

FLORAE MALESIANAE PRAECURSORES XLVII.
CENSUS OF MALESIAN CASTANOPSIS (FAGACEAE)

E. SOEPADMO *)

(in collaboration with M. JACOBS **)

SUMMARY

This paper deals with the names and typication of the 34 species recognized in Malesia. Specimens important for the knowledge of the distribution of each species have been cited with their locality. Indexes to names and to all examined specimens are given. Ten new species are described: *Castanopsis clemensii*, *densinervia*, *endertii*, *microphylla*, *oligoneura*, *oviformis*, *paucispina*, *peduneulata*, *psilophylla*, all from Borneo, and *johorensis* from Malaya. *C. hypophoenieea* and *C. lucida* are new combinations based on *Quercus hypophoenieea* v. Seem, and *Alseodaphne lucida* Nees in Wall, respectively. *Castanopsis ebneri* and *woodii* are reduced to *evansii*, *hullettii* to *lucida*, *pachycarpa* to *rhamnifolia*, *conspersispina*, to *tungurrut*, *dispersispina* to *hypophoenieea*, *ridleyi* partly to *tungurrut* and partly to *megacarpa*, *kinabaluensis* to *foxworthyi*, *pearsonii* to *mottleyana*, *junghuhnii* and *schlenkeriae* to *acumiinatissima*. *Castanopsis selangorensis* A. Cam. is regarded as a doubtful species. The number of endemic species is for Malaya 5, Borneo 11, the Philippines 1; the total number of species, is for Sumatra 11, Malaya 17, Java 4, Borneo 20, the Philippines 4, Celebes 2, the Moluccas 1, New Guinea 1, the Lesser Sunda Islands none.

INTRODUCTION

During World War II, Dr. S. Hatusima prepared at Bogor a draft **MS** of the Malesian Fagaceae, based solely on the materials at Bogor. **Due** to this fact, Hatusima could not arrive at satisfactory conclusions, and therefore little use could be made by me of his work, although it was compared with the outcome of the present study. Names of new species distinguished by him with which I agree have been taken up.

The present paper does not concern itself with taxa above specific **rank**. Non-Malesian synonyms of Malesian species have been accounted for. Misinterpretations without nomenclatural consequences have been

*) Permanent address: Herbarium Bogoriense, Bogor (Java), Indonesia.

***) Flora Malesiana Foundation, Leiden, Netherlands.

corrected in the most important cases only; specimens cited in the literature under the wrong species are to be found in the Identification List at the end of this paper. Species originally described under *Castanea* or *Castanopsis* but now reckoned to other genera have been incorporated in the Index of names. Erroneous credits to the Malesian flora or introduced species have not been recorded. The accepted species are listed in alphabetical order.

Data which fall within the scope of the Flora Malesiana project but outside the Flora Malesiana text, notably the typification, the indication of homotypic synonyms, the descriptions of new taxa, the proposal of new names, citation of specimens important for the knowledge of the distribution, and an index to all examined specimens, have been recorded in this paper.

ACKNOWLEDGEMENTS

This work was carried out at the Rijksherbarium, Leiden (L), with materials borrowed from or examined at the herbaria of the Arnold Arboretum (A), Berlin (B), the British Museum, Natural History (BM), Brussels (BR), Cambridge (CGE), Edinburgh (E), Florence (Fl), Kew (K), Michigan (MICH), New York (NY), Paris (P), Singapore (SING), Utrecht (U), Berkeley (UC), Washington (US), and Breslau (WRSL); from Bogor (BO) the type specimens were examined, and one specimen from Geneva (G). My sincere thanks are due to the Directors of those institutions.

I am very much indebted to the Netherlands Organization for the Advancement of Pure Research (Z.W.O.) for the grants enabling me to work at the Rijksherbarium from October 1966 till the end of 1967...

I feel also greatly obliged to the Director of the Rijksherbarium, Prof. Dr. C. G. G. J. van Steenis, who put all facilities of his institute at my disposal and paved my way in several other respects to speed up towards efficient work.

Dr. M. Jacobs is responsible for the editing of the work, the selection of the specimens cited, and the preparation of the Latin descriptions...

CASTANOPSIS Spach

Castanopsis Spach, Hist. Veg. Phan. 2: 185. 1842; A. DC. in J. Bot. If 182. 1863; Prod. 16, 2: 109. 1864; Miq. in Ann. Mus. Bot. Lugd. Bat. 1: 103, 118. 1863; Oerst. in Vid. Medd. Naturh. For. Kjob. 8: 53. 1867; Benth. & Hook, f., Gen. Pl. 3: 409. 1880; Hook. f. in Fl. Br. Ind. 5: 619. 1888; King in Ann. Roy Bot. Gard. Calo.

2f 93, 1889; Schneider, Illustr. Handb. Laubh. 1: 159. 1906; Schottky in Bot. Jahrb. 47: 622. 1912; Dode in Bull. Soc. Dendr. France: 141. 1908; Gamble in J. Roy. As. Spc. Beng. 75, ii: 453. 1915; Rehder & Wilson in Sargent's Pl. Wils. 3: 97. 1916; Markgr. in Bot. Jahrb. 59: 62. 1924; Ridl., Fl. Mai. Pei. 3: 388. 1924; A. Camus, Chat.: 243. 1930; Hickel & A. Camus in Fl. Gen. I.-C. 5: 1007. 1930; Backer & Bakh. f., Fl. Java 2: 4. 1965.

Quercus subdiv. *Castanopsis* Don, Prod. Fl. Nep.: 275. 1825.

Castanea [non (Tourn.) Mill.] Blume, Bijdr.: 524, p.p. 1825; Fl. Javae, Cupul.: 37, p.p. 1829; Roxb., Fl. Ind. 3: 643, p.p. 1832; Endlicher, Gen. Pl. 4: 275, p.p. 1837; Bl., Mus. Bot. Lugd. Bat. 1: 282, p.p. 1850; Miq., Fl. Ind. Bat. 1, 1: 865. 1858; Kqord. & Valet., Bijdr. Booms. Java 10: 3. 1904.

Quercus sect. *Chlamydoalanus* Endlicher, Gen. Pl., Suppl. 4, 2: 24. 1847; Miq., MI Ann. Mus. Bot. Lugd. Bat. 1: 117. 1863; A. DC, Prod. 16, 2: 102, p.p. 1864; Oudemans, Annot. Cupul. Jav.: 24, p.p. 1865; Benth. & Hook, f., Gen. Pl. 3: 409. 1880; Hook. f. in Fl. Br. Ind. 5: 615, p.p. 1888; King in Ann. Roy. Bot. Gard. Calo. 2: 20, p.p. 1889; Koord. & Valet., Bijdr. Booms. Java 10: 13, p.p. 1904; Koord., Exk. Fl. Java 2: 59, p.p. 1912.

Quercus sect. *Castanopsis* Blume, Mus. Bot. Lugd. Bat. 1: 288, p.p. 1850.

Callaeo carpus Miq., PL Jungh.: 13. 1851; FL Ind. Bat. 1, 1: 868. 1858; Suppl.: 354. 1860; in Ann. Mus. Bot. Lugd. Bat. 1: 118. 1863.

Quercus subg. *Phegopsis* Miq., Fl. Ind. Bat, 1, 1: 870. 1858.

Castanea subg. *Castanopsis* Oersted in Kong. Danske Vid. Selsk. Skr. v, 9: 377. 1871; Koehne, Deutsch. Dendr.: 121. 1893.

Pasania subg. *Chlamydoalanus* (Endl.) Oersted in Vid. Medd. Naturh. For. Kjob. 8: 86. 1867; Prantl in Engler & Prantl, Nat. Pfl. fam. 3, 1: 55. 1889.

Castanea sect. *Castanopsis* Prantl in Engler & Prantl, l.e. 55; Dalla Torre & Harms, Gen. Siphon.: 118. 1907.

Pasaniopsis Kudo in Nipp. Yu Zymoku 1: 134. 1912; Makino in J. Jap. Bot. 5: 19. 1928.

Lithocarpus sect. *Chlamydoalanus* (Endl.) Nakai in Bot. Mag. Tokyo 29: 55. 1915.

Synaedrys sect. *Chlamydoalanus* (Endl.) Koidzumi in Bot. Mag. Tokyo SO: 183, p.p. 1916.

Pasania subg. *Pseudocastanopsis* Hickel & A. Camus in Ann. Sci. Nat. Bot. France ser. IX, 3: 389. 1921; Les Chenes 3, Expl. PL: 152, 1948; Les ChSnes 3, 2: 113.7. 1954.

Shiia Makino in J. Jap. Bot. 5: 23. 1928.

Lithocarpus sect. *Pseudocastanopsis* Hickel & A. Camus in Fl. Gen. I.-C. 5: 963. 1929.

Chrysolepis Hjelmqvist, Bot. Notis. Suppl. 2, 1: 117. 1948; Forman in Kew Bull. 18, 3: 425. 1966.

TYPE SPECIES: *Castanopsis armata* Spach.

CASTANOPSIS ACUMINATISSIMA (Bl.) A. DC.

Castanopsis acuminatissima (Bl.) A. DC. in J. Bot. 1: 182. 1863. — *Castanea acuminatissima* ~Bl., Mus. Bot. 1: 283. 1850. — *Quercus acuminatissima* (Bl.) A. DC.

Prod. 16, 2: 102. 1864. — *Pasania acuminatissima* (Bl.) Oerst. in Vid. Medd. Naturh. For. Kjöb. 8: 84. 1867. — Type: *Blume s.n.* (L!), from Java, yfr.

Castanea sessilifolia BL, Mus. Bot. 1: 284. 1850. — Type: *Blume s.n.* (L!), from Java, Mt. Mergo Tjembang-an, st.

Quercus varingaefolia Miq., PI. Jungh.: 12. 1851. — Type: *Junghuhn 11* (L!), from Java, Pengalengan, st.

Quercus lineata (non Bl.) Miq., PI. Jungh.: 10. 1851. — *Quercus junghuhnii* Miq., Fl. Ind. Bat. 1, 1: 853. 1856. — *Castanopsis junghuhnii* (Miq.) Markgr. in Bot. Jahrb. 59: 62. 1924. — Type: *Junghuhn 8 hb.* Waitz (L! U!), from Java, Pengalengan, fl.

Quercus fagiformis Jungh. in Bonplandia 6: 83. 1858. — *Synaedrys fagiformis* (Jungh.) Koidz. in Bot. Mag. Tokyo 30: 187. 1916. — Type: *Junghuhn s.n.* (L! U!), from Java, fr.

Castanopsis schlenkeriae Bailey in Queensl. Agr. J. 22: 149. 1909. — Type: *Schlencker s.n.* (BRI, K!), from New Guinea.

