); Lubok Dorat, Weron, *Sundaling SAN 78124* (K); Kota Kinabalu Dist., *Meijer 33528* (K, L); Tawau Dist., Mile 13, A.Pas Road, *Singh & Nardin 48484(a)* (L); Sandakan, Kretam For. Res., *Amin et al. SAN 96750* (K). — Sarawak: s.l. *Beccari 3764* (FI, K, P, type); Along Sungei Niah, Niah Nat. Park, 4th Div., *Yii Puan Ching S 40112* (K, MO); Ulu Kelawit, Tatau, *Ashton S 16468* (K, SING); Baram, *Hose 24* (K, P); Ulu Sungei Belaga, 7th Division, *Othman et al. S 43489* (K).

BRUNEI. Simpang 370, Jalan Muara, *Wong & Siow 557* (K, L); Temburong Dist., *Forman & Blewett 956* (K); Bukit Puan, Sungei Belait, *Sinclair 10518* (E, K, L, SING); Belait Dist., Labi, Kampung Teriam, *Nangkat NN164* (K).

INDONESIA. Kalimantan: Timur: Berau, Mt Njapa on Kelai River, *Kostermans 21354* (A, L). — Sulawesi: Utara: Bolaang Mongondow, Dumoga Bone N. P., Toraut Dam, *de Vogel & Vermeulen 6511* (K, L); Dumoga Bone N. P., Doloduo, Tumokang Lama *Whitmore & Sidiyasa 3462* (K); Dumoga Bone National Park, Gunong Mogogoipa, *de Vogel & Vermeulen 7008* (K).

CULTIVATED. Java: Bogor Botanic Garden, *van Romburgh 10* (P).

4. Willughbeia cirrhifera Abeywickr.

Willughbeia cirrhifera Abeywickr., Ceylon J. Sci., Biol. Sci. 2 (1959) 84; Huber, Fl. Ceyl. 1 (1) (1973) 8; ibid. 4 (1983) 33. — *Chilocarpus ceylanica* Wight, Ic. Pl. Ind. Or. 4 (2) (1848) 1, t. 1288. — *Willughbeia ceylanica* Thw. non Sprengel, Enum. Pl. Zeyl. (1860) 191; Hook. f., Fl. Br. India 3 (1882) 624; Trimen, Handb. Fl. Ceyl. 3 (1895) 123 (as *W. zeylanica*). — *Ancylocladus ceylanicus* Kuntze, Rev. Gen. Pl. 1 (1891) 412. — *Winchia cirrhifera* Gardner in Thw., Enum. Pl. Zeyl. (1864) 191, in synonymy of *Willughbeia ceylanica*. — Type: *Gardner 550* (K lecto; BM, BR, K, P iso).

Woody climber. *Branches* glabrous, lenticillate. *Leaves*: petiole 0.7–1.5 cm long; blade broad elliptic to obovate, apex long acuminate to subcaudate, base cuneate to obtuse; 1.6–2.8 × as long as wide, 5.4–15 × 2–6.9 cm; coriaceous; glabrous; 22–34 pairs of lateral nerves, almost reaching margin, not particularly distinct from slightly weaker parallel secondary veins and further reticulate venation. *Inflorescence* axillary, axis as long as or longer than subtending petiole, to 4.5 cm long; 3–10 flowers per inflorescence; axes glabrous; pedicels 2–4.4 mm long. *Sepals* ovate, apex rounded or obtuse; 1.8–2.5 mm long, lobes 1.1–2 × 1.1–1.3 mm, 0.7–1 × as long as wide; glabrous, ciliate. *Corolla* tube weakly inflated, 2.2–3.5 mm long, outside glabrous, inside puberulent; lobes in bud acuminate, 3.9–4.5 mm long, ends acute, glabrous. *Stamens* inserted at 1.3–2.1 mm from base, 0.43 of tube length; filaments 0.7–1.2 mm long; anthers 2.3–2.8 × as long as wide, 1–1.1 × 0.3–0.4 mm, lanceolate. *Ovary* 0.7–1 mm long; style 0.5–1.1 mm long, not impressed on ovary; stigma 0.3–0.5 mm long; stigmoid apex 0.5–0.9 mm long. *Fruit* spherical 4.3–15 cm diameter; yellow, tinged red. Seed not studied.

Distribution – Sri Lanka.

Specimens studied:

SRI LANKA. Kandy Dist., Hantane, *Gardner 550* (BM, BR, K, P); Deltota, *Thwaites 1829* (B, BR, G, K, MEL, P); Erutnagoda near Kuruwita, *Huber 17* (BM, K, US); Galle Dist., Kanneliya Forest, *Huber 62* (BM, K, US); Southern slope of Haycock, *Huber 64* (US); Sinharaja Forest, *Kostermans 26688* (G, L); across Kanneliya River near Kitulgalle, *Kostermans 28366* (K, L), *28419* (L).

CULTIVATED. Java: Bogor Bot. Gard., *Merrill s.n.* (US), *Spire 86* (P).

5. Willughbeia coriacea Wallich

Willughbeia coriacea Wallich, Pl. As. Rar. 3 (1832) 45; G. Don, Gen. Syst. 4 (1837) 102; A. DC., Prod. 8 (1844) 321; Miq., Fl. Ind. Bat. 2 (1857) 391; Hook. f., Fl. Br. India 3 (1882) 623; Ridley, Fl. Sing. (1900) 82; King & Gamble, J. As. Soc. Beng. 74 (1907) 393; Ridley, Fl. Mal. Pen. 2 (1923) 323; Tsiang, Sunyatsenia 2 (1934) 93; Markgraf, Blumea 20 (1972) 412 — *Ancylocladus coriaceus* (Wallich) Kuntze, Rev. Gen. Pl. 1 (1891) 412. — Type: *Wallich 1620* (K-W holo).

Willughbeia firma Blume, Mus. Bot. Lugd. Bat. 1 (1850) 154; Miq., Fl. Ind. Bat. 2 (1857) 390; Hook. f., Fl. Br. India 3 (1882) 624; Stapf, Trans. Linn. Soc. Lond., Bot. 4 (1894) 207; Ridley, Fl. Sing. (1900) 82; Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 4; King & Gamble, J. As. Soc. Beng. 74 (1907) 394; Ridley, J. Str. Br. Roy. As. Soc. 59 (1911) 129; Fl. Mal. Pen. 2 (1923) 323; Tsiang, Sunyatsenia 2 (1934) 93; Kerr, Fl. Siam. En. 2 (1939) 424; Backer & Bakh. f., Fl. Java 2 (1965) 224. — *Ancylocladus firmus* (Blume) Kuntze, Rev. Gen. Pl. 1 (1891) 412. — Type: *Korthals 1042* (L holo).

Willughbeia firma var. *oblongifolia* Blume, Mus. Bot. Lugd. Bat. 1 (1850) 154. — Type: *Korthals s.n.* (L holo).

Willughbeia burbidgei Dyer, Kew Gardens Report (1880) 44. — Type: *Treacher s.n.* (K holo).
Ancylocladus vriesianus Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 95. — *Willughbeia vriesiana* (Pierre) K. Schum. in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. — Type: *de Vriese s.n.* (L lecto; P iso).
Ancylocladus minutiflorus Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 95, — *Willughbeia minutiflora* (Pierre) K. Schum. in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. — Type: *Beccari 4030* (K lecto; FI, P iso).
Ancylocladus nodosus Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 96. — *Willughbeia nodosa* (Pierre) K. Schum. in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. — Type: *Beccari 1530* (K lecto; FI, M, P iso).
Willughbeia firma var. *macrophylla* Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 4. — Type; *van Romburgh 54* (BO holo; TCD photo).
Willughbeia firma var. *platyphylla* Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 4. — Type: *van Romburgh 9* (BO lecto; BO iso; TCD photo).
Willughbeia firma var. *obtusifolia* Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 4. — Type: *van Romburgh 48* (type not located).

Large climber to 30 m. *Branches* mostly glabrous, very rarely puberulent; lenticillate. *Leaves*: petiole 0.6–4 cm long; blade elliptic, ovate, oblong or obovate, apex shortly acuminate to acute, base cuneate to rounded; 1.6–5.2 × as long as wide, 3.3–29 × 1.4–10.4 cm; papery to coriaceous; shiny above and beneath; mostly glabrous, very rarely puberulent on midrib beneath; 6–20 pairs of lateral nerves at 50–80° curving towards but not reaching margin, tertiary venation mostly obscure, sometimes faint and then perpendicular to the nerves. *Inflorescence* axillary, very rarely terminal; axis usually shorter than the subtending petiole, very rarely longer, to 3 cm long; 3–25 flowers per inflorescence; axes mostly glabrous, rarely minutely and sparsely puberulent; pedicel 0–5.3 cm long. *Sepals* oblong or ovate, apex rounded or obtuse; 1.5–4 mm long, lobes 0.8–3.3 × 0.6–1.9 mm, 1.1–2.5 × as long as wide; glabrous, ciliate. *Corolla* white or yellow, rarely tinged with red; tube cylindric, 3.5–8 mm long, outside glabrous, inside puberulent; lobes oblong, 4–10 mm long, ciliate or not. *Stamens* inserted at 1.5–2.7 mm from base, 0.31–0.51 of tube length; filaments 0.4–0.7 mm long; anthers 2–4 × as long as wide, 0.8–1.2 × 0.2–0.5 mm; lanceolate. *Ovary* 0.3–1.1 mm long; style 0.4–1.1 mm long, not impressed on ovary; stigma 0.2–0.5 mm long; stigmoid apex 0.3–0.9 mm long. *Fruit* spherical, pear shaped, oblong or ellipsoid; 2.6–12 cm long, 1.7–7 cm wide; green, yellow or orange. *Seed* 1.3–1.8 × 0.7–1.3 × 0.7–1.1 cm.