Castanopsis nebularum Hickel & A. Cam. in Bull. Mus. Hist. Nat. Paris ii, 32: 398. 1926. — Type: *Poilane 8076* (P!), from Indo-China, Annam, near Tourane, Col de Nuages, 900 m, fr.

Castanopsis longispicata Hu in Bull. Fan Mem. Inst. Biol. Peiping, Bot. 10: 86. 1940. — Type: *Wang' 75883* (P!), from China. Yunnan, Shean Meng Yeang, Che Li Hsuan, 1200 m, fr.

Castanopsis bejaudii A. Cam. in Bull. Mus. Hist. Nat. Paris ii, 13: 479. 1942. — Type: *Bejaud 274* (P!), from Indo-China, Cambodia, Phom Penh, fr. 11-1935.

INDIA. East Bengal: *Griffith 4447*. Assam: Khasia Hills, 1200—1500 m, *Mann 6*.

BURMA. Upper B.: *Forrest 26593*; Ken Tung (if Keng Tung is meant, then 21° 17' N 99° 39' E), *Rock 2204*. Tenasserim: *Beddome 7686*.

CHINA. Kweichow: *Cavalerie & Fortunat 97*. Yunnan: East of Tengyueh (= Tengchung), 25° 02' N 98° 28' E, *Rock 7681*.

TAIWAN. Arisan Mt., 2000 m, *Faurie 1542, 1543, 1544*. " -

SIAM. Northern: Payap prov., 1200-2070 m, several. Southeastern: Kao Soi Dao, 13° N 102° 10' E, 1400 m, *Kerr 9663*; Korat, Kao Lem, 14° 25' N 101° 30' E, 700 m, *Kerr 9895, Put 3521*.

INDO-CHINA. Tonkin: Lay Chau, 22° N 103° 20' E, *Poilane 27032*. Laos: Tranninh Plateau, ± 19° N 103° E, several. Annam: at 16° N and further South, 900-1600 m, several.

SUMATRA. Atjeh: Loeus, Kota Lintang, 1800 m, 66 22417.

MALAYA. Kedah: Kedah Peak, 5° 47' N 100° 26' E, 1050 m, *KEP 70984*.

JAVA. West: Mt. Gegerbintang, 1500—1700 m, *Meijer 4925*; Mt. Cede and Tjibodas, several; Priangan Residence, several. Central: Mt. Dieng, 800 m, *Hochreutiner 2500*; Pekalongan, Surdjo, *Koorders 1415, 1417, 11702*; Mt. Muria, *Blume s.n.*; at 700 m, *Kostermans 6216*. East: Mt. Wilis and Ngebel, several.

BORNEO. North: Ranau and Mt. Kinabalu, 1350-1600 m, *Clemens 28189, SAN 29,238, S2375, 42461*.

CELEBES. Northeast Peninsula: Minahasa, 66 17118, *Koorders 16617*; Near Gorontalo, Bulodu, 66 15598. Northern Central Part: 1100-1500 m, 66 15025, 15089, 28266. Southern Central Part: 66 23856 at 2200 m, *Eyma 1515, Monod de Froide-*

ville 184. Southwest Peninsula: Bone, Bonterilu, 66 29012; Maros, 66 25553. Not located, 66 20198 from Tamalanti.

NEW GUINEA. Mainland West and East: many. Japan: several. Misima I.: *Brass 27391*. Fergusson I.: *Braes 26096*. Goodenough I.: *Brass 24679, 24877, 24929*. New Britain: *Floyd 6524*.

CASTANOPSIS ARGENTEA (Bl.) A. DC.

Castanopsis argentea (Bl.) A. DC. in J. Bot. 1: 182. 1863. — *Fagus argentea* Bl. in Flora 7: 291. 1824. — *Castanea argentea* Bl., Bijdr.: 525. 1825. — Type: *Blume* (L!), from Java, fl.

Castanea argentea Bl. var. *rigida* BL, Mus. Bot. 1: 283. 1850. — Type: *Blume* (L!), from Java, yfr.

SUMATRA. Tapanuli: Angkola, 750 m, 66 5650; Selese, *Lorzing s.n.*, yfr. VII-1928. West Coast: Agam, 1000 m, 66 5838; Mt. Sago, 900—1100 m, *Meijer 4464, 5174*. Palembang: *Praetorius s.n.*, fl. 1834. Unlocated in S. Sumatra, *Gras-hoff S63, Forbes 422*.

JAVA. West: many. Central: Mt. Slamet, *Koorders 1358*; SW. of Semarang, Mt. Ungaran, *Koorders' 1354, 29665*, and Temanggung, *Ja 2473*; Mt. Merapi, Plawangan, *Junghuhn 1*. East: Mt. Wilis, Ngebel, *Koorders 29842*.

CASTANOPSIS BORNEENSIS King

Castanopsis borneensis King in Ann. Gard. Calc. 2: 99, t. 90. 1889. — Type: *Beccari PB 1212* (F! holo, K!), from Borneo, Sarawak, fr.

BORNEO. Sarawak: *Beccari PB 3078*; First Division, several; Third Division, Ulu Arip, 2° 40' N 112° 40' E, *SAR 2S.677*. Brunei: Andulau F. R., *BRUN 697*. Sabah: *SAN 43288, 43289*; Western part, Beaufort, *SAN 16943*; Pulau Gaya off Jesselton, *SAN 41301, 42013*.

CASTANOPSIS BURUANA Miq.

Castanopsis buruana Miq. in Ann. Mus. Bot. Lugd. Bat. 1: 120. 1863. — *Castanea buruana* (Miq.) Oerst. in Kong. Danske Vid. Selsk. Skr. v, 9: 377. 1817. — Type: *Teijsmann HB 1868* (BO! L! U, holo!), from Moluccas, Buru, Kajeli, fl.

Castanopsis buruana Miq. f. *grandifolio*, Miq. in Ann. Mus. Bot. Lugd. Bat. 1: 120. 1863. — Type: *Teijsmann HB 1S27* (L! U, holo!), from Moluccas, Buru, Okie, st.

BORNEO. Sabah: Ranau, Padang Pentululungan, 450 m, *SAN 49775*.

CELEBES. Central part: several. Southwest Peninsula: 66 2988, *Van Vuuren & Noerkas 231*. Southeast Peninsula: Kendari, 66 21752, 25009.

MOLUCCAS. Morotai: *Lam, 3536*. Batjan: 66 23148, 23154, *Nedi exp. De Haan 51*. Obi: 66 23822. Sula Is.: Sanana, 66 28833, *Bloembergen 4B83, Teijsmann HB 16384*. Buru: several. CERAM: Western part, *Eyma 2691, Kuswata & Soepadmo 228, 229*.

CASTANOPSIS CATAPPAEFOLIA King ex Hook, f.

Castanopsis catappaefolia King ex Hook. f. in Fl. Br. Ind. 5: 621. 1888, "*catalpaefolia*", corrected by King in Ann. Gard. Calc. 2: 100, t. 92. 1889. — Type: King's coll. 8137 (BM! K, holo! L! SING!), from Malaya, Perak, Goping distr., fr. IX-1886.

No more material seen than the type.

Castanopsis clemensii Soepadmo, *spec. nov.*

Ramuli juveniles dense tomentosi pilis fulvis sero glabrescentes, purpureo-fusci, lenticellis minutis; stipulae ovato-triangulares, obtusae, 5—10 mm longis 3—5 mm latis, potius sero caducae. Petiolus 0.5—1 cm longus, teres vel supra applanatus. Folia tenue coriacea, 6—12 cm longa, 2—6 cm lata, 1.8—2.6 plo longitudine latitudinem superante, ovata ad rariter obovata, basi rotundata ad subcordata, vulgo asymmetrica, apice rotundato subacuminatoque ad 1 cm acuminato apiculo obtuso ad acuto, faciebus olivaceis, supra glabris aliquot nitidis, subtus opacis, nervis potius dense pilis, erectis stellatis, costa nervisque utrinque subprominentibus, nervis utrinque 3—10 a costa angulo 50—60° abeuntibus, marginem versus arcuatis evanescentibusque, reticulatione subtili utrinque distincta sub-scalariforme ad irregulare. (Inflorescentia mascula ignota.) Flores feminei in rachide 3—7 cm longa 1 mm crassa, solitarii, perianthio profunde inciso, lobis 6 staminodiis 12 vestigialibus stylis 3 conoideis recurvatis 1.2—1.5 mm longis. Cupula immatura pedicello 5 mm longo, obovoidea-ellipsoidea 2—2.5 cm longa 1.5 cm lata basi cuneata fusca, pariete 1 mm crasso, sparse fulvo-puberula, praeter sectorem adaxialem spinis fasciculatis laxae in seriebus subparallelo-curvatis 5—8 mm longis potius gracilibus subglabris vulgo rectis rare recurvatis munita. Fructus unicus ellipsoideus 1.5 cm longus 1 cm latus pariete 1 mm crasso ad cupulam omnino adnato, rugoso glabroque.

TYPUS: SAN 25315 Brand & M. Anak (K! L, holo! SAN!), from Borneo, Sabah, Ranau, Sg. Mentaki, 2500 ft., fr. 16-V-1961.

BORNEO. Sabah. Ranau and Mt. Kinabalu, 750—1500 m, *Clemens* 30509, 40390, *RSNB* H77. Sg. Liwagu, Kundasan, SAN 28945. Tambunan Distr., Trusmadi F. R., c. 1800 m, SAN 418(09).

CASTANOPSIS COSTATA (Bl.) A. DC.

Castanopsis costata (Bl.) A. DC. in J. Bot. 1: 182, 1863. — *Castanea costata* Bl., Mus. Bot. 1: 284. 1850. — Type: *Korihals* s.n. (L!), from Sumatra, West Coast, forest Melintang yfr.

Castanea brevicuspis Miq., Fl. Ind. Bat. 1, 1: 866. 1858. — *Castanopsis brevicuspis* (Miq.) A. DC. in J. Bot. 1: 182. 1863. — Type: *Diepenhorst* HB 2132 (U!), from Sumatra, Priaman, yfr.

Castanea spectabilis Miq., Fl. Ind. Bat. 1, 1: 866. 1858. — *Castanopsis spectabilis* (Miq.) A. DC. in J. Bot. 1: 182, 1863. — Type: *Teijsmann* HB 680 (U!), from Sumatra, near Lubualung, st.

Castanopsis trisperma Scheff. in Nat. Tijd. N. I. 31: 362, 1870. — Type: *Teijsmann* s.n. (BO, holo, L! U!), from Bangka, near Batu-balai and Djebus, fl. fr.

Castanopsis costata Miq. *ft. bancana* Scheff. in Nat. Tijd. N. I. 31: 362, 1870. — Type: *Teijsmann* s.n. (BO, holo, L! U!), from Bangka, near Muntok, fl.