Distribution – Southern Thailand, Malay Peninsula, Sumatra, Java, Borneo.

Ecology – Climber in primary or secondary forest to 1600 m.

Geographical selection of the c. 220 specimens studied:

THAILAND. Surat Thani: Khao Nong, *Kerr 13234* (AAU, BM, E, K, P). Krabi: Nong Khon, *Sangkhachand 1031* (K, L). Nakhon Si Thammarat: Khao Luang, *van Beusekom & Phengkhlai 793* (E, K, L); Lansagah, Gahrome Falls, *Ramsri 102* (A, L). Pattani: Banang Sta., *Kerr 7415* (BM, E, K, L), *7386* (A, ABD, BM, E, K, L, P, TCD).

LAOS. Pak Munung, Wieng Chan, *Kerr 21206* (BM, K, L).

MALAYSIA. Peninsula: Penang: s.l., *Ridley s.n.* (Z), *Curtis s.n.* (SING), *1500* (CAL, SING); Wellesley, *Askey 1613* (SING); Government Hill Road, *Curtis s.n.* (SING); Government Hill, *Ridley 847* (SING); Balik Pulau, *Ridley s.n.* (SING); Penang Hill, *Ridley 9359* (SING). Kelantan: Tawah Mervah, *Muton 94531* ((KEP); Pasir Lalut, K. Lebir, *Gimlette s.n.* (SING). Perak: s.l., *Wray 3028* (SING), *4176* (CAL, K, SING), *King's Collector 10050* (SING), *10854* (Z); Lenggong,

Chan FRI 13348 (SING); Kensing, *Wray 59* (SING); Larut, Waterfall Hill, *Wray s.n.* (SING), *5* (K, SING); Larut, *King's Collector 5331* (K, MEL, P); Taiping Hill, *Haniff & Nur 2396* (SING); Hutan Simpan Tanjong Tuallang, *T. & P. 1066* (L, SING). Pahang: S.Sat, Ulu Tembeling, *Henderson 21955* (SING). Selangor: Selangor Forest, *Burkill 529* (SING); Kuala Lumpur, Bukit Lagong, *Achmad 99030* (K, KEP, L); Tanah Merah, Kemahan For. Res., *Sow KEP 94531* (K, L, SING); Buloh For. Res., *Kochummen FRI 16041* (A, K, L, SING); Ulu Langat, Bukit Tangkol, K. Pansom, *Umbai KL 1585* (A, SING). Trengganu: Kemaman, *Symington 26968* (KEP); Kuala Trengganu, *David 208* (P). Negri Sembilan: *Haynes et al. 1699* (KEP); Port Dickson, *Purseglove P. 4343* (K, L, SING), Rantau, *Alvins 2300* (SING). Malacca: s.l., *Ridley 399* (K, L). Johor: Summit of Gunong Panti, *Maxwell 81-127* (AAU, L, SING); Ayer Panas, *Curtis 3485* (K, SING), *3476* (K, SING); Ma'okil For. Res., *Shah MS 3676* (KEP, SING). — Sarawak: s.l. *Beccari 1530* (FI, K, M, P, type of *Ancylocladus nodosa*), *4030* (K, G, P, type of *Ancylocladus minutiflora*); Lawas River, Menoongan, *Treacher s.n.* (K, type of *W. burbidgei*); Dulit Range, S Tinjar *Awa & Yii S 46789* (K); Kuching, *Haviland 2168* (BM, SING), *Haviland & Hose 3492* (BM, GH, K, L); Kuching, Semengoh Arboretum, *Kudi S 31888* (K, L, SING); Similajan For. Res., *Burley & Lee 270* (L, SING); Sungei Tan *Purseglove P. 5422* (A, L, SING); Base of Bukit Lambir, Miri, *Othman Haron S 21383* (A, K, L, SING); Path from Kpg Seropak to Bugoh Range, Bau, *Paie & Mamit S 29599* (A, E, K, L, SING); Santubong Foothills, *Chew Wee Lek 1433* (A, AAU, K, L, SING); Kapit Dist., Bkt Raya, *Soepadmo et al. S 27634* (A, K, L, SING); Kapit Dist., Foothills of Bukit Batu Tibang, *Anderson & Paie S.28509* (A, E, K, L); Kapit Dist., Sungei Balang *Anderson & Paie S 28884* (A, K, L); Mt Gading, Lundu, *Haviland 989* (BM, K, SING); Kalabit Highlands, Batu Lawi, *Nooteboom & Chai 2333* (B, L, US); Apa Batu Buli, *Nooteboom & Chai 2185* (L, US); Bukit Salong, Ulu Sampuran, Melinau, Kapils, *Manis & Salang S 41631* (K, L); Sungei Medamit, Limbang, *Wright & Ismawi S 32207* (K, L, SING). — Sabah: Temburong, Kuala Belalong, *Smythies et al. SAN 17074* (A, K, L); Tawau, Hap Seng, Sri Usukan, *Fedilis & Sumbing SAN 88475* (L), *SAN 89116* (L); Tawau, Kalabakan *Wood SAN A4041* (A, L, SING); Kg Kayo Madang, *Evangelista 2534 (272)* (SING); Lahad Datu, Pulau Kerning, Kretam Beasr River, Kretam, *Wood SAN A3500* (L, SING); Mt Kinabalu, Dallas, *Clemens 26063* (A, G, L, SING); Kinabalu, Penibukan, *Clemens 31026* (A, B, BM, G, K, L); Kinabalu, below path to Ranau, *Carr SFN 27086* (SING); Kinabalu, Mesilau River, *Chew & Corner RSMB 4888* (K, SING); Sandakan, *Ramos 1755* (GH, L, US), *1756* (A, K), *1757* (P), *1758* (A, BM, SING).

SINGAPORE. s.l., *Ridley 2712* (BM, L, MEL), *Gandoger s.n.* (MO). MacRitchie Reservoir, *Maxwell 76-789* (AAU, L), *77-101* (AAU, L), *Sinclair 7997* (E), *4906* (E), *40219* (E, L); Bukit Timah Reserve, *Leeuwenberg 13343* (L, WAG); Changi, *Ridley 4431* (BM, K, MEL).

BRUNEI. Ulu Senuko, Labu, *Ashton BRUN 3349* (L, SING).

INDONESIA. Kalimantan: Timur: Belayan R. near Long Bleh, *Kostermans 10377* (L), *10403* (L), Belayan River, G. Kelopok, near Tabang, *Kostermans 10595* (K, L), *10653* (A, K, L, SING); 7 km N of Samarinda, *Leeuwenberg & Rudjiman 13032* (L). Selatan: Bank of R. Lawa, *Winkler 3152* (K, G, L, P, SING, Z); Tanah Laut Dist., Hutan Kintop, *Leeuwenberg & Rudjiman 13384* (L). Tengah: Bukit Raya, *Nooteboom 4355* (A, L). Barat: *Endert 4991* (L); Headwaters of S Kahayan, 5 km NE of Haruwu Village, *Burley et al. 649* (A, E, L, SING). — Simeulue: Tapah, *Achmad 1652* (L). — Sumatra: s.l., *Korthals s.n.* (L, type of *W. firma* var. *oblongifolia*); *Korthals 1042* (L, type of *W. firma*); *de Vriese s.n.* (L, P, type of *Ancylocladus vriesianus*), *4b* (L); *HB 990* (see note under *W. angustifolia*). Utara: Asahan, Huta Padang, *Krukoff 4329* (A, BR, G, L, MO, SING, US). Riau: P. Lingga, Pasirpangarayan, *Bünnemeijer 6972* (K, L, P, U); vicinity of Taloen na oeli, Toba, *Rahmat si Boeea 11091* (L). Barat: Pajakumbuh, Mt Sago, *Ichlas 43* (K, L), *Meijer 4664* (L); Sijunjung, *HB 1168* (U). Selatan: Palembang, *Grashoff 886* (L); Palembang, Macara Bliti, *Karehakar ex Heyne s.n.* (L); Palembang, Lematang Veloe, *Lambach 1355* (L). Bangka: *Oedioel 10* (L); *Kekoelek 5* (L); G. Maras, *Kostermans & Anta 1343* (K, L, P, SING). Lampung: Way Kambas, *Mochtar s.n.* (L). — Java: s.l., *MEL 1605384*. Barat: Banten, Hinterland of Sanghijang, *Adelbert 295* (G, K, L, P, SING, US).

CULTIVATED. Java: cultivated, *Schiffner 19* (L, Z); *Kawakami 20388* (A). Sumatra: Lampang, *Leembraggen s.n.* (K).