SUMATRA. Tapanuli: Sibolga, 66 28188. Angkola, 66 5226. West Coast: several. Palembang: *Praetorius* s.n. Rawas, *Grashoff* 1096. Banjuasin, *For. Serv.* H8 EP 840, *Grashoff* 781. Lematang Ilir, 66 T 817. Bangka: several. Belitung: *Van Rossum* 2.

MALAYA. Perak: several. Johore: *Burkill* 32UU.

BORNEO. Sarawak: Bintulu Distr. Ulu Segan, SAR 15116. Bt. Mersing, 2° 30' N 113° 05' E, SAR 22359. Brunei: Kuala Belalong, BRUN U7U (identification doubtful). Kalimantan: Western part, *De Vriese & Teijsmann* s.n., yfr. Melawi, Bt. Tengkujung, 66 26325. Eastern part, *Kostermans* 10165A. Balikpapan subdistr., bb 34383 (identification doubtful). West KuteL 66 28372, *Endert* 5072. Northeastern part, Muara Teweh, 1° S 115° E, 66 23466. Berau, 66 18U7U. Pulau Laut: *Delmaar* 1899. Sabah: many.

CASTANOPSIS CURTISII King

Castanopsis curtisii King in Ann. Gard. Calc. 2: 107, t. 103. 1889. — Type: *Curtis* 1691 (BM! CAL, holo; K! L! SING!), from Malaya, Penang, Penara distr., fr. VII-1893.

MALAYA. Penang: *Ridley* s.n. fl. III-1914. Selangor: Bk. Lagong F. R., *KEP* 99615; Kerling, *Ridley* 10621; Ulu Gombak, *Strugnell* 11114.

Castanopsis densinervia Soepadmo, *spec. nov.*

Ramuli juveniles pilis dense adpressis porphyreis tomentosis atque lanuginosis stellatis, glabrescentes, vigorosi internodiis brevibus cinereonigrescentes, lenticellis grandibus sparse muniti. Petiolus 0.5—1.5 cm longus ad 3 mm crassus supra profunde sulcatus. Folia rigide coriacea, 6—17 cm longa 3—8 cm lata, 1.9—3 plo longitudine latitudinem superante, vulgo ovata ad rare obovata, basi rotundata ad subcordata interdum acuta, aliquando asymmetrica, apice rotundato subacuminatoque ad plus minusve abrupte 0.5—1 cm acuminato apiculo acuto vel obtuso, discoloribus facie supra viridi glabra nitida subtus dense squamis stellatis plus minusve adpressis obiecta (postea seracea) saepe pilis stellatis brevioribus vel longioribus interspersa, costa lata rigida ut petiolus fusca venis lateralibus utrinque 12—18 a costa ascendentibus angulo 45—60° abeuntibus parallelis arcuatis marginum versus evanescentibus subtus stellato-pilosis, reticulatione tenui subtus distincta, scalariforme densa. Rachis mascula 3—7 cm longa 3—4 cm crassa; flores masculini ternati perianthio profunde inciso 6-lobato staminibus 12 filamentis 2.5—3 mm longo anthera 0.2—0.25 mm longa pistillodio 2—3 mm diametro. Rachis feminea 2—3 cm longa 3—4 mm crassa floribus solitariis perianthi lobis 6 staminodiis 12 bene evoluta perianthium superantia, stylis 3 conoideis recurvatis 2—2.5 mm longis.

Cupula juvenilis subsessilis ovoidea-ellipsoidea adaxialiter applanata squamiferaque lateralibus spinis brevibus porphyreis. Cupula fere matura pedicello pauci mm longi et lati imposita, excentrice compressa obovoidea plus minusve 3 cm longa 4 cm lata nigra pariete 1—2 mm crassa glabra praeter sectorem adaxialem spinis fasciculatis 3—4 seriebus curvatis simplicibus potius gracilibus plus minusve rectis interdum recurvatis 8—10 mm longis glabris munita, Fructus reniformis vel ovoideus basi rotundatus apice acutus 2—2.5 cm diametro, pariete lignoso 2—3 mm crasso cupula adnata praeter apicem, rugoso glabro.

TYPUS: *SAN i8109*, Meijer (L, holo! K!), from Borneo, Sabah, Mt. Kinabalu, West of Mesilau Cave, fr. 21-11-1965.

BORNEO. Sabah: Mt. Lumaku, 5° N 115° 45' E. *SAN 16668*; Mt. Kinabalu, several. Kalimantan: Central eastern part, Mt. Kemul, 2° N 116° E, *Endert 4139*.

Castanopsis endertii Hatus. ex Soepadmo, *spec. nov.*

Arbor circiter 15—20 m alta trunco circiter 25—80 cm diametro. Ramuli juveniles dense stellato-tomentosi, postea glabri obscure lenticellati, gemmis ovoideo-ellipsoideis, circiter 0.3—0.7 cm longis 0.2—0.3 cm latis squamis ovato-acutis vel lineari-acutis circiter 0.3—0.6 cm longis 0.1—0.2 cm latis. Stipulae lineares acutae 0.5 cm longae 1 mm latae caducae. Petiolus circiter 2—3 cm longus 0.1—0.2 cm crassuti glaber basi incrassatus rugosusque supra applanatus. Folia crasse coriacea elliptico-oblonga circiter (8—)10—15(—19) cm longa (3.5—)5—6(—7) cm lata faciebus utrinque glabris, basi rotundata margine integra undulataque, apice obtuse acuto vel circiter 0.5—1 cm acuminato; costa venae lateralesque subtus valde prominentes supra leviter prominentes vel applanatae; reticulatio tenuis, densa, subparallela, utrinque distincta; venae laterales circiter 7—13 utrinque, a costa angulo 60—70° ascendentes, subparallelae, marginem versus arcuatae et evanescentes. Inflorescentia mascula circiter 10—12 cm longa in axilla folii inferioris vel in fasciculis paniculatis disposita in innovations lateralibus vel subterminalibus; rachis 0.1—0.2 cm crassa denso cinereo tomento; bracteae bracteolaeque ovato-acutae. Flores masculini terni fasciculati rachidem secus, periantho profunde inciso lobis 6 acutis circiter 1—1.5 mm longis, dense stellato-tomentosis, staminibus 12 filamentis glabris circiter 2—2.5 mm longo anthera circiter 0.25 mm longa, pistillodio obtuse triangulare circiter 2 mm diametro densiter lanuginoso. (Inflorescentia feminea ignota.) Infructescentia juvenilis circiter 15—20 cm longa rachide circiter 0.2—0.3 cm crassa circiter 1—2 fructus juveniles ferente. Cupula juvenilis sessilis, ovoidea-ellipsoidea circiter 1.5—2 cm longitudine diametroque, adaxiali applanata et sine spinis sed partibus lateralibus rotundatis spinis complanatis acutis circiter 0.5—1 cm longis munita fructum unicum praeter stylos persistentes perianthiumque indutens.

TYPUS: *Endert 5196* (BO, holo, L!), from Borneo, Kalimantan, western Kutei, Kombeng-, 30 m, yfr. 23-XI-1925.

BORNEO. Kalimantan: Central eastern part, W. Kutei, ± 2° N 116° E, Long Petah, *Endert 3331*.

CASTANOPSIS EVANSII Elmer

Castanopsis evansii Elmer in Leaflet. Philip. Bot. 5: 1778. 1913. — Type: *Elmer 12938* (A, holo! K! L! NY phot.! U! US! WRSL!), from Philippines, Palawan, Mt. Pulgar, fl. yfr. IV-1911.

Castanopsis ivoodii Merr. in Philip. J. Sc. 29: 362. 1926. — Type: *Castro & Melegrito 1396* (A! K! UC, holo!), from Borneo, Banguay I., yfr. 5-VIII-1923.

Castanopsis elmeri Merr., Pl. Elm. Born.: 42. 1929. — Type: *Elmer 20112* (A! BM! K! L! MICH! SING! U! UC, holo!), from N. Borneo, Myburgh Prov., Sandakan, fr. X/XII-1921.

BORNEO. Sarawak: Lundu, G. Gading, 1° 40' N 109° 50' E, *SAR 9645* (identification doubtful). Brunei: *GokUn 358*. Sabah: many, in several districts. Kalimantan: Eastern part, Balikpapan, Riko, 66 *14959*. B a n g g i I.: *SAN 40395*, *42145*, *Castro & Melegrito 1396*.

PHILIPPINES. Palawan: Mt. Pulgar, *Elmer 12938*.

CASTANOPSIS FOXWORTHYI Schottky

Castanopsis foxworthyi Schottky in Bot. Jahrb. 49: 358. 1913. — Type: *Foxworthy 21U* (n.v.), from Borneo, Sarawak, fr.

Castanopsis kinabaluensis A. Cam. in Bull. Soc. Bot. Fr. 75: 698. 1928. — Lectotype: *Haviland 1115* (K, holo! SING!), from Borneo, Mt. Kinabalu, 2400 m, fr.

BORNEO. Sarawak: First Division, many; Bintulu Distr., Bt. Urang, several; Mt. Mulu, 4° N 115° E, *Anderson & Keng 1*; Baram, *Hose 208*; Loba Kabang peat-swamp forest, *SAR OU-k.2*, *OUU7*, *0881*. Sabah: many, in various districts. Kalimantan: Nunukan I., 66 *26201*, *29324*, *34895*, *Kostermans 9165*.

CASTANOPSIS FULVA Gamble

Castanopsis fulva Gamble in Kew Bull.: 179. 1914. — Lectotype: *King's coll. 7751* (K, holo! L! SING!), from Malaya, Perak, Batang Padang, 90—150 m, fr. VII-1885.

SUMATRA. Central part: Tandjung Pauh, 0° 15' N 100° 50' E, *Meijer 4609a*.

MALAYA. Perak: Batang Padang distr., *King's coll. 7751*. Pahang: Bentong, *KEP/CF 4062*. Selangor: *Radjab 1514*. Negri Sembilan: Semawang F. R., *KEP/CF 1956*. Johore: 14th mile Mawai-Jemaluang Road, *SF 37363*.

BORNEO. Sarawak: Kuching, Semengoh F. R., *SAR 3382*, *15259*, *15791*, *arboretum tree no. 653*; Ulu Arip, 2° 40' N 112° 40' E, *SAR 23768*. Brunei: *SAR 4897*. Sabah: Western part, Beaufort Hill, *SAN 36299*; Ranau, mile 37th Ranau-Tamporuli Road, 1500 m, *SAN 26778*. Kalimantan: Western part, Mt. Kenepai, 0° 45' N 112° E, *Hallier 2098* (identification doubtful, leaf glabrous).

Castanopsis hypophoenicea (v. Seem.) Soepadmo, *comb. nov.*

Quercus hypophoenicea, v. Seem, in Bot. Jahrb. 23, Beibl. 57: 52. 1897. — *Lithocarpus hypophoenicea* (v. Seem.) Barn, in Trans. & Proc. Bot. Soc. Edinb. 44: 171. 1944. — Type: *Beccari PB 2287* (K! P!), from Sarawak.

Castanopsis dispersispina Merr., PL Elm. Born.: 41. 1929. — Type: *Elmer 21797* (A! BM! K! L! MICH! U! UC, holo!), from N. Borneo, near Tawao, fr. X-1922/111-1923.

BORNEO. Sarawak: Lundu distr., 1° 30' N 110° E, *SAB. 15411*. Sabah: Tenom distr., *SAN 40481*; Jesselton distr., *SAN 40316*; Lahad Datu distr., *SAN 26908, 34411*; Ranau distr., Kinabalu area, 600 m, *SAN 20755*, ± 1800 m, *BSNB 2505*, no altitude known, *SAN 21337*; Sandakan distr., many; Tawao distr., several. Kalimantan: Eastern part, Sangkulirang, 1° N 118° E, *Kostermans 13605*; Western Kutei, Kombeng, *Endert 5197*; Peak of Balikpapan, 1° S 116° 30' E, 650' m, *Kostermans 7565*.

CASTANOPSIS INERMIS (Lindl. ex Wall.) Benth. & Hook. f.

Castanopsis inermis (Lindl. ex Wall.) Benth. & Hook, f, Gen. PL 3: 409. 1880. — *Castanea inermis* Lindl. ex Wall., PI. As. Rar. 2: 6. 1830. — Type: *Wallich 2762* (CGE! K, holo!), from Malaya, Penang, fl. fr. 1822 (not from Singapore as the author suspected).

Castanea glomerata [non (Roxb.) Wall, ex BL] BL, Mus. Bot. 1: 283. 1850, quoad specimina, excl. syn. — Based on *Wallich 2791* (BM! CGE! K! L! P!), from Malaya, Penang, fl. — NOTE: The specimen was misidentified by Wallich in his Catalogue as being *Quercus glomerata* Roxb., which is a *Lithocarpus*; Blume unfortunately transferred Roxburgh's name, citing the misidentified collection.

Callaeocarpus sumatrana Miq., PL Jungh.: 14. 1851. — *Castanopsis swmatrana* (Miq.) A. DC. in J. Bot. 1: 182. 1863. — *Castanea swmatrana* (Miq.) Oerst. in Kong. Danske Vid. Selsk. Skr. v, 9: 378. 1871. — Type: *Junghuhn* (L! U!), from N. Sumatra, Upper Angkola, 300—900 m, fr.

Castanopsis mitifica Hance in J. Bot. 16: 200. 1878. — Type: *Teijsmann 11457* (BM! BO, holo! L!), from Lingga, Sg. Panga, fr.

SUMATRA. Tapanuli: Res. Angkola, *Junghuhn*, fr.; Distr. Bangat-Topong, *bb 524-4*. ? Djambi: K. *Heyne 17*. Paltembang: *Grashoff 329, Praetorius, <\$ fl. 1836* (described by Blume 1860 as *C. glomerata* (Roxb.) BL); Banjuasin, Kubu, *For. Res. 70 T 1 P 126 Thorenaar*; East of Sukaradja, *Forbes 2979*. Lampung: Tarabangi, *Teijsmann HB 4519*. Bangka: Lobok Besar, *66 34.177, Kostermans & Anta 1135*. Lingga Is.: Sg. Panga, *Teijsmann HB 11457*.

MALAYA, Kedah: Baling, 5° 40' N 100° 55' E, *SF 2W67*; Ketumba I., 6° 10' N 99° 47' E, *KEP 11752*; Jeriang Road, *SF 35982*. Perak: many. Kelantan: Gua Musang, Sg. Galas, *SF 22611*. Trengganu: *Abdullah 80*; Bk. Payong, *SF 334.86*. Pahang: several. Wellesley: Ara Kuda, *Ridley 7023*. Selangor: many. Negeri Sembilan: *KEPICF 1959, SF 31696*. Malacca: Alvins, St., *Derry 28, SF 40566*. Johore: several. Penang: several. Singapore: *Cantley s.n., Burkill 532*.

CASTANOPSIS JAVANICA (Bl.) A. DC.

Castanopsis javanica (Bl.) A. DC. in J. Bot. 1: 182. 1863. — *Fagus javanica* Bl. in Flora 7: 295. 1824. — *Castanea javanica* BL, Bijdr.: 525. 1825. — *Quercus javanica* (A. DC.) Drake in J. de Bot. 4: 153. 1890, excl. the specimens *Balansa 2386 & 2387* which are *C. tessellata* Hick. & A. Cam. — Type: *Blume* (L!), from Java, Mt. Gede, Tjibeureum, yfr.

Castanea ? montana BL, Bijdr.: 526. 1825. — *Castanea javanica* BL var. *montana* (BL) BL, Fl. Javae, CupuL: 45, t. 24, 1829. — *Castanopsis javanica* (Bl.) A. DC. var. *montana* (Bl.) A. DC, Prod. 16, 2: 111. 1864. — Type: *Blume* (L!), from Java, Mt. Gede, Gegerbintang* fl., yfr.

Castanea javanica Bl. var. *fuscescens* (Bl.) BL, Fl. Javae, CupuL: 45. 1829 (as unnamed variety in Bijdr.: 526. 1825). — Type: *Blume* (L!), from Java, st.

Quercus discocarpa Hance in J. Bot. 12: 242. 1874. — *Castanopsis discocarpa* (Hance) Hance in J. Bot. 16: 201. 1878. — *Pasania discocarpa* (Hance) Gamble in J. As. Soc. Beng. 75, ii: 447. 1915. — *Synaedrya discocarpa* (Hance) Koidz. in Bot. Mag. Tokyo 30: 186. 1916. — Type: *Teijsmann 7001* (BM!) from Bangka fr.

Castanopsis lentiginosa E. F. Warb. in Kew Bull.: 20. 1936. — Type *Native coll. lib. Richards 1923* (K, holo! L!), from Borneo, Sarawak, Mt. Dulit, Ulu Koyan, 800—900 m, fl. fr. 18-IX-1932.

Castanopsis penangensis A. Cam. in Bull. Soc. Bot. Fr. 94: 4. 1947. — Type: *Haniff 345* (K, holo! SING!), from Malaya, Penang, 600 m, yfr. XII.

SUMATRA. Atjeh: Gajo-Loeüs, Penosan, G. Rangun Galang, 1600 m, 66 22401. East Coast: *Yates 1281*. Tapanuli: Lake Toba, 1400 m, 66 15118. West Coast: several; Mt. Kerintji, 1° 45' S 101° 20' E, 2000 m, *Meijer 6286*; Mt. Singalang, *Beccari PS 406*. Bangka: *Teijsmann HB 7648, HB 1144-7, HB 11456*.

MALAYA. Perak: Larut, *King's coll 3651, 5488, 6975*. Pahang: Cameron Highlands, 1400—1600 m, *Poore 1319, 1324, 1325, Bajab 445, 468*. Selangor: several. Penang: several.

JAVA. West: Bantam, Pulasari, 6° 20' S 106° E, *Koorders 1404*; Depok F. R., 90 m, several; Salak and mountains farther East, many. Central: Mt. Dieng, nearly 110° E, *Blume s.n.*

BORNEO. Sarawak: Mt. Dulit, 3° 20' N 114° 10' E, *Richards's coll. 1923*; Usun Apau, 3° N 114° 40' E, 800 m, *SAB 22617*; Ulu Baram, 3° 30' N 115° 30' E, 1000 m, *SAB 20206*. Sabah: Western part, Keningau, *SAN 49571*; Tuaran, 210 m, *Melegrito 3313*; Ranau and Mt. Kinabalu, 600—1350 m, several. Kalimantan: Eastern part, Western Kutei, *bb 16569*; Djembajan, 66 25140; Liak-Leng and Lahun, 0-2° N 116° 30' E, *Endert 2995 & 1838*; Sangkulirang-, 1° 10' N 117° 40' E, 66 34796; Balikpapan, 1° 15' S, 66 25634, *Kostermans 4292*.

Castanopsis johorensis Soepadmo, *spec. nov.*

Ramuli juveniles fulve pubescentes mox glabrescentes, graciles nigri lenticellis minutis sparse muniti, stipulis linearibus acutis 3—4 mm longis 0.7—1 mm latis. Petiolus 1—2 cm longus basim versus fuscus supra sulcatus. Folia tenue coriacea 7—15 cm longa 2—5 cm lata, 2.5—3.1 plo longitudine latitudinem superantia latiora in medio parte, basi attenuata

apice gradatim ad abrupte 1—2 cm acuminato, faciebus concoloribus potius nitidis subtus squamis stellatis adpressis sparse munitis (vide magnificatione 40), opace brunnescentibus, costa venisque subtus valde prominentibus supra depressis, venis lateralibus utrinque 7—11 a costa angulo 60—80° ascendentibus subparallelis marginem versus arcuatis anatomosantibusque, reticulatione irregulari. (Inflorescentia mascula ignota.) Rachis feminea circiter 5.5 cm longa 1.5 mm crassa floribus solitariis periantho profunde 6-lobato, staminodiis 12 melius evolutis et perianthium superantibus, stylis 3 teretibus recurvatis 1—1.5 mm longis. Cupula sessilis complanato-globosa 2—3 cm diametro pariete subglabro praeter sectorem adaxialem epinis fasciculatis 8—10 mm longis simplicibus gracilibus plus minusve rectis subglabris perdente munita. Fructus complanato-ellipsoideus 1.5—2 cm longus 1—1.5 cm latus pariete lignoso 1—2 mm crasso ad cupulam omnino adnato rugoso glabro.

TYPUS: *KEP 77887 Kochummen* (K! KEP! L, holo! SING!), from Malaya, Johore, Mersing, fr. 23-VII-1957.

SUMATRA. Central part: Taram, 0° 15' S 100° 40' E, 500 m, *Maradjo 326*.

MALAYA. Johore: Mersing, *KEP 77887*; Sg. Sedili, *SF 36869*; Kota Tinggi, *SF 10153*.

Castanopsis lucida (Nees in Wall.) Soepadmo, *comb. nov.*

Alseodaphne lucida Nees in Wallich, *Pl. As. Rar.* 2: 72. 1831. — *Laurus lucida* Wall., *Cat.*: 2590, homen. — Type: *Wallich 2590*, from Singapore, st. 1822 (BM! K!).

Castanopsis hulleUii King ex Hook. f. in *Fl. Br. Ind.* 5: 623. 1888. — Type: *Hullett 78*, from Singapore, fl. (SING!).

MALAYA. Perak: Pondok Pandjang Res., *KEP/CF 9780*, *King's coll. 7753*. Selangor: Bt. Lagong F. R., *KEP 60619*. Negeri Sembilan: Pasir Putih Res., *KEP/CF 584*. Malacca: *Berry 466*, *Goodenough 1344*. Johore: Bk. Paloh Instate, *Shah 409*. Penang: many. Singapore: many.