6. Willughbeia edulis Roxb.

Willughbeia edulis Roxb., Pl. Corom. 3 (1819) 77, pl. 280; Roxb., Fl. Ind. 2 (1832) 57; Wallich, Pl. As. Rar. 3 (1832) 45; Blume, Bijdr. (1826) 1024; G. Don, Gen. Syst. 4 (1837) 101; A.DC., Prod. 8 (1844) 321; Miq., Fl. Ind. Bat. 2 (1857) 391; Kurz, J. As. Soc. Beng. 46 (1877) 249; For. Fl. Br. Burma 2 (1877) 165; Hook. f., Fl. Br. India 3 (1882) 623; King & Gamble, J. As. Soc. Beng. 74 (1907) 392; Ridley, Fl. Mal. Pen. 2 (1923) 323; Kerr, Fl. Siam. En. 2 (1939) 423; Backer & Bakh. f., Fl. Java 2 (1965) 224; Rao, J. Econ. Taxon. Bot. 6 (3) (1985) 725. — *Ambelania edulis* (Roxb.) J. Presl, Wseob. Rostlin 2 (1846) 1065. — *Ancylocladus edulis* (Roxb.) Kuntze, Rev. Gen. Pl. 1 (1891) 412; Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 94. — Type: Plate 280 in Roxb., Pl. Corom. (1819) 3. This is a drawing of a plant from Chittagong in Bangladesh.

Willughbeia martabanica Wallich, Pl. As. Rar. 3 (1832) 45, t. 2722; G. Don, Gen. Syst. 4 (1837) 102; A. DC., Prod. 8 (1844) 321; Kurz, J. As. Soc. Beng. 46 (1877) 249; For. Fl. Br. Burma 2 (1877) 165; King & Gamble, J. As. Soc. Beng. 74 (1907) 395; Ridley, J. Str. Br. Roy. As. Soc. 59 (1911) 129. — Type: *Wallich 1619* (K-W lecto; BM, K-W, K iso).

Pacouria gudara Buch.-Ham. ex Wallich, Cat. (1829) 4465, nom. nud. — *Willughbeia gudara* Steudel, Nom. Bot. 2 (1841) 787, nom. nud. — *Palicouria gudara* Steudel, Nom. 2 (1841) 787, in syn. lapsu. — Type: *Wallich 4465* (K-W).

Pacouria roxburghii Kostel., Allg. Med.-Pharm. Fl. 3 (1834) 1070.

Willughbeia dulcis Ridley, Trans Linn. Soc. Lond. II, 3 (1893) 319, syn. nov.; Ridley, Fl. Mal. Pen. 2 (1923) 325; Kerr, Fl. Siam. En. 2 (1939) 423; Markgraf, Blumea 20 (1972) 414. — Type: Untraced (collector probably Ridley; collection locality Pramau, near Pekan, East coast of Malay Peninsula).

Ancylocladus cochinchinensis Pierre, Bull. Linn. Soc. Paris II, 1 (1898) 97, syn. nov. — *Willughbeia cochinchinensis* (Pierre) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55; Pitard, Fl. Gén. Indo-Chine 3 (1933) 1094; Kerr, Fl. Siam. En. 2 (1939) 423; Ly, Fedde Rep. 97 (1986) 420. — Type: *Pierre 138* (K lecto; A, BR, L, MO, P, SING, US iso).

Ancylocladus curtisianus Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 97, syn. nov. — *Willughbeia curtisiana* (Pierre) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. — Type: *Curtis s.n.* (P holo).

Woody climber. *Branches* glabrous, lenticillate. *Leaves*: petiole 0.6–1.9 cm long; blade elliptic or oblong, apex acuminate to rounded, base cuneate to rounded; 1.3–5 × as long as wide, 3.2–25 × 1.2–11.5 cm; papery or subcoriaceous; glabrous; 9–28 pairs of lateral nerves at 50–80°, usually reaching margin, tertiary venation reticulate or with one intercalcated vein. *Inflorescence* axillary, sometimes two in a single leaf axis, axis mostly shorter than subtending petiole, to 2.8 cm long; 3–12 flowers per inflorescence; axes puberulent at least in upper parts; pedicels 0.5–3 mm long. *Sepals* ovate, apex rounded, rarely acute or obtuse; 1.8–2.7 mm long, lobes 1.1–1.9 × 0.8–1.7 mm, 0.7–2 × as long as wide; glabrous, ciliate. *Corolla* tube cylindric, 3.8–6.5 mm long, outside glabrous, inside puberulent; lobes oblong, 4.5–15 mm long, ciliate or not. *Stamens* inserted at 1.9–3.3 mm from base, 0.35–0.73 of tube length; filaments 0.4–0.7 mm long; anthers 1.7–4.3 × as long as wide, 1–1.4 × 0.3–0.6 mm; lanceolate or elliptic. *Ovary* 0.6–1.4 mm long; style 0.6–1.7 mm long, not impressed on ovary; stigma 0.2–0.4 mm long; stigmoid apex 0.6–0.9 mm long. *Fruit* spherical or oval; 1.7–5.8 cm long, 1.2–5.8 cm wide, yellow or orange. *Seeds* 6–16 × 4–13 × 3–6 mm.

Distribution – Nicobar Islands, India, Bangladesh, Burma, Thailand, Vietnam, Cambodia, Laos, Malay Peninsula.

Geographical selection of the c. 70 specimens studied:

INDIA. Tripura, Teliamur, *Deb 2272* (CAL).

BANGLADESH. Chittagong, *King's Collector 508* (CAL, SING), *Hook.f. & Thomson s.n.* (K), *Lister 400* (CAL); Sylhet, *Wallich 9066* (K, K-W).

BURMA. Martaban, *Wallich 1619* (BM, K, K-W, type of *W. martabanica*); Rangoon, *McLelland s.n.* (GH, K, P), *Ker-Edie s.n.* (K), *Nisbet s.n.* (K); Pegu, Irrawady & Sittang Valley, *Shettell s.n.* (ABD); Tenasserim, Pandung, *Gallatly 651* (CAL).

THAILAND. Si Sa Ket: Kantaralak, Lalie, Chang Bat Lak, *Maxwell 76-203* (AAU, L); Kanthalak, *Phengkhlai 935* (BKF). Kanchanaburi: Wang Ka, *Kerr 10334* (A, AAU, ABD, BM, E, K, L, P); Lieuw Long Hill near Khao Ngi Yai, *van Beusekom & Phengkhlai 437* (AAU, BKF, C, E, K, L). Saraburi: Muang Dist., Sahm Lahn forest, *Maxwell 74-835* (AAU). Prachin Buri: Aranyapratet, *Put 3100* (ABD, BM, K, L, P, TCD). Chon Buri: Si Racha, *Collins 510* (BM, E, K, TCD, US), *861* (K, US), *897* (A, AAU, ABD, E, K, L, P, US), *1139* (BM, E, K, L, P, US), *1533* (K); Si Racha, Khao Kieo, *Maxwell 76-379* (AAU, L). Rayong: s.l., *Put 2692* (A, ABD, BM, E, K, L); Ban Pe, *Put 2699* (BM, K, P), *Soejarto et al. 6032* (L). Chanthaburi: Lem Sing, *Kerr 6948* (A, ABD, BM, K); Khao Sabab, *Seidenfaden 2681* (C), *Put 913* (A, ABD, BM, E, K, L, P, TCD). Trat: s.l., *BKF 6236*; Ko Chang, Sulak Kawk, *Kerr 6894* (A, ABD, BM, K); Ko Chang, Laem Ngop, *Sangkhachand 368* (BKF, K, L); Khao Saming, *Noe 41* (A, ABD, B, E, K, L, MO, P, TCD). Satun: Ko Terutao, *Kerr 14217* (A, ABD, BM, CAL, E, K, L, P). Songkhla: *Kerr 14811* (A, ABD, E, K, L).

CAMBODIA. Phnom Penh forest, *Bejaud 21* (P, WAG); Dangrek Mts, near Cheom Khsam, *Poilane 14901* (P, WAG).

VIETNAM. Xa-cam around Thon-than, near Hon-quan, *Evard 801* (A, K, P); Prov. Bien-hoa, Mt Dinh, near Baria, Bao-chiang, *Pierre 138* (A, BR, K, MO, L, P, SING, US, type of *W. cochinchinensis*); Prov. Haut Donaï, Station Agricole de Blao, *Poilane 84* (P, WAG), *22464* (P).

LAOS. Upper Tohepone River between Sa Mui and A Pril, *Poilane 13471* (P).

MALAYSIA. Johor: Kota Tinggi, Nam Heng Estate, *Teruya 215* (SING). Malacca: Akar Gitam, *Alvins 1146* (SING). Penang: *Curtis s.n.* (P, type of *Ancylocladus curtisianus*). Pahang: Ulu Rompin, *Yeob 3187* (K, KEP, SING); Kuala Tembeling, *Burkill & Haniff 16058* (SING); Sungei Aur Reserve, *Whitmore FRI 3662* (L, SING).

SINGAPORE. Tampinin, *Burkill s.n.* (K); Pasir Ris, *Sinclair 40240* (E, L).

7. Willughbeia flavescens Dyer ex Hook. f.

Willughbeia flavescens Dyer ex Hook. f., Fl. Brit. India 3 (1882) 625; Ridley, Fl. Sing. (1900) 83; King & Gamble, J. As. Soc. Beng. 74 (1907) 397. — *Chilocarpus flavescens* Dyer, Kew Gard. Rep. (1880) 47, nom. nud. — *Ancylocladus flavescens* Kuntze, Rev. Gen. Pl. 1 (1891) 412. — *Urnularia flavescens* (Hook. f.) Stapf, Hook. Ic. (1901) t. 2711: 2; Whitm., Tree Fl. Mal. 2 (1973) 5. —*Willughbeiopsis flavescens* (Hook. f.) Rauschert, Taxon 31 (1982) 556. — Type: *Murton 120* (K lecto; K iso).

Ancylocladus beccarii Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 98, syn. nov.— *Willughbeia beccarii* (Pierre) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. — *Urnularia oblongifolia* Stapf, Hook. Ic. (1901) t. 2711: 2. — *Willughbeia stapfii* Merr., J. As. Soc. Mal. 1 (1923) 29. — *Urnularia beccarii* (Hook. f.) Markgraf, Blumea 20 (1972) 409. — *Willughbeiopsis beccarii* (Pierre) Rauschert, Taxon 31 (1982) 556. — Type: *Beccari 2272* (K lecto; FI, G, M, P iso). (It would appear that Stapf described *Urnularia oblongifolia* without realising that Pierre had already described *Ancylocladus beccarii* based on a duplicate of the same material.)

Melodinus cymosus Ridley, J. Fed. Mal. St. Mus. 10 (1920) 146. — Type: *Burkill 789* (K lecto; SING iso).

Climber to 30 m. *Branches* glabrous or, more rarely, sparsely and minutely puberulent; lenticillate. *Leaves*: petiole 0.6–1.8 cm long; blade elliptic to oblong, apex acuminate to subcaudate, base rounded to cuneate; 1.8–3.3 × as long as wide, 3.9–16.5 × 1.9–6.2 cm; subcoriaceous or coriaceous; dull above and beneath; glabrous; 13–30

pairs of lateral nerves at 70–80°, not clearly distinct from the 1–3 intercalcated parallel veins. *Inflorescence* axillary; axis longer than subtending petiole, to 5.3 cm long; 11–17 flowers per inflorescence; axes mostly glabrous, rarely sparsely and minutely puberulent; pedicel 0.8–5 mm long. *Sepals* ovate, apex rounded or obtuse; 0.8–1.7 mm long, lobes 0.7–1.3 × 0.7–1.2 mm, 0.7–1.7 × as long as wide; glabrous, ciliate. *Corolla* yellow or yellow becoming red; tube inflated, 1.7–3.5 mm long, outside and inside glabrous; lobes ovate or elliptic, 1.4–2.8 mm long. *Stamens* inserted at 1.3–2.5 mm from base, 0.54–0.69 of tube length; filaments 0.3–1 mm long; anthers 1.2–2.3 × as long as wide, 0.5–0.7 × 0.3–0.5 mm; ovate or elliptic. *Ovary* 0.6–1.1 mm long; style 0.7–1.1 mm long, not impressed on ovary; stigma 0.1 mm long, indistinct; stigmoid apex 0.2–0.3 mm long. *Fruit* spherical; 2.5–5 cm diameter. *Seed* oval 2.2 × 1.7 × 0.9 mm.

Distribution – Malay Peninsula, Sumatra, Borneo.

Specimens studied:

MALAYSIA. Peninsula: s.l., *Hervey s.n.* (K). Selangor: Selangor forest, *Burkill 789* (K, SING, type of *Melodinus cymosus*). Pahang: Aur forest, *Whitmore FRI 3633* (KEP); Ulu Kran, G. Benom Game Reserve, *Rahim Ismail 100103* (A, K, L, SING). Malacca: Bukit Sedanan, *Goodenough 1450* (SING). Perak: Larut, *King's Collector 7286* (K). — Sarawak: *Beccari 2272* (K, FI, G, M, P, type of *Ancylocladus beccarii*); Nanga Berkakap, Sungei Melatai, Batang Balleh, 7th Div., *Yii Puan Ching S 48413* (MO); Serian Dist., Balai Ringin P. F., *Muas 13360* (K); Ulu Sungei Labau, Lambir Hills, *Ilias & Yeo S 38416* (L); Gunung Buri, 75th Mile, *Martin & Ismawi S 36919* (L); Bukit Sekara, Balleh, Kapit, 7th Div., *Othman et al. S 41465* (K, L, MO).

SINGAPORE. *Murton 120* (K, type), *Ridley 12564* (SING); Garden Jungle, *Ridley 6936* (BM, E, K, P), *10723* (E), *16936* (E); Jurong Road, *Corner 26162* (K); Bukit Timah Reserve, *Ngadiman 36372* (A, KEP).

BRUNEI. Kuala Belait, Andalau For. Res., *Smythies et al. SAN 17467* (L, SING).

INDONESIA. Kalimantan: Tengah: Permantang, Kualakuayan, *Alston 13410* (A, BM, L, SING). — Sumatra: Riau: Pakanbaru, Tenajan River, *Soepadmo 141* (A, BM, E, L, MO, SING).

8. Willughbeia gigantea (Boerl.) Markgraf

Willughbeia gigantea (Boerl.) Markgraf, Blumea 20 (1972) 413. — *Leuconotis gigantea* Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 8; Markgraf, Blumea 20 (1972) 413. — Type: *van Romburgh 79* (BO holo; TCD photo).

Leuconotis gigantea var. *ovalis* Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 8. — Type: *van Romburgh 34* (L lecto; BO iso; TCO photo).

Leuconotis gigantea var. *crassifolia* Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 8. — Type: *van Romburgh 53* (BO holo; TCD photo).

Large woody climber to 30 m. *Branches* glabrous, lenticillate. *Leaves*: petiole 1.8–5 cm long; blade ovate, elliptic or obovate, apex short acuminate to rounded, base obtuse to rounded; 1.6–2.1 × as long as wide, 10.5–24 × 6.6–12 cm; thickly coriaceous, brown velvety or smooth beneath; 7–15 pairs of lateral nerves at 50–70° ascending to and reaching margin, tertiary venation almost perpendicular and connecting between nerves. *Inflorescence* axillary; axis shorter than subtending petiole, robust, 1.5–2.5 cm long; 12–17 flowers per inflorescence; axes glabrous or puberulent; pedicel 2 mm long. *Sepals* ovate, apex rounded, very thick; 1.5 mm long, lobes 1 × 1.5 mm, 0.7 × as long as wide; glabrous or weakly puberulent, weakly ciliate. *Corolla* yellowish white; tube cylindric, 3–4 mm long, outside glabrous, inside puberulent; lobes ob-

long, 4–6 mm long, glabrous or ciliate. *Stamens* inserted at 2.1 mm from base, 0.42 of tube length; filaments 0.8 mm long; anthers 2.7 × as long as wide, 1.6 × 0.6 mm; narrow lanceolate. *Ovary* 0.7 mm; style 0.5 mm long, not impressed on ovary; stigma 0.5 mm long; stigmoid apex 0.6 mm long. *Fruit* not seen.

Distribution – Sumatra, Borneo.

Ecology – Reported from primary forest.

Specimens studied:

INDONESIA. Sumatra: Sibolangit, *Lörzing 8454* (L). Riau: Pakanbaru, Tenajan R., *Soepadmo 224* (A, E, K, L, S, SING). — Kalimantan: Kophiang, *van Romburgh 34* (L, type of *Leuconotis gigantea* var. *ovalis*). Utara: near Aek Moente, Asahan, *Rahmat si Booea 9313* (A, L).

BRUNEI. Ulu Lumut, Andalau For. Res., *Ashton BRUN 2633* (K, L, SING).

9. Willughbeia grandiflora Dyer ex Hook. f.

Willughbeia grandiflora Dyer ex Hook. f., Fl. Brit. India 3 (1882) 625; Ridley, Fl. Sing. (1900) 83; King & Gamble, J. As. Soc. Beng. 74 (1907) 392; Ridley, Fl. Mal. Pen. 2 (1923) 322; Tsiang, Sunyatsenia 2 (1934) 94; Markgraf, Blumea 20 (1972) 411. —*Ancylocladus grandiflorus* (Hook. f.) Kuntze, Rev. Gen. Pl. 1 (1891) 412. — Type: *Maingay 1047* (L lecto; K iso).

Ancylocladus glaucinus Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 98. — *Willughbeia glaucina* (Pierre) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55. — Type: *Beccari 3335* (K lecto; A, FI, P iso)

Large woody climber to 40 m. *Branchlets* usually minutely and sparsely puberulent, more rarely glabrous; branches lenticillate. *Leaves*: petiole 1–3.1 cm long; blade elliptic to obovate, apex short acuminate to rounded, base rounded to obtuse; 1.4–2.5 × as long as wide, 3.7–16 × 2.1–8.7 cm; thickly coriaceous; glaucous beneath; glabrous or minutely and sparsely puberulent on midrib beneath; 5–11 pairs of strong lateral nerves at c.60–70°, curving towards but not reaching margin, tertiary venation extending between lateral nerves and meeting in a network of veins. *Inflorescence* axillary; axis shorter than subtending petiole; to 5 cm long; 8–20 flowers per inflorescence; axes minutely puberulent or glabrous on peduncle; pedicel 1.6–2.8 mm long. *Sepals* ovate, apex rounded or obtuse, often undulate edged or slightly reflexed; 1.9–2.6 mm long, lobes 1.1–1.6 × 1.2–2 mm, 0.7–1.1 × as long as wide; puberulent, ciliate. *Corolla* white, cream or greenish; tube cylindric, 9.7–15 mm long, outside glabrous, inside puberulent around stamens; lobes oblong, 14–24 mm long, glabrous. *Stamens* inserted at 2.6–3.8 mm from base, 0.15–0.37 of tube length; filaments 0.2–0.5 mm long; anthers 2.5–3.5 × as long as wide, 1.4–2 × 0.4 mm; narrow lanceolate. *Ovary* 0.5–1 mm long; style 0.8–1.2 mm long, not impressed on ovary; stigma 0.4–0.5 mm long; stigmoid apex 1–1.3 mm long. Immature fruits spherical.