BORNEO. Sarawak: Marop, 1° 10' N 111° 55' E, *Beccari PB 3242*. Kalimantan: Western part, Hayup, ± 2° S 115° 20' N, *Hub. Winkier 2406*; Karangan R., 1° 20' N 117° 40' E, *Kostermans 13628*.

NOTES. The name *Laurus lucida* appeared for the first time in Wallich's *Cat.*, no. 2590. Nees (1831) gave a brief description and transferred it with a question mark to *Alseodaphne*. In a note to the species, Nees expressed doubt about the generic identity and suggested that it might belong to *Quercus*. Hooker f. (*in Fl. Br. Ind.* 5: 147. 1886) maintained it, under doubtful species, in *Alseodaphne*, but he also gave a comment that it might be not a Lauraceous plant. Gamble (*in J. As. Soc. Beng.* 75, ii: 96. 1912), on the other hand, was of the opinion that it might be a species of *Litsea*. Ridley (*Fl. Mai. Pen.* 3: 100. 1924) said that it might

be an oak species. Kostermans (*in J. Sc. Res. Indon.* 1, 5: 116. 1952) suggested that *Alseodaphne lucida* might be a species of *Lithocarpus*.

In the Kew Herbarium I found *Wallich 2590* under the original name, whereas in the British Museum, a duplicate has been inserted among the unidentified specimens of *Lithocarpus*. Though these two specimens are sterile, I have not the slightest doubt that they are conspecific with *Castanopsis hulleUii* King ex Hook. f. Accordingly a new combination, *Castanopsis lucida* (Nees in Wall.) Soepadmo, is proposed here and *C. hulleUii* is reduced to it.

CASTANOPSIS MALACCENSIS Gamble

Castanopsis malaccensis Gamble in *Kew Bull.*: 178. 1914. — Type: *Derry 947* (K, holo! SING!), from Malaya, Malacca, Brisu, fr. III.

SUMATRA. Central part: Kuantan, ± 1° S 103° E, 66 25207, 26502.

MALAYA. Upper Perak: Ulu Kendurong, 5° 30' N 101° 10' E, *SF 11614*. Negeri Sembilan: Semawang, *KEP/CF 527*. Selangor: Ginting Simpah, *KEP/CF 10921, 12640*; Ulu Gombak P. R., *KEP 79120*. Pahang: *KEP/FMS 15776*. Malacca: several. Johore: Sg. Sedili, 2° N 104° 07' E, *Corner*, st. VII. Singapore: *Ridley s.n., SF 34506, 34920*.

CASTANOPSIS MEGACARPA Gamble

Castanopsis megacarpa, Gamble in *Kew Bull.*: 180. 1914. — Type: *King's coll. 7070* (K, holo! L!), from Malaya, Perak, Kinta, fr. I.

MALAYA. Kelantan: Sg. Ketel, ± 5° N 102° E, *SF 248:26*. Perak: several. Trengganu: 26th mile Kuala T.-Besut Road, *SF 40754*. Selangor: several. Negeri Sembilan: *KEP/CF 616*. Malacca: several. Johore: Tg. Sedili Kechil, 1° 51' N 104° 10' E, *Corner*, fr. IV; Bk. Paloh Estate, *Shah & Kadivi 415*. Singapore: several

BORNEO. Sarawak: Lundu distr., 1° 30' N 110° E, *SAR 15666* (aff. *megacarpa*); Bintulu distr., Segan F. R., *SAR 15804* (aff. *megacarpa*). Kalimantan: Western part, Betung, 0° 20' S 111° 10' E, 66 296,23 (aff. *megacarpa*); Eastern part, Nunukan I., *Kostermans 8631* (aff. *megacarpa*), *Paymans 150*; Balikpapan area, *Mentawir, Sauveur 68*.

Castanopsis microphylla Soepadmo, *spec. nov.*

Ramuli juveniles dense pilis fulvis stellatis magnitudine variis obtecti sero glabrescentes vulgo graciles atropurpurei-brunnei laeves sparse lenticellati stipulis linearibus acutis 5—7 mm longis 1—2 mm latis pilosis. Petiolus 3—10 mm longus 1 mm crassus supra pianus. Folia chartacea 5—9 cm longa 1.5—3 cm lata, 2.5—4.6 plo longitudine latitudinem superantia latiora in medio parte vel paulo basim versus, basi attenuata ad rare subrotundata apice gradatim 0.5—1 cm acuminato apiculo acuto vel

obtusum, faciebus plus minusve discoloribus supra glabra parum nitida subtus squamis stellatis dense ad sparse obiecta (vide magnificatione 60), in venis praesertim juvenilibus pilis longis simplicibus, costa utrinque prominente venis lateralibus utrinque 8—10 a costa angula 45—60° ascendentibus parallelis marginem versus arcuatis tenuibus, reticulatione scalariforme subtili densi utrinque obscura. Rachis mascula 5—10 cm longa 1 mm crassa fasciculis 3—7 floribus, perianthio 6-lobato extus dense tomentoso, staminibus 12 filamentis 1—1.5 mm longo anthera circiter 0.2 mm longa, pistillodio circiter 1 mm diametro. Rachis feminea 3—5 cm longa 1 mm crassa floribus ternis perianthio 0.5 mm profunde lobato, staminodiis 12 abortivis, stylis 3 conoideis 1 mm longis. Cupula juvenilis sessilis ovoidea-globosa 5 mm longa 5 mm diametro 3 fructus omnino includens, extus 4 sectoribus breve distincteque spinosis suturis futuris squamosis alternantibus.

TYPUS: *S. 22511 Sibat ak Luang* (A, BO, K, holo! KEP, L! SAN, SAR, SING), from Borneo, Sarawak, 4th division, Bt Mersing, Anap, c. 400 m, yfr. 15-X-1964.

BORNEO. Sarawak: Mt. Poi, 1° 45' N 109° 40' E, 1200—1300 m, *Clemens 20091, 202,31*; Gn. Wah, SW. of Kuching, *Beccari PB 2756*; Bk. Raya, 2° 10' N 113° 05' E, 240 m, *SAB 14744*; Bt. Mersing, 2° 30' N 113° 05' E, *SAB 21891, 22123, 22511*. Sabah: Mt. Kinabalu, 900—1560 m, *Clemens 28162, SAN 26794*. Kalimantan: Sanggau, 1° 10' N 109° 40' E, 66 18791; Western Kutei, Mt. Kemul, 2° N 116° E, *Ender 4128*; Mendom, Sg. Klindjau, 1° N 116° 30' E, 66 292.30.

CASTANOPSIS MOTTLEYANA King

Castanopsis mottleyana King in Ann. Gard. Calc. 2: 96, t. 86. 1889. — Type: *Beccari PB 2613* (PI, holo! K! P!), from Borneo, Sarawak, yfr.

Castanopsis pearsonii Merr. in Philip. J. Sc. 30: 79. 1926. — Type: *D. D. Wood (coll. Evangelista) 1151* (K! UC, holo!), from North Borneo, Rayoh, fr. 25-1-1924.

BORNEO. Sarawak: First division, several; Upper Rajang, Gat, 2° N 113° E, *Clemens 610,1, 21510*; Similajau F. R., 3° 30' N 113° 20' E, *SAB 18108*; Mt. Mulu, 4° N 115° E, *SAB 4097*. Brunei: Seria distr., Teraja F. R., *Hotta 12871, 12931*; Andulau F. R., *BBUN 595*; Mt. Bangar, 4° 40' N 115° 10' E, *Hotta 13102*. Sabah: many, in most coastal districts. Kalimantan: Eastern part, from North to South: Nunukan I., *Kostermans 8702, 9117*; Tidung Lands, 66 18275; Berau, 66 19033 (probably *mottleyana*); West Kutei, 66 16266; Central Kutei, Long Bleh, *Kostermans 10287*; Mahakam River estuary, *Kostermans 7032, 9563, 10799*; Balikpapan, 66 34378.

PHILIPPINES. Mindanao: Mt. Apo, 900¹ m, *Elmer 10579, 11269*; Bukidnon prov., Mt. Katanglud, 1700 m, *PNH 9943*; Northern Zamboanga, 500 m, *PNH 38255, 38419*; Agusan, *Stern 2113*.

CASTANOPSIS NEPHELIOIKES King ex Hook. f.

Castanopsis nephelioides King ex Hook, f. in Fl. Br. Ind. 5: 624. 1888. —*. Lectotype: *King's coll. 7208* (BM! K, holo! L! P! SING!), from Malaya, Perak, Kinta, fr. 1-1885.

MALAYA. Kedah: Bk. Selamban, *KEP/FMS 8953*; Bk. Sungoh Reserve, *KEPI FMS 8957*. Perak: many. Pahang: Sg. Sat, Ulu Tembeling, *SF 21932*; Fraser Hill, *Shah & Noor 625, Poore 1237, 1360*. Selangor: Sg. Luit, *Poore 1S62*. Johore: Gn. Panti F. R., *Sinclair 10829*. Singapore: *Canthy s.n., Bidley 6440*.

Castanopsis oligoneura Soepadmo, *spec. nov.*

Ramuli juveniles plus minusve porphyreo tomentosi, glabrescentes graciles lenticellis sparse minutis. Petiolus 1.5—3 cm longus gracilis basi incrassatus supra planus. Folia rigide coriacea, 7—15 cm longa 3—6 cm lata, 2.4—3.4 plo longitudine latitudinem superantia latiora in medio parte, basi attenuata-acuta ad subacuminata apice acuto vel abrupte acuminato apiculo 0.5 cm longo acuto vel obtuso, faciebus discoloribus supra plus minusve nitida virescente glabra subtus pallide brunneis squamis stellatis adpressis plus minusve dense obiectis (vide magnificatione 30—60) fere glabra, costa venisque lateralibus subtus prominentibus supra tenuiter prominentibus vel planis, venis lateralibus utrinque 5—7, a costa angulo 45—60° ascendentibus subparallelis marginem versus arcuatis, reticulatione subtili scalariforme supra obscura. Rachis mascula 5—10 cm longa 1.5—2 mm crassa floribus solitariis vel vulgius cum 3—7 in fasciculis, perianthio profunde 4—6-lobato, staminibus 8—12 filamentis 3—3.5 mm longo anthera 0.2—0.25 mm longa, pistillodio 1 mm diametro. Rachis feminea (vel interdum bisexualis) 5—8 cm longa floribus solitariis perianthio 6-lobato, staminodiis 12 abortivis, stylis 3 terete-conoideis recurvatis 1—2 mm longis, ovario rotundato-triangulari. Cupula subsessilis ellipsoidea-globosa 2.5—3 cm longa 2—2.5 cm diametro pariete circiter 2 mm crasso glabro vel sparse puberulente, potius laxe sed regulariter spinosa praeter sectorem adaxialem applanatum, spinis validis 6—10 mm longis vulgo solitariis interdum fasciculatis paulum recurvatis sparse puberulis munitis; dehiscencia irregulari. Fructus unicus, ellipsoideus-globosus 2—2.5 cm diametro pariete 1 mm crasso ad cupulam fere omnino adnato rugoso glabro.