Distribution – Southern Thailand, Malay Peninsula, Borneo.

Ecology – Reported only from peat swamp forest.

Specimens studied:

THAILAND. Narathiwat: Paa Ye, Su Ngi Paadee, *Niyomdham & Ueachirakan 1821* (AAU, C, K, L); Bungei Padi, Ban Yuan Yahng, *Maxwell 87-588* (A, AAU, E).

MALAYSIA. Peninsula: s.l., *Maingay 1047* (K, L, type), *2930* (K). Johor: Kampong Hubong, Endau, *Kadim & Noor KN 320* (A, K, L, SING); 53 km from Johor Baru towards Mersing, *T. & P. 1129* (L, SING). Selangor: Sungai Tinggi, Kuala Selangor, *Nur SFN 34094* (K, L, SING). — Sara-

wak: s.l., *Beccari 3335* (A, FI, K, P, type of *W. glaucina*); Sibu, Naman For. Res., *Sanusi & Tahir 9764* (K, L, SING); Ulu Selayar, 6th Div., *Mamit S 37500* (K, L); Terio, Btg Lupor *Sitam S 19663* (K, L); Binatang Dist., Sungei Semulun, Pudau Bruit, *Anderson S 12893* (K, L); Sungei Matalau, Lassa, Rejang Delta, *Anderson S 25554* (A, K, L); Kuching, *Haviland 2301* (BM, K, L, SING); Bintulu, *Haviland 3045* (K, L, P, SING). — Sabah: Keningau Dist., Tulik Road, Sook Plan, *Adam 49633* (K).

INDONESIA. Sumatra: Atjeh: P. T. Hargas logging concession, S of Road Sibulassalam–Gelambang, *de Wilde & de Wilde-Duyffes 20513* (L). Riau: Shore of Lake Pulau Besar between Siak & Kumpor rivers, *Laumonier 6514* (L).

10. Willughbeia javanica Blume

Willughbeia javanica Blume, Bijdr. (1826) 1024. — *Ancylocladus javanicus* (Blume) Kuntze, Rev. Gen. Pl. 1 (1891) 412. — *Urnularia javanica* (Blume) Stapf, Hook. Ic. (1901) t. 2711: 2; Backer & Bakh. f., Fl. Java 2 (1965) 224; Markgraf, Blumea 20 (1972) 410. — *Willughbeiopsis javanica* (Blume) Rauschert, Taxon 31 (1982) 556. — Type: *Blume 881* (L holo).

Woody climber. *Branchlets* glabrous; lenticillate. *Leaves*: petiole 0.5–1.1 cm long; the blade elliptic or ovate, apex acuminate, base acute to cuneate; 1.9–2.9 × as long as wide, 4.5–7.7 × 1.7–3.5 cm; subcoriaceous or coriaceous; shiny above, dull beneath; glabrous; 11–18 pairs of lateral nerves at 65–75°, not very distinct from veins, reaching margin, with 1 or 2 intercalcated veins and also oblique veins almost perpendicular to the midrib. *Inflorescence* axillary or terminal; the axis as long as or longer than subtending petiole, to 2 cm long; 5–12 flowers per inflorescence; axes sparsely and minutely brown puberulent; pedicel 0.5–1.5 mm long. *Sepals* ovate, apex rounded; 1–1.2 mm long, lobes 0.7–0.9 × 0.7–1.2 mm, 0.75–1 × as long as wide; glabrous, ciliate. *Corolla* tube inflated, 1.3–3 mm long, glabrous outside and inside; lobes ovate or elliptic, 1.2–2.7 mm long, glabrous. *Stamen* insertion at 1.5–1.8 mm from base, 0.5–0.72 of tube length; filaments 0.5 mm long; anthers 1.2–2 × as long as wide, 0.5–0.7 × 0.3–0.4 mm, ovate. *Ovary* 0.6–1 mm long; the style 0.8–1 mm long, not impressed on ovary; stigma 0.1 mm long; stigmoid apex 0.1–0.2 mm long.

Distribution – Java.

Note – Markgraf identified a number of sterile specimens with large leaves as youth forms of this species. However, there is no direct evidence of the relationship either on the specimens or in the literature so these specimens are not included in this description. Further fieldwork is needed to show the range of variation in leaf shape and venation although, as all the herbarium specimens of this species are nineteenth century, it may be difficult to find further examples. Only the type specimen gives location information beyond just Java.

Specimens studied:

INDONESIA: Java: s.l., *de Vriese s.n.* (L), *Blume s.n.* (L), *Unknown Collector 214* (L), *Leiden sheets 898.110-23, 898.110-280, 898.112-433*. Gunong Seribu, *Blume 881* (L, type).

11. Willughbeia lanceolata (Markgraf) D.J. Middleton, *comb. nov.*

Urnularia lanceolata Markgraf, Blumea 20 (1972) 409. — *Willughbeiopsis lanceolata* (Markgraf) Rauschert, Taxon 31 (1982) 556. — Type: *Clemens 40106* (L holo; A, BM, K, P iso).

Woody climber to 20 m. *Branchlets* glabrous; lenticillate. *Leaves*: petiole 0.9–1.7 cm long; blade elliptic or ovate, apex acuminate, base obtuse to cuneate; 2.3–3.8 × as long as wide, 5.5–13.2 × 1.3–4.4 cm; coricaeous; shiny above, dull beneath; glabrous; 7–18 pairs of lateral nerves at 55–75° reaching margin, tertiary venation almost perpendicular to midrib, oblique to nerves, several in each space. *Inflorescence* axillary or terminal; axis longer than the subtending petiole, to 3.5 cm long; 8–15 flowers per inflorescence; axes glabrous; pedicel 3.5–5 mm long. *Sepals* ovate, apex rounded; 1.2 mm long, lobes 0.7 × 0.8 mm, 0.87 × as long as wide; glabrous, ciliate. *Corolla* white; tube inflated, 2.2–3 mm long, glabrous outside and inside; lobes ovate, 2.7 mm long, glabrous. *Stamen* insertion at 1.5–1.8 mm from base, 0.57–0.68 of tube length; filaments 0.5–0.6 mm long; anthers 1.8 × as long as wide, 0.9 × 0.5 mm, ovate. *Ovary* 0.8–1.2 mm long; style 0.6–0.9 mm long, not impressed on ovary; stigma 0.2 mm long, inconspicuous; stigmoid apex 0.2 mm long. *Fruit* spherical; 3–5.5 cm diameter; green or white. *Seed* 2 × 1.3 × 1.1 cm.

Distribution – Borneo.

Specimens studied:

MALAYSIA. Sabah: Mt Kinabalu, *Chew & Corner RSNB 7045B* (K, SING), *Clemens 31936* (A, L); Tenompok trail forest, *Clemens 26209* (BM, G, L); Penibukan Ridge, *Clemens 40106* (A, G, K, L, P, type); Jalan Lering, Sosopodon, *Mujin 33893* (L), *33898* (K, L); Gurulau Spur, *Clemens 50796* (A, G, L, P). Tambunan Dist., Trusmadi For. Res. above Ulu Koingaran River, *Mikil 41797* (L).

INDONESIA. Kalimantan: Timur, East Kutai, G. Sekrat, S of Sangkulirang, *Kostermans 5932* (L).

12. Willughbeia oblonga Dyer ex Hook. f.

Willughbeia oblonga Dyer ex Hook. f., Fl. Br. India 3 (1882) 625; King & Gamble, J. As. Soc. Beng. 74 (1907) 393; Ridley, Fl. Mal. Pen. 2 (1923) 323; Markgraf, Blumea 20 (1972) 411. — *Ancylocladus oblongus* (Hook. f.) Kuntze, Rev. Gen. Pl. 1 (1891) 412. — Type: *Maingay 1089* (K lecto; K iso).

Woody climber. *Branches* glabrous, pale brown; lenticillate. *Leaves*: petiole 0.7–1 cm long; blade broad elliptic, apex obtuse to short blunt acuminate, base acute to rounded; 1.9–2.5 × as long as wide, 6–16.5 × 2.6–7 cm; papery to subcoriaceous; dull above and beneath; glabrous, punctate beneath; 10–16 pairs of lateral nerves at 60–80° weakly ascending near and almost reaching margin, tertiary venation of 1 or 2 intercalcated veins and weak interconnecting veins. *Inflorescence* axillary; axis shorter than the subtending petiole; to 2 cm; 3–8 flowers per inflorescence; axes brown pubescent; pedicel 1.5–2.3 mm long. *Sepals* ovate, apex obtuse or rounded; 2.1–2.8 mm long, lobes 1.9–2.1 × 1–1.4 mm, 1.5–1.9 × as long as wide; brown puberulent, ciliate. *Corolla* tube cylindric, 7.6 mm long, outside glabrous, inside puberulent, lobes partially ciliate. *Stamens* inserted at 4.2 mm from base, 0.55 of tube length; filaments 0.4 mm long; anthers 4 × as long as wide, 1.2 × 0.3 mm, lanceolate. *Ovary* 0.9 mm long; style 2.8 mm long, not impressed on ovary; stigma 0.2 mm long; stigmoid apex 1.1 mm long. *Fruit* oblong; 4.8 cm long, 1.5 cm wide. *Seed* rounded, flattened; 9–12 × 7–10 × 2.5–5 mm.