TYPUS: *SAN 32836 Meijer* (K! L, holo! SAN! SING!), from Borneo, Sabah, Sandakan, Kebun China F. R., Sibuga Road, fr. 2-X-1963.

BORNEO. Sarawak: Bk. Pendam, 1° 56' N 111° 22' E, *SF 35736*. Brunei: Penampang, 4° 45' N 114° 43' E, *BBUN 2957*. Sabah: 6 miles SSE of Malaman, 4° 55' N 115° 40' E, *SAN 16802*; Distr. Sandakan, many.

Castanopsis oviformis Soepadmo, *spec. nov.*

Ramulis juveniles indumento brunnescente adpresso stellato sero glabrescentes, graciliores, atropurpurei vel fusci lenticellis minutis sparse muniti, stipulis ovatis acutis 3—5 mm longis 2—3 mm latis. Petiolus 1—1.5 cm longis supra planus. Folia positionem disticham versus interdum inserta plus minusve tenuiter coriacea 6—5 cm longa 4—6.5 cm lata,

2.2—3—plo longitudinem latitudinem superantia ovata ad obovata basi plus minusve rotundata-aula apice vulgo rotundata et abrupte 0.5—1 cm acuminata, faciebus olivaceis, supra nitidissima glabra subtus interdum opaca squamis stellatis adpressis sparsissime ad densissime oblecta (vide magnificatione 30—60), interdum paucis pilis stellatis in venis, costa subtus prominente supra plana ad leviter prominente, venis lateralibus utrinque 8—12 a costa angulo 60—80° ascendentibus parallelis marginem versus arcuatis, reticulatione densa subtili scalariforme subtus distincta. Rachis mascula 5—15 cm longa 1—2 mm crassa floribus cum 3—7 in fasciculis perianthio profunde 6-lobato staminibus vulgo 12 filamentis 1—1.5 mm longo anthera 0.25 mm longa, pistillodio 1—1.5 mm diametro. Rachis feminea (interdum bisexualis) 5—10 cm longa floribus solitariis perianthio profunde 6-lobato, staminodiis 12 abortivis stylis 3 terete-convolvis 2 mm longis. Cupula pedicello 0.75—1 cm longo ellipsoidea ad obovoidea basi conata 2.5—5 cm longa 1.5—3 cm lata pariete 0.5—1 mm crasso sparse puberula, spinis seriebus curvatis utrinque latere cupulari praeter in sectori adaxiali solitariae vel fasciculatae 2—3 mm longae et sparse vel 8—10 mm longae et dense munita simplicibus validis rectis ad paulo recurvatis dense fulve puberulis; dehiscencia irregularia vel partibus duo aequis. Fructus obovoideus-teres 2—3.5 cm longus 1.5—2 cm diametro pariete 0.5—1 mm crasso ad cupulam omnino adnato rustose glabro.

TYPE: SAR 23233 *Sibai ak Luang* (A, B), K! L, holol SAN, SAR, SING), from Borneo, Sarawak, 3rd division, Bk. Iju, Ulu Arip, Balingian, fr. 20-VII-1965.

BORNEO. Sarawak: Kuching distr., *Harland & Hoer 309*; Mt. Matang, SAR 15552; Sarawak distr., SAR 12612: Mt. Dulit, *Kocheris 1010*; Ulu Arin, 2° 40' N 112° 40' E, SAR 23232; Ulu Baram, Bako, 1600 m, SAR 20175. Sabah: Bondoni distr., SAN 25701; Sandakan distr., several stations; Central part, Liang Gagang, 0° 40' N 113° 15' E, *Hollies 1920*; Eastern part, from North to South: Nurrakan I., *Kuschmann 8852*; Western Kutai, Mt. Kunul, 2° N 118° E, 1200 m, *Erdart 2670*; Long Erbus, *Erdart 1921*; Tandjong Banzko asar Mahakam estuary, = 0° 46' S, *Kocheris 1098*; Bulungan subdistr., Sg. Walo, 55 2335; Dulu, Sub. Wokler 2322; Maraposa, 2° 25' S 114° 30' E, *Kocheris*, fl.; Bontjarnasau, *Matis 1345*.

Castanopsis paucispina Soepadmo, *spec. nov.* — Fig. 11 d—g.

Ramuli juveniles tomento denso brevi stellato brunnescendo glabrescentes graciles densae lenticellati stipulis ovatis acutis 2 mm longae 1 mm latae. Petiolus gracilis 1—1.5 cm longus supra paulum sulcatus. Folia tenne coriacea 8—14 cm longa 3—5.5 cm lata, 2.4—3.2—plo longitudine latitudinem superantia latiora in medio parte vel infra, basi rotundata-acuta apice attenuata acuta ad 1 cm acuminata, faciebus discoloribus supra plus minusve nitida virescente glabra subtus opaca cinamomea squamis stellatis adpressis crasse oblecta (vide magnificatione 20) in venis aliquot pilis (saepe apicem versus inflexis) saepe ad basim ramosis, costa venisque subtus prominentibus supra planis, venis lateralibus utrinque 9—10 a costa angulo 45—60° ascendentibus subparallelis marginem versus arcuatis,

reticulatione tenne densa scalariforme interdum supra obscura. Rachis mascula 5—10 cm longa 1—1.5 mm crassa floribus terni perianthio profunde 6-lobato, staminibus 12 filamentis 2.5—3 mm anthera 0.25 mm longa, pistillodio circiter 1 mm diametro. Rachis feminea 5—10 cm longa floribus solitariis perianthio profunde 6-lobato, staminodiis 12 abortivis, ovario 8-loculare stylis 3 convolvis 1—1.5 mm longis. Cupula matura subsessilis theobromina obovoideo-globosa 4—4.5 cm longa 3—3.5 cm diametro basi in pedicello brevem angustata, pariete 2—4 mm crasso aliquantum pilis brevibus fulvis, spinis sparse in 3—4 seriebus curvatis vulgo solitariis validis saepe potius complanatis recurvatisque 5—7 mm longis subglabra munita. Fructus unicus obovoideus-globosus circiter 4 cm longus 3 cm diametro pariete lignoso 5—7 mm crasso ad cupulam omnino adnato rugoso glabro.

TYPE: SAN A 1555 *Wood & Wight-Smith* (A! BRL, KEP! L, holol SAN, SING!), from Borneo, Sabah, Keningau Distr., 3 mile E. of Tambunan, fr. 1-IX-1951.

BORNEO. Sarawak: Bk. Matang, 2° 20' N 113° 05' E, 1000—1100 m, SAR 12179, 21810, 21987. Sabah: Tambunan, 2° 40' N 113° 35' E, 800 m, SAN A 1555.

Castanopsis pedunculata Soepadmo, *spec. nov.* — Fig. 1: a—c.

Ramuli juveniles cinereo-brunnei glabri dense lenticellati. Petiolus 1—2 cm longus supra paulum sulcatus. Folia tenne coriacea concoloria elliptico-oblonga 8—16 cm longa 2—3.5 cm lata basi rotundata-conaptoque acuta apice acuto ad 0.5—1 cm acuminata, faciebus glabris, costa subtus prominente supra plana, venis utrinque 10—12, a costa angulo c. 60° ascendentibus subparallelis marginem versus arcuatis utrinque paulum prominentibus, reticulatione subscalariforme ad aliquantum irregulari, utrinque distincta. (Inflorescentia ignota.) Infructescencia rigida usque ad 18 cm longa 0.5 cm crassa dense lenticellata tomento stellato adpresso glabrescens. Cupula matura complanata obovoidea globosa plus minusve symmetrice 4-lobata pariete tenui fructus omnino includens tuberculis appianatis minutis in cretis undulantibus regularibus munita fulvo incano, 2—3 cm longa 8—8.5 cm lata, ad 4 segmenta plus minusve aequa dehiscens, pedicello 1—1.5 cm longae 0.5 cm crassa rugoso vulgo lasso. Fructus terni ovoidei convolvi 1.5—2 cm longi 1.5—1.8 cm lati lateris contiguus concavis electricae partem 1/3 ad 2/5 occupante parte libera nitida sparse pilosa apice abrupte apiculata.

TYPE: SAN 16865 *Wood* (K! KEP! L, holol SAN! SING!), from Borneo, Sabah, Sipitang Distr., Ulu Mendalong, c. 6 miles SSE. of Malaman, c. 300 m, fr. 30-IX-1955.

No other collections seen than the type.

CASTANOPSIS PHILIPENSIS (Blanco) Vidal

Castanopsis philipensis (Blanco) Vidal, *Rev. P. Vanc. Filip.* 265, 1885, — *Philippensis*. *Flora philippensis* Blanco, *Fl. Filip.* 2nd ed.: 503, 1845. Neotype: *Total 171 43* (K! L, holol), from Philippines, Luzon, Bulacan prov., Angat, 2° 40' N.



Fig. 1. *Castanopsis pedunculata* Soepadmo and *C. paucispina* Soepadmo. — *C. pedunculata*: a, branchlet, 2/3 x; b, ripe cupule, 2/3 x; c, fruits, 2/3 x. — *C. paucispina*: d, branchlet, 2/3 X; e, terminal bud, 4 X; f, cupule outside, 2/3 X; g, cupule, longitudinal section, 2/3 X. — a-c, after SAN 16805; d-g, after SAN A 1,385.

Castanopsis glabra, Merr. in Philip. J. Sc. 9: Bot. 354. 1914. — Type: Wenzel 737 (BM! US!), from Philippines, Leyte, yfr. V/VII-1914.

PHILIPPINES. M'indoro: FB 8547. Luzon: North of Manila, Angat, Vidal 611, 611b; Bulacan prov., PNH 41831, Ramos 672; Round Manila, Rizal prov., several; SE. of Manila, Laguna prov., FB 31266; Camarines prov., $\pm 14^{\circ}$ N 123° E, FB U796; Albay prov., $\pm 13^{\circ}$ N 124° E, PNH S4558. Samar: FB 21079, 23571, BS 24556. Leyte: Wenzel 619, 737. Basilan: BS 16130, Ebalo 992. Mindanao: scattered over the island; N. Zamboanga prov., PNH 38166; Lanao prov., Ebalo 1169; Mt. Urdaneta, 1200 m, Elmer 14124; Mt. Katanglad, 1800 m, PNH 9863; Mt. Dulangan, 1500 m, Whitehead s.n.; Mt. Apo, Elmer 11295, 11315.