Distribution – Malay Peninsula.

Specimens studied:

MALAYSIA. s.l., *Maingay 1089* (K, type). Selangor: Ulu Endau, Labis For. Res., *Cockburn FRI 7999* (L). Johor: Ayer Panas, *Goodenough 1396* (SING). Malacca: s.l., *Derry s.n.* (SING).

13. Willughbeia ovatifolia (Stapf) Merr.

Willughbeia ovatifolia (Stapf) Merr., J. As. Soc. Mal. 1 (1923) 29. — *Urnularia ovatifolia* Stapf, Hook. Ic. (1901) t. 2711: 3. — *Willughbeiopsis ovatifolia* (Stapf) Rauschert, Taxon 31 (1982) 556. — Type: *Haviland 2302* (K lecto; BM, L iso).

Woody climber. *Branches* glabrous; lenticillate. *Leaves*: petiole 1.3–1.6 cm long; blade broad elliptic, apex acuminate, base rounded; 1.5–2.1 × as long as wide, 5.5–10.9 × 3.1–6.2 cm; coriaceous; glaucous beneath; glabrous, punctate on midrib beneath; 13–18 pairs of lateral nerves at 70–80°, reaching margin, tertiary largely obscure. *Inflorescence* axillary, axis longer than subtending petiole, to 5 cm long; c. 20 flowers per inflorescence; glabrous; pedicels 1–2.5 mm long. *Sepals* ovate, apex rounded; 1–1.1 mm long, lobes 0.6–0.9 × 0.6–0.8 mm; glabrous, ciliate. *Corolla* tube pink, lobes yellow; tube inflated, 2.5–3.8 mm long, outside and inside glabrous; lobes ovate, 3–3.7 mm long. *Stamens* inserted at 2.3 mm from base, 0.63 of tube length; filaments 0.8 mm long; anthers 2.3 × as long as wide, 0.7 × 0.3 mm, ovate. *Ovary* 0.9 mm long; style 1.1 mm long, not impressed on ovary; stigma 0.1 mm long, indistinct; stigmoid apex 0.2 mm. *Fruit* unknown.

Distribution – Borneo (Sarawak).

Note – The fruit on the type specimen would appear to be from another plant.

Specimen studied:
MALAYSIA. Sarawak: near Kuching, *Haviland 2302* (BM, K, L).

14. Willughbeia sarawacensis (Pierre) K. Schum.

Willughbeia sarawacensis (Pierre) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. Nachtr. 2 (1900) 55; Markgraf, Blumea 20 (1972) 413. — *Ancylocladus sarawhaensis* Pierre, Bull. Soc. Linn. Paris II, 1 (1898) 96. — *Willughbeia sarawakensis* Becc., For. Borneo (1902) 603, orth. var. *Willughbeia sarawhaënsis* Pichon, Mém. Mus. Nat. Hist. Nat. n.s. 24 (1948) 153. — Type: *Beccari 3925* (K lecto; FI, P iso).

Willughbeia treacheri Dyer, Kew Gard. Rep. (1880) 44, nom. nud.

Woody climber to 33 m. *Branchlets* glabrous or sparsely brown pubescent; older glabrous, lenticillate. *Leaves*: petiole 1.1–1.8 cm long; blade oblong to obovate, apex acuminate, base rounded to cuneate; 1.5–2.6 × as long as wide, 6–17 × 3.7–6.6 cm; papery to subcoriaceous; glabrous or with a few hairs on the midrib beneath; 11–19 pairs of lateral nerves at 60–80°, reaching margin, tertiary venation clearly visible beneath, perpendicular to nerves and meeting between them. *Inflorescence* axillary, axis shorter than subtending petiole, to 2.5 cm long; 8–14 flowers per inflorescence; axes brown pubescent; pedicels 1–2.8 mm long. *Sepals* ovate, apex rounded to acute; 1.3–2.5 mm long, lobes 0.6–1.2 × 0.5–1 mm, 1–1.3 × as long as wide; brown pubescent. *Corolla* white; tube cylindric, 4.8–6.2 cm long, outside glabrous or with 5 rows of brown hairs, inside puberulent; lobes oblong, 2–6.5 mm long, ciliate. *Stamens* inserted at 2.6–2.8 mm from base, 0.32–0.36 of tube length; filaments 0.6–0.7 mm long; anthers 3.5–5 × as long as wide, 1.4–1.5 × 0.3–0.4 mm; lanceolate or oblong. *Ovary* 0.4–1.1 mm long; style 0.1–0.3 mm long, often impressed on ovary; stigma 0.6 mm long; stigmoid apex 0.7–0.8 mm long. *Fruit* spherical to 4–17.6 cm long, 4–12 cm wide. *Seed* 1.7 × 1.2 × 1.1 cm.

Distribution – Borneo, Philippines (Palawan).

Specimens studied:

MALAYSIA. Sarawak: *Beccari 3925* (FI, K, P, type); Santubong, *Sinclair 38326* (K); Kampong Kerokang, Ban, *Othman et al. S 37544* (L, MO); Kapit, Upper Rejang River, *Clemens 21219* (A, K); Ulu Kakus, Anap, *Othman & Haron S 29963* (A, K, L); Nertabu, Lawas River, *Treacher s.n.* (K, type of *W. treacheri*). — Sabah: Kampong Malalia, *Dewol & Karim SAN 77871* (K, L, SING); Tenom Dist., Mendalom For. Res., *Daikeh Lantoh SAN 72037* (K, L); Sandakan Dist., Segaliud Lakan For. Res., *Leopold & Kodoh 81381* (K, L).

PHILIPPINES. Palawan: Aborlan, Iraan Mts, *Sulit PNH 12491* (A, L, PNH); Arborlan, Sagparigan, *Celestrino & Ramos PNH 23063* (K).

15. Willughbeia tenuiflora Dyer ex Hook. f.

Willughbeia tenuiflora Dyer ex Hook. f., Fl. Br. India 3 (1882) 625; Ridley, Fl. Sing. (1900) 83; Boerl., Bull. Inst. Bot. Buitenzorg 5 (1900) 6; King & Gamble, J. As. Soc. Beng. 74 (1907) 396; Ridley, Fl. Mal. Pen. 2 (1923) 325; Markgraf, Blumea 20 (1972) 413. — *Ancylocladus tenuiflorus* (Hook. f.) Kuntze, Rev. Gen. Pl. 1 (1891) 412. — Type: *Maingay 1049* (K lecto; L, A, K iso).

Woody climber. *Branchlets* rufous pubescent to glabrous; branches lenticillate. *Leaves*: petiole 1–2 cm long; blade elliptic, oblong or obovate, apex acuminate, base cuneate; 2.3–3.4 × as long as wide, 5.2–19.3 × 1.7–7.8 cm; papery or subcoriaceous; glabrous; 17–30 pairs of lateral nerves at 70–80°, fairly straight, reaching margin, tertiary venation mostly obscure or, more rarely, visible beneath and then perpendicular to the nerves and meeting between them. *Inflorescence* axillary, axis shorter or as long as subtending petiole, to 4.2 cm long; 8–18 flowers per inflorescence; axes rufous pubescent; pedicels 0.8–3 mm long. *Sepals* ovate, apex rounded to acute; 1.2–1.8 mm long, lobes 1–1.6 × 0.8–1.6 mm, 1–1.9 × as long as wide; rufous pubescent or, rarely, glabrous, ciliate. *Corolla* white; tube 7.5–15 mm long, outside glabrous, inside pubescent in upper part of tube; lobes oblong, 8–18 mm long, glabrous. *Stamens* inserted at 1.3–2.7 mm from base, 0.15–0.25 of tube length; filaments 0.5–1 mm long; anthers 2.5–5 × as long as wide, 1–1.5 × 0.3–0.6 mm; lanceolate or oblong. *Ovary* 0.5–1 mm long; style 0.1 mm long, often impressed on ovary; stigma 0.5–0.8 mm long, wide cylindric to globular; stigmoid apex 0.6–1.2 mm long. *Fruit* pear-shaped, 6–15 cm long, 4.5–11.5 cm wide. *Seed* 2.2–2.5 × 0.9–1.4 × 0.9–1.4 cm.

Distribution – Malay Peninsula, Sumatra.

Note – There is a plant in the Paris herbarium labelled 'Aitchison - Afghanistan'. From what is known about this species this collecting locality seems very unlikely and may bear the wrong label.

Specimens studied:

MALAYSIA. s.l., *Maingay 1049* (A, K, L, type), *1841* (L). Kedah: Koh Mai For. Res., *Kiah SF 35192* (A, BM, K, KEP, SING). Kelantan: Ulu S. Aring, near K. Tapah, *Whitmore FRI 4505* (K, KEP, L). Johor: South Kota Tinggi, Ulu Sedili For. Res., *Ismail FRI 69809* (KEP); Ayer Panas, *Goodenough 1785* (SING), *100* (SING); *Curtis 3484* (K, SING). Malacca: *Hervey s.n.* (GH, K, P); *Derry s.n.* (SING); Bukit Bruang, *Derry 576* (SING); *Lam 678* (SING). Negri Sembilan: Gunong Tampin, *Holttum 9533* (SING). Perak: Lumot Dindings, *Ridley 3075* (SING); *Curtis s.n.* (SING). Selangor: s.l., *Alvins s.n.* (SING); Kula Lumpur, Bukit Lagong For. Res., *Strugnell 27943* (KEP), *Jaamat 47058* (KEP), *Cheng FRI 27746* (KEP); Kepong, *Hamid 40473* (KEP); Sungei Buloh Reserve, *Sow & Tachun 16443* (KEP), *Long & Guard CF 4992* (K, KEP, SING); Ulu Gombak, *Strugnell 12739* (KEP, SING).