7 . *Castanopsis psilophylla* Soepadmo, *spec. nov.*

Ramuli fere ab initio glabri, laeves fuscii atropurpurei lenticellis nullis vel perpauci stipulis linearibus 3—4 mm longis fugacibus. Petiolus 0.5—1.5 cm longus glaber supra planus vel paulum sulcatus. Folia tenue coriacea (6—)10(—16) cm longa (1—)3.5(—5) cm lata, (2.3—)2.8—4.2-plo longitudine latitudinem superantia latiora in medio parte interdum infra, faciebus plus minusve discoloribus glabris supra vulgo nitida, basi rotundata ad acuta paulum decurrente apice acuto ad 0.5—2 cm acute acuminato, costa venisque lateralibus utrinque plus minusve prominentibus, venis lateralibus utrinque 9—12 a costa angulo 60° — 70° parallelis marginem versus arcuatis evanescentibusque, reticulatione tenui utrinque obscura. Rachis mascula 5—15 cm longa 1—2 mm crassa floribus cum 3—7 fasciculati perianthio profunde 6-lobato, staminibus 12 filamenta 1.5—2 mm longo anthera 0.2—0.25 mm longa, pistillodio 1 mm diametro. Rachis feminea (interdum bisexualis) circiter 6 mm longa floribus cum 3—7 in fasciculis perianthio profunde 6-lobato, staminodiis 12 bene evolutis et perianthium superantibus vel abortiva, stylis 3 conoideis recurvatis 1 mm longis. Cupula juvenilis sessilis turbinata tuberculis brevibus in seriebus concentricis munita. Cupula matura asymmetrico pyriformis vel depresso obovoidea lobis 2 vel plus, fructus 3—7 omnino includens pills stellatis vel simplicibus olivacea velutina, 1.5—2.5 cm magnitudine pariete 0.5 cm crasso nonnullis crestis tuberculorum brevium interdum recurvatorum munito, in 2 vel 4 segmenta plus minusve regulariter dehiscens. Fructus ovoidei-complanati 1.5—2 cm magnitudine cicatrice convexa rugosa 2/5 ad 4/5 partem occupante parte libera dense brunneo tomentosa.

TYPUS: SAN 25953 *Muin Chai* (K! L, holo! SAN!), from Borneo, Sabah, Lahad Datu Distr., Sg. Limau, Kelumpang, 200 ft, yfr., fr. 24-VII-1961.

BORNEO. Sarawak: Mt. Matang, 1° 36' N 110° 11' E, Beccari PB 2973; Bk. Mentagai, 3° 40' N 114° 06' E, SAB 22846; Limbang distr., SAB 4454; Bt. Mersing, 2° 30' N 113° 05' E, SAB 21921. Sabah: many, in various districts. Kalimantan: Eastern part, from North to South: Nunukan I., 66 19776 (probably *psilophylla*); Tidung Lands, 66 18161 (probably *psilophylla*); Sangkulirang, Kostermans 13478; Hayup, 2° S 115° 20' E, Hub. Winkler 2354a.

PHILIPPINES. Palawan: Puerto Princesa, 9° 40' N, *Ebalo* 408.

NOTE. *Castanopsis brevispina* Schottky in Bot. Jahrb. 49: 358. 1913, non Hayata 1911, might belong here, but the description of the cupule does not agree in all points, and the type specimen, *Foxworthy 156* from Sarawak, is, as far as could be ascertained, lost.

CASTANOPSIS RHAMNIFOLIA (Miq.) A. DC.

Castanopsis rhamnifolia (Miq.) A. DC. Prod. 16, 2: 113. 1864. — *Quercus rhamnifolia* Miq., Fl. Ind. Bat. 1, 1: 853. 1856. — *Callaeocarpus rhamnifolia* (Miq.) Miq., Sumatra: 353. 1861. — *Castanea rhamnifolia* (Miq.) Oerst. in Kong. Danske Vid. Selsk. Skr. v, 9: 378, 1871. — Type: *Horsfield* (BM! U, holo!), from Bangka, yfr.

Castanopsis pachycarpa A. Cam. in Bull. Mus. Hist. Nat. Paris ii, 6: 92. 1934. — Type: *SF 28326 Henderson* (K! P! SING! UC!), from Malaya, Pahang, Cameron Highlands, ± 1500 m, fr. 2-IV-1930.

SUMATRA. East Coast: Karo Highlands, 1500 m, 66 *7169*; Pematang Siantar, 3° N 99° E, *Lbrzing 17302*. West Coast: Western Indragiri, *Meyer 4296*; Mt. Sago, 0° 23' S 138° E, 1000—1300' m, *Ichlas 48*, *Meijer 5000*, *7660*. Palembang: *Grashoff 842a*; Banjuasin, 66 *T 718*. Lampong: *Teijsmann HB 4459*; Tarabangi, *Teijsmann HB 4432*. Bangka: many.

MALAYA. Perak: several. Kelantan: Gua Musang, Sg. Galas, 5° 32' N 102° 12' E, *SF 29733*. Pahang: Cameron Highlands, *Poore 132%*. Selangor: several.

CASTANOPSIS SCHEFFERIANA Hance

Castanopsis schefferiana Hance in J. Bot. 16: 200. 1878. — Type: *Teysmann 11441* (BM! BO, holo! L!), from Lingga Is., Sg. Tanda, fr.

Castanopsis andersonii Gamble in Kew Bull.: 179. 1914. — Lectotypa: *Ridley 11353* (K!), from Malaya, Singapore, fr.

SUMATRA. East Coast: Langkat, 4° N 98° 30' E, 66 *16411*. R-iouw I., Karimun: 66 *20578*. Lingga Is.: *Teijsmann HB 11441*.

MALAYA. Kedah: *Saad 20662*. Pahang: Fraser Hill, *KEP 45471*; Tasek Bera & vie, *Chew 266*. Selangor: several. Negri Sembilan: *KEP/FMS 572*, *Shah 79*. Malacca: *Ridley 583*, *1593*. Johore: Bk. Paloh Estate, *Shah 425*. Penang: *Curtis 84*, *1486*. Singapore: several.

CASTANOPSIS SCORTECHINII Gamble

Castanopsis scortechinii Gamble in Kew Bull.: 178. 1914. — Type: *Scortechini s.n.* (K!), from Malaya, Perak, fr.

MALAYA. Perak: *Scortechini*, fr. Pahang: Cameron Highlands, *SF 23626*.

CASTANOPSIS SELANGOKENSIS A. Camus

Castanopsis selangorensis A. Camus in Bull. Soc. Bot. Fr. 94: 4. 1947. — Type: *Burkill 9160*, from Malaya.

NOTE. Since the type could not be located in any of the consulted herbaria, and the description is not recognizable, this species is here considered to be of doubtful status.

CASTANOPSIS TUNGURRUT (Bl.) A. DC.

Castanopsis tungurrut (Bl.) A. DC. in J. Bot. 1: 182. 1863. — *Castanea, tungurrut* Bl., Bijdr.: 525. 182:5. — Type: *Blume s.n.* (K! L!), from Java, Banten, fl." XI.

Castanea tungurrut Bl. f. *sumatrana* Miq., Sumatra: 353. 1861. — Type: *Teijsmann HB 4377* (BO! U!), from S. Sumatra, Lampong distr., yfr.

Castanopsis ridleyi Gamble in Kew Bull.: 180, p.p. 1914. — Lectotype: *Goodenough 1479* (K! SING!), from Malaya, Malacca, Sungai Udang, fr. IX.

Castanopsis conspersispina Merr. in Pap. Mich. Ac. Sc. 19: 152, t. 17. 1934. — Type: *Rahmat 1476* (A! MICH! SING!), from NE. Sumatra, Asahan, Dolok Maradja, fr. 7-X-1928.

SUMATRA. Tapanuli: Angkola-Sepirok, 1° 35' N 99° 15' E, 1400 m, 66 *5632*. East Coast: 400—1500 m, several; Central part, Indragiri, Peranap, 0° 35' S.102" E, 66 *80118*; Sungei Akar, 0° 38' S 102!° 43' E, 66 *28292*, Palembang: several; Bengkulu, Redjang, *Endert 1080*. Lampong: *Teijsmann HB 4377*. Simalur: *Achmad 1214*, *1484*, *1559*. Bangka: Sg. Liat, *Teijsmann HB 7609*.

MALAYA. Negri Sembilan: Setul, 2° 48' N 101° 55' S, *KEP/FMS 501*; Semawang Reserve, *KEP/CF 1956*. Malacca: Sg. Udang, several; Selandor, *Alvins 487*; Batu Tiga, *Holmberg 833*.

JAVA. West: Bantam, ± 106° 25' E, Tjipanas, 6° 30' S, *Backer 2003*; Pelabuhan Ratu, 7° 00' S, sea-level, *Koorders 11723*; Djasinga near Bogor, Mt. Salak, Mt. Gede, Takoka, ± 7° S 107° E, several; East of Tjibeber, 7° 30' S 108° E, *Winckel 224*, *1704*.

NOTE. Gamble, under his *C. ridleyi*, had two specimens, the other, *King's Coll. 6831*, belonging to *C. megacarpa*.

CASTANOPSIS WALLICHII King ex Hook. f.

Castanopsis wallichii King ex Hook. f. in Fl. Br. Ind. 5: 624. 1888. — Type: *Wallich 2763* (BM! CGE! K, holo!), from Malaya, Penang, fr.

MALAYA. Kedah: *KEP 21887*. Perak: Birch Hill, *Fox 108*; Pondok Tanjong F. R., 5° N 100° 41' E, *KEP/CF 11SSS*. Selangor: Near Kuala Lumpur, *KEP/CF 4991*. Malacca: several. Penang: several. Singapore: many.

IDENTIFICATION LIST

Type specimens are marked with (T)L. Specimens with an asterisk have been discussed in the Notes in the Flora Malesiana revision, now in the press.

All collections numbered under institutional series are listed not according to the collector's names, but under the letters of the series so that all collections distributed from the Forest Research Institute at Kepong, Malaya, are preceded by the letters 'KEP', from the Forest Department at Sandakan, North Borneo, by 'SAN' and 'Kadir, North. Borneo Forest Department no. A 541' is cited as 'SAN A 541'.

The abbreviations of the institutional series are as follows:

- ANU = Australian National University, Canberra,
 bb = bosschen buitengewesten; collections in the Indonesian islands outside Java, by the Forestry Service, Bogor.
 BRUN = Forest Department Herbarium, Brunei.
 BS = Bureau of Science, Manila.
 BW = Boswezen, Manokwari, western New Guinea.
 FB = Forestry Bureau, Manila.
 Ja = collections in Java by the Forestry Service, Bogor.
 KEP = Forest Research Institute, Kepong, Malaya, under which are here included numbers in the CF-series (Conservator of Forest), and in the FMS-series (Federated States Museums).
 NGF = New Guinea Forests, Forestry Department, Lae.
 PNH = Philippine National Herbarium, Manila.
 RSNB = Royal Society (London) expedition to Mt. Kinabalu, North Borneo.
 SAN = Forest Department, Sandakan, North Borneo.
 SAR = Forest Department, Kuching, Sarawak.
 SF = Singapore Field numbers.