SINGAPORE. s.l., *Ridley 11333* (SING); Reservoir wood, *Ridley 4826* (BM); S side of MacRitchie Reserve, *Sinclair 7992* (E, US), *40214* (K); near Bukit Kallang, *Maxwell 82-140* (AAU, MO).

INDONESIA. Sumatra: s.l., *van Romburgh 4696* (K, L, MEL, US), *de Vriese s.n.* (L), *17* (L). Barat: Sungilasi-Sindang-Pesisir, *Laumonier TFB 4150* (L). Riau: West Indragiri, Teluk Region, *Meijer 4214* (L). Selatan: Palembang, *Grashoff 859* (L), *1054* (L); Palembang, forest of Semangus near Muara Enim, *Buwalda 7631* (K, L, SING). Utara: Labuhan Batu Subdiv., Kota Pinang Dist., Si Mandi Angin, *Rahmat si Boeea 4012* (A, L, US).

NOTE

There are a number of sterile specimens of which the taxonomic position is uncertain. Markgraf (1972 and on some herbarium labels) has suggested many of them may be youth forms of various different species. They are often long narrow-leaved forms. Leaf dimorphism is known in the Apocynaceae in genera such as *Ichnocarpus* (Forster, 1992). However to assign these specimens to particular species would be largely a matter of guesswork at present without further field studies and well annotated collections. Therefore they are listed here without further comment:

Malay Peninsula: *Burkill & Haniff 15776, 15745, 16990* (all SING); *Nur 6883* (SING).

Sumatra: *de Vriese 35* (L); *Daud s.n.* (SING).

Java: Leiden sh. 898.110-280; 898.112-396; *Blume s.n.* (L 898.110-278); *Blume s.n.* (L 898.110-279); *de Vriese s.n.* (L 898.112-434)

Borneo: *David 228* (P); *T. & P. 1091* (L, SING); *Ramos* 1727 (A, US); *van Niel* 4020 (L).

Clemens 30486 is a sterile specimen from Borneo which bears the tendrils typically found in *Willughbeia*, but also has an intramarginal nerve and punctae beneath which are not commonly found in *Willughbeia*. I have not been able to match it to any known species; more material is needed before its status can be determined.

Merrill wrote the names of several 'new species' on herbarium labels which he never actually published. These names are not included in this work to avoid the addition of wholly unfounded names to the literature.

INSUFFICIENTLY KNOWN SPECIES

Willughbeia celebica Blume, Mus. Bot. Lugd. Bat. 1 (1850) 154.

This species was also included in the works of A.DC (1844) and Miquel (1857) as well as a new combination *Ancylocladus celebicus* (Blume) Kuntze, Rev. Gen. Pl. 1 (1891) 412. The type specimen was not indicated in the original description but Miquel mentions a Reinwardt specimen from Sulawesi in his account: I have been unable to locate this specimen. The only other species known from Sulawesi is *W. beccariana* although *W. angustifolia*, found in Borneo and Buru, possibly also occurs there.

Willughbeia unilocularis Blanco.

This taxon appears in a list of *Willughbeia* species in Pichon (1948). However, I have been unable to locate it in Blanco's works and Merrill (1918) makes no mention of it either. Pichon lists it as a species that has been published but that he has not seen. It could, therefore, be a typographical error for *W. multilocularis* Blanco which is a synonym of *Ardisia squamulosa* Presl.

Willughbeia kontumensis Ly, Biol. Rev. Hanoi 1(1979) 17.

I have been unable to obtain any material of this species from HN in Hanoi where the type is deposited. From its description it would appear to be closely related to, or possibly conspecific with, *Willughbeia edulis* Roxb.

SPECIES EXCLUSAE

Ancylocladus umbrosus (Blume) Kuntze, Rev. Gen. Pl. 1 (1891) 412 = **Melodinus orientalis** Blume.

Willughbeia acida J.F. Gmel., Syst. 2 (1791) 434 = **Ambelania acida** Aublet.

Willughbeia auriculata Sprengel, Syst. Veg. 4 (1827) cur. post. 71 = **Fagraea auriculata** Jack (Loganiaceae).

Willughbeia borneensis Merr., J. Mal. Br. Roy. As. Soc. 1 (1923) 28 = **Leuconotis anceps** Jack.

Willughbeia ceilanica (Thunb.) Sprengel, Syst. Veg. 4 (1827) cur. post. 71 = **Fagraea ceilanica** Thunb. (Loganiaceae).

Willughbeia cordata Klotzsch in Peters, Reise Mossamb. Bot. (1861) 281 = **Saba comorensis** (Boj.) Pichon.

Willughbeia drupacea Blanco, Fl. Filip. ed. 1 (1837) 132 = **Ardisia humilis** Vahl (Myrsinaceae).

Willughbeia elliptica Sprengel, Syst. Veg. 4)1827) cur. post. 71 = **Fagraea elliptica** Roxb. (Loganiaceae).

Willughbeia elliptifolia Quis. & Merr., Philipp. J. Sc. 37 (1928) 194 = **Melodinus elliptifolius** (Quis. & Merr.) Pichon.

Willughbeia fragrans Sprengel, Syst. Veg. 4 (1827) cur. post 71 = **Fagraea frgrans** Roxb. (Loganiaceae).

Willughbeia guianensis J.F. Gmelin, Syst. 2 (1791) 434 = **Pacouria guianensis** Aubl.

Willughbeia luzoniensis Merr., Philipp. J. Sci., Bot. 4 (1909) 320 = **Melodinus luzoniensis** (Merr.) Pichon.

Willughbeia multilocularis Blanco, Fl. Filip. ed. 1 (1837) 131 = **Ardisia squamulosa** Presl (Myrsinaceae).

Willughbeia novoguineensis Wernh., Trans. Linn. Soc. Bot. II, 9 (1916) 108 = **Melodinus novoguineensis** (Wernh.) Pichon.

Willughbeia obovata Sprengel, Syst. Veg. 4 (1827) cur. post. 71 = **Fagraea ceilanica** Thunb. (Loganiceae).

Willughbeia pauciflora Merr., Philipp. J. Sci., Bot. 3 (1913) 387 = **Melodinus luzoniensis** (Merr.) Pichon.

Willughbeia petersiana Klotzsch in Peters, Reise Mossamb. Bot. (1862) 281 = **Ancylobothrys petersiana** (Klotzsch) Pierre.

Willughbeia pubescens Mart., Reise Bras. 2 (1828) 789 = **Hancornia speciosa** B.A. Gomes.

Willughbeia racemosa Sprengel, Syst. Veg. 4 (1827) cur. post. 71 = **Fagraea racemosa** Jack ex Wallich (Loganiaceae).

Willughbeia scandens Willd., Sp. Pl. 1 (1798) 1231 = **Pacouria guianensis** Aubl.

Willughbeia senensis Klotzsch in Peters, Reise Mossamb. Bot. (1861) 282 = **Ancylobothrys petersiana** (Klotzsch) Pierre.

Willughbeia umbrosa Blume, Mus. Bot. Lugd. Bat. 1 (1850) 154 = **Melodinus orientalis** Blume.

Willughbeia volubilis Sprengel, Syst. Veg. 4 (1827) cur. post. 71 = **Fagraea racemosa** Jack ex Wallich (Loganiaceae).

Willughbeia zeylanica Sprengel, Syst. Veg. 1 (1825) 672 = **Fagraea ceilanica** Thunb. (Loganiaceae).

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INDEX OF EXSICCATAE

Only specimens with an identifiable collector and collection number are listed. The bracketed portion refers to the first three letters of the species to which each specimen belongs.

Achmad 892 (cor), 1652 (cor), 99030 (cor) — Adam 49633 (gra) — Adelbert 295 (cor) — Alston 13410 (fla) — Alvins 69 (cor), 1146 (edu), 2300 (cor) — Amin & Heya SAN 86325 (ang) — Amin et al. 96750 (bec) — Ampon & Aban SAN 73681 (ang) — Anderson 12893 (gra), SF 25554 (gra) — Anderson & Ilias bin Paie S 28509 (cor), S 28884 (cor) — Ashton BRUN 440 (ang), BRUN 447 (ang), BRUN 600 (ano), BRUN 845 (ang), BRUN 2633 (gig), BRUN 3349 (cor), S 16468 (bec) — Askey 1613 (cor) — Awa & Yii S.46789 (cor).

Bakar SAN 24957 (ang) — van Balgooy & van Setten 5616 (cor) — Banang SAN 51951 (ang) — Beaumann 10155 (cor) — Beccari 938 (ang), 1530 (cor), 2272 (fla), 2273 (cor), 3335 (gra), 3764 (bec), 3925 (sar), 4030 (cor) — Bejaud 21 (edu) — Bekar 4451 (cor) — van Beusekom & Phengkhlai 437 (edu), 793 (cor) — Blume 881 (jav), 990 (ang) & (cor), 1168 (cor) — Bruinsma 16 (ang) — Brunig S 8637 (ang), S 12088 (gra) — Bünnemeijer 6972 (cor) — Burkill 529 (cor), 789 (fla), 1304 (ang), 3041 (cor), 3206 (ang) — Burkill & Haniff 15745 (see note p. 00), 15776 (see note p. 00), 16058 (edu), 16990 (see note p. 00) — Burley & Lee 270 (cor) — Burley et al. 649 (cor) — Buwalda 7631 (ten).

Cantley 95 (cor), 105 (ten) — Carr SFN 27086 (cor) — Castle-Smith 76 (cor) — Celestrino & Ramos PNH 23063 (sar) — Chai S 34084 (cor) — Chan 13263 (ten), 13346 (cor), 13348 (cor) — Cheng FRI 27746 (ten) — Chew Wee Lek 1089 (ang), 1433 (cor) — Chew & Corner RSNB 4888 (cor), 7045B (lan) — Chivers DCL049 (cor) — Clemens 20249 (ang), 21219 (sar), 26063 (cor), 26065 (cor), 26209 (lan), 26209A (bec), 30486 (see note p. 00), 31026 (cor), 31936 (lan), 40106 (lan), 40197 (bec), 50796 (lan) — Cockburn FRI 7175 (ang), 7626 (ang), 7999 (obl) — Collins 510 (edu), 861 (edu), 897 (edu), 1139 (edu), 1533 (edu) — Corner 26162 (fla) — Cuadra A 897 (cor) — Curtis 847 (cor), 1500 (cor), 1629 (cor), 3476 (cor), 3484 (ten), 3485 (cor).

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Elmer 21038 (ang), 21486 (ang) — Endert 3562 (ang), 3854 (ang), 4991 (cor) — Evangelista 2534 (272) (cor) — Evrard 801 (edu).

Fedelis & Sumbing SAN 88475 (cor), 89116 (cor) — Forbes 3232 (ang) — Forman 67 (cor) — Forman & Blewett 956 (bec) — Foster-Puasa 3607 (bec).

Gallalty 651 (edu) — Gardner 550 (cir) — Gianno 460 (ten) — Gibot SAN 83410 (ang) — Goodenough 100 (ten), 1396 (obl), 1450 (fla), 1785 (ten) — Grashoff 859 (ten), 886 (cor), 1054 (ten).

Hamid 40473 (ten) — Haniff & Nur 2396 (cor), 8090 (ang) — Hashim KEP 105 (cor), KEP 402 (cor) — Haviland 680 (cor), 989 (cor), 2168 (cor), 2301 (gra), 2302 (ova), 3045 (gra) — Haviland & Hose 3487 (ang), 3492 (cor) — Haynes et al. 1699 (cor) — Henderson 21955 (cor) — Holttum 9533 (ten) — Hore 8720 (ang) — Hose 24 (bec) — Huber 17 (cir), 62 (cir), 64 (cir) — Hulbert 626 (cor).

Ichlas 43 (cor) — Ilias & Yeo S 38416 (bec) — Ismail 69809 (ten), 100103 (fla) — Ismawi & Jugah S 29608 (ang).

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Nangkat NN164 (bec), NN175 (ano) — Ngadiman 36372 (fla) — van Niel 3971 (gra), 4020 (see note p. 00), 4274 (ang) — Niyomdham 724 (cor) — Niyomdham & Ueachirakan 1821 (gra) — Noe 41 (edu) — Nooteboom & Chai 2087 (ang), 2185 (cor) 2333 (cor) — Nooteboom 3393 (cor), 4355 (cor), 4513 (cor), 5180 (ang) — Nur 6883 (see note p. 00), SF 34094 (gra).

Oedioel 10 (cor) — Othman Haron S 21383 (cor), S 29963 (sar) — Othman et al. S 37544 (ano), S 41465 (bec), S 43364 (cor), S 43489 (bec).

Paie & Mamit S 29599 (cor) — Parry 294 (edu) — Phengkhlai 935 (edu) — Phloenchit 1579 (edu) — Pierre 138 (edu), 1828 (edu) — Poilane 84 (edu), 13471 (edu), 14901 (edu), 22464 (edu) — Puasa 4856 (ang) — Purseglove P. 4343 (cor), P. 5422 (cor) — Put 913 (edu), 2692 (edu), 2699 (edu), 3100 (edu).

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Sadau 50212 (cor) — Sangkhachand 368 (edu), 1031 (cor) — Sanusi & Tahir 9764 (gra) — Schiffner 19 (cor) — Seidenfaden 2681 (edu) — Shah MS 3676 (cor) — Shing FRI 19199 (cor) — Sikar SAN 39803 (ang) — Sinclair 4906 (cor), 5578 (ano), 7992 (ten), 7997 (cor), 10518 (bec), 38326 (sar), 40214 (ten), 40219 (cor), 40240 (edu) — Sinclair & Kadim 10449 (ang) — Singh SAN 28258 (cor) — Singh & Nardin 48484a (bec) — Sitam S 19663 (gra) — Smitinand 2221 (edu) — Smythies 12502 (ano), 17152 (cor) — Smythies, Wood & Ashton SAN 17074 (cor), SAN 17467 (fla) — Soejarto et al. 6032 (edu) — Soepadmo 141 (fla), 224 (gig) — Soepadmo, Smith & Chai S 27634 (cor) — Sow KEP 94531 (cor) — Sow & Tachun 16443 (ten) — Spare SF 34573 (ang) — Spire 78 (ang), 86 (cir) — Strugnell 12739 (ten), 27943 (ten) — Sulaiman 14253 (cor) — Sulit PNH 12491 (sar) — Sundaling SAN 96666 (ang) — Symington 26968 (cor), 39395 (cor), 43304 (fla).

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Umbai KL 1585 (cor).

Veldkamp 8594 (ang) — Vermeulen 1240 (ang) — de Vogel & Vermeulen 6511 (bec), 7008 (bec) — de Vriese 4b (cor), 17 (ten), 35 (see note p. 19).

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Yeob 3187 (edu) — Yii Puan Ching S 40112 (bec).

Zollinger 1031 (cor).

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The letters in brackets are the first three letters of the species under which each name can be found; accepted names are in roman type, synonyms in italics, the new comb. in bold type; (x) = species exclusae; * = insufficiently known species.

Chilocarpus *ceylanicus* Wight (cir)
Fagraea auriculata Jack (x)
ceilanica Thunb. (x)
elliptica Roxb. (x)
fragrans Roxb. (x)
racemosa Jack ex Wallich (x)
Hancornia *speciosa* B.A. Gomes (x)
Leuconotis *anceps* Jack (x)
gigantea Boerl. (gig)
var. *crassifolia* Boerl. (gig)
var. *ovalis* Boerl. (gig)
Melodinus elliptifolius (Quis. & Merr.) Pichon (x)
luzoniensis (Merr.) Pichon (x)
novoguineensis (Wernh.) Pichon (x)
orientalis Blume (x)
Pacouria *gudara* Buch.-Ham. ex Wallich (edu)
guianensis Aubl. (x)
roxburghii Kostel (edu)
Palicourea gudara Steudel (edu)
Saba *comorensis* (Boj.) Pichon
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auriculata Sprengel (x)
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beccarii (Pierre) K. Schum. (fla)
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elmeri Merr. (ang)
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var. *macrophylla* Boerl. (cor)
var. *obtusifolia* Boerl. (cor)
var. *platyphylla* Boerl. (cor)
flavescens Dyer ex Hook. f. (fla)
var. *rufescens* (Hook. f.) Ridley (ang)
fragrans Sprengel (x)
gigantea (Boerl.) Markgraf (gig)
glaucina (Pierre) K. Schum. (gra)
grandiflora Dyer ex Hook. f. (gra)
gudara Steudel (edu)
guianensis Raeusch (x)
javanica Blume (jav)
kontumensis Ly (*)
lanceolata (Markgraf) D.J. Middleton (lan)
luzoniensis Merr. (x)
martabanica Wallich (edu)
minutiflora (Pierre) K. Schum. (cor)
multilocularis Blanco (x)
nodosa (Pierre) K. Schum. (cor)
novoguineensis Wernh. (x)
oblonga Dyer ex Hook. f. (obl)
obovata Sprengel (x)
ovatifolia Merr. (ova)
pauciflora Merr. (x)
petersiana Klotzsch (x)
pubescens Mart. (x)
racemosa Jack (x)
rufescens Dyer ex Hook. f. (ang)
sarawacensis (Pierre) K. Schum. (sar)
sarawakensis Becc. (sar)
sarawhaënsis Pichon (sar)
scandens Willd. (x)
senensis Klotzsch (x)
stapfii Merr. (fla)
tenuiflora Dyer ex Hook. f. (ten)
treacheri Dyer (sar)
umbrosa Blume (x)
unilocularis Blanco ex Pichon (*)
volubilis Sprengel (x)
vriesiana (Pierre) K. Schum. (cor)
zeylanica Sprengel (x)
Willughbeiopsis beccariana (Pierre) Rauschert (bec)
beccarii (Pierre) Rauschert (fla)
flavescens (Hook. f.) Rauschert (fla)
javanica (Blume) Rauschert (jav)
lanceolata (Markgraf) Rauschert (lan)
ovatifolia (Stapf) Rauschert (ova)
rufescens (Hook. f.) Rauschert (ang)
Winchia cirrhifera Gardner (cir)