This list contains all the numbered collections examined, which are each followed by the abbreviation of the species under which they belong, as follows:

- acum = *Castanopsis acuminatissima* (Bl.) A. DC.
 arg = *argentea* (Bl.) A. DC.
 born = *borneensis* King
 buru = *buruana* Miq.
 cat = *catappaefolia* King ex Hook, f.
 clem = *clemensii* Soepadmo
 cost = *costata* (Bl.) A. DC.
 curt = *curtisii* King
 dens = *densinervia* Soepadmo
 end = *endertii* Hatus. ex Soepadmo
 evan = *evansii* Elmer
 foxw = *foxworthyi* Schottky
 ful = *fulva* Gamble
 hypo = *hypophoenicea* (v. Seem.) Soepadmo
 iner = *inermis* (Lindl. ex wall.) Benth. & Hook. f.
 jav = *javanica* (Bl.) A. DC.
 joh = *johorensis* Soepadmo
 luc = *lucida* (Nees in Wall.) Soepadmo
 mal = *malaccensis* Gamble
 meg = *megacarpa* Gamble

- mic = *microphylla* Soepadmo
 mott = *mottleyana* King
 neph = *nephelioides* King ex Hook. f.
 olig = *oligoneura* Soepadmo
 ovif = *oviformis* Soepadmo
 pauc = *paucispina* Soepadmo
 ped = *pedunculata* Soepadmo
 phil = *philipensis* (Blanco) Vidal
 psi = *psilophylla* Soepadmo
 rham = *rhamnifolia* (Miq.) A. DC.
 sch = *schef.feriana* Hance
 scor = *scortechinii* Gamble
 tung = *tungurrut* (Bl.) A. DC.
 wall = *wallichii* King ex Hook, f.

Abdullah 80: iner; *Achmad* 1214, 1484, 1559: tung; *Aet & Idjan* (Exp. van Dijk) 265: acum; *Alvins* 327, 355: mal, 487: tung, 1871: luc; *Ami<n* MS. 1032: meg, MS. 1033: wall; *J.A.R. Anderson* R4: foxw; *J.A.R. Anderson & Keng* K1: foccw; *T. Anderson* 191: luc; *ANU series* 32, 2053, 2489: acum.

Backer 2003: tung, 10930: arg; *Bakhuizen van den Brink* 2556: jav; *Balajadia* 2580, 3808: evan; *Barnard* 9654: iner; *bb series* 1861, 2988: buru, 3096: jav, 5226: cost, 5244: iner, 5436, 5446, 5632: tung, 5650, 5838: arg, 6098: jav, 7169: rham, 8242: tung, 14959: evan, 15025, 15089: acum, 15118: jav, 15598: acum, 16266: mott, 16411: sch, 16569: jav, 17118: acum, 18161: psi, 18275: mott, 18474: cost, 18776: jav, 18791: mic, 19033: mott, 19776: psi, 20198: acum, 20378: sch, 21752, 21985: buru, 22229, 22231: acum, 22401: jav, 22417: acum, 22805, 23148, 23154: buru, 23356: acum, 23466: cost, 23822, 25009: buru, 25140: jav, 25207: mal, 25553: acum, 25634: jav, 26201: foxw, 26325: cost, 26502: mal, 28188: cost, 28266: acum, 28292: tung, 28372: cost, 28833: buru, 29012: acum, 29230: mic, 29324: foxw, 29623: meg, 30118: tung, 80230, 30253, 30256, 30258: acum, 31685, 32123: tung, 32455, 33077: buru, 34025, 34084: rham, 34177: iner, 34345: ovif, 34378: mott, 34383: cost, 34796: jav, 34895: foxw, Cel/II-289, Cel/II-349: buru, Ja 1838: acum, Ja 2473: arg, Ja 4690: jav, Ja 6166: tung, Ja 6867: jav, T 718: rham, T817: cost, T 867, T 3-P 426: tung; *Beccari* PB 1212: born (T), PB 2287: hypo (T), PB 2613: mott (T), PB 2756: mic, PB 2973: psi, PB 3078: born, PB 3242: luc, PS 406: jav; *Beumee* 6075, 6703: jav; *Bloembergen* 4283: buru; *Blume* s.n./fl. IX: arg (T), s.n./fl., yfr.: jav (T), s.n./yfr.: tung (T), s.n./yfr. XII: arg (T), s.n./fl., yfr.: jav (T); Brass 703, 4173, 5216, 11456, 11512, 11702, 23190, 23674, 24679, 24877, 24929, 26096, 27391, 27871, 29480, 31070, 31195, 31464: acum; *Brass & Versteegh* 11159, 11171, 11969, 12B82, 13521: acum; *BRUN series* 474: cost, 595: mott, 597: born, 2957: olig; *BS series* 2658, 16130, 24556, 29615: phil; *Biinnemeijer* 902: jav; *Burger* s.n./fr. 21-VIII-23: jav; *Burkill* 532: iner, 1017, 1035, 1058: jav, 1335: wall, 3244: cost, 3264: wall, 14143: luc; *Burkill & Shah* 1047: ineg; *Buwalda* 2953: arg; *BW series* 2311, 2347, 3261, 6388, 7112, 7755, 7788, 8684, 8775, 8780, 9508, 10311, 10751, 12166, 12817, 12835, 12855, 13728, 13927: acum.

Cabiling 1312: evan; *Cantley* 25: meg, 26, 34: wall, 49: meg, 2799: sch, 2804: wall; *Carr* 12209, 12210, 12652, 12873, 12901: acum; *Castro & Melegrito* 1396: evan (T); *Chew* 266: sch; *Clemens* 6101: mott, 8313b: acum, 10267: cost, 10727: acum, 10791: cost, 20091, 20231: mic, 21510: mott, 26512: psi, 26852: dens, 26987: cost, 28162: mic, 28189: acum, 29220: dens, 29368: jav, 29756: dens, 30509: clem, 30725: meg?, 31449: foxw, 32169: cost, 32912, 32947, 33045: foxw, 34451: dens, 40390: clem; *Coert* 1444: acum; *Corner* s.n./fl. V: iner, s.n./fr. IV: meg, s.n./st. IV, s.n./st. V: luc, s.n./st. VII: mal; *Cruttwell* 313, 999: acum; *Cuadra* A 213, A 1201: evan; *Curtis* 84: sch, 416: wall, 419: luc, 1155: jav, 1486: sch, 1563: iner, 1691: curt (T), 2968, 3038: iner, 3492: tung, s.n./fl., fr. VI: luc

D.E.I. For. Serv. 148 E 1 P 840: cost; *Delmaar* 1899: cost (T); *Berry* 28: iner, 147: tung, 466: luc, 947: mal (T), 1093: tung (T); *Diepenhorst* HB 2132: cost (T); *Dilmy* 259: arg, 260: jav; *Docter van Leeuwen* 10562: acum.

Ebalo 408: psi, 992, 1169: phil; *Elmer* 10579, 11269: mott, 11295, 11315: phil, 12938: evan (T), 14124: phil, 20112: evan (T), 21677: psi, 21797: hypo (T); *Endert* 1080: tung, 1838, 2995: jav, 3331: end, 3610: ovif, 4128: mic 4139: dens, 4631: meg, 4924: ovif, 5072: cost, 5196: end (T), 5197: hypo; *Evangelista* 1151: mott (T); *Eyma* 1515: acum, 2691: buru, 5346: acum.

FB series 2148, 2872, 3100, 8547, 21079, 23571, 24796, 31266: phil; *Floyd* 6524: acum; *Forbes* 422, 522: arg, 600: acum, 714: jav, 941: acum, 2979: iner; *Fox* 108, 150: wall; *Foxworthy* 214: foxw (T); *Fuchs* 21252: foxw.

Goklin 358, 2299: evan; *Goodenough* 1316: meg, 1344: luc, 1479: tung (T), 1516: mal, 3845: mesr, 10162: sch; *van Gorkom* HB 7447: acum, HB 7502: arg, 7508: jav; *Grashoff* 3: cost, 36: iner, 55: cost, 113: rham, 159: tung 329: iner, 358: jav, 362: rha-n, 363: arg, 781: cost, 842a: rham, 1098: cost (T); *Griffith* 4442: iner, 4444: wall.

Hallier 2098: ful, 2920: ovif; *Hamid* 966, 10217: jav; *Haniff* 44: iner, 93: jav, 164, 187: wall, 345: jav (T); *Hartley* 10398, 10509, 10680, 11522, 11720: acum; *Hasskarl* 40: jav; *Haviland* 1115: foxw (T), 1125: foxw, 1891: mott, 1911: foxw; *Haviland & Hose* 3698: ovif; *Heyne* 17: iner; *Hochreutiner* 2500: acum; *Holmberg* 790: wall, 833: tung; *Hoogland* 3871: acum; *Hoogland & Pullen* 5851: acum; *Hoogland & Schodde* VIII 6947: acum; *Horsfield* HB 4268: rham (T); *Hort. Bog.* B 27a: cost; *Hose* 208: foxw; *Hotta* 12871, 12931, 13102: mott; *Hullett* 78: luc, s.n./fl.: luc (T).

Ichlas 48: rham.

Junghuhn 1: arg, 2: jav, 11: acum (T), 40: arg, 42: tung, 61: jav, 64: acum, 74, s.n. (110): jav, 111: arg, 263: acum, 302: tung, s.n./?, c? fl.: acum (T), s.n./fl., fr. 1857: acum (T), s.n./fr.: iner (T), s.n./fl.: acum, s.n./fl.: iner, s.n./st.: jav.

KEP series 5670, 9786, 10287, 11752: iner, 12610, 12743: jav, 12945, 17484: iner, 21887: wall, 23405, 25158, 33732, 33873: iner, 45471: sch, 60619: luc, 66461: iner, 70984: acum, 77887: joh (T), 79030: jav, 79120: mal, 94032, 94390: sch, 99080: iner, 99615: curt, 100.000: curt; *KEP/CF series* 25: cost, 468: neph, 501: tung, 527: mal, 533: tung, 535: meg, 584(Usopo): luc, 584(Hamid): iner, 616: meg, 823: sch, 1132: wall, 1956: tung, 1959: iner, 1961: tung, 2255: iner, 4062, 4741: ful, 4991: wall, 6304, 7858: iner, 9780: luc, 10921, 12640: mal; *KEP/FMS* 572: sch, 2338, 4737, 12944: luc, 15776: mal, 17597: sch, 17950: iner; *KEP/FRI series* 0518: iner, 0830: meg; *King's Collector* 238: luc, 1624: iner, 1672, 2266: luc, 2586: iner, 2909: cost, 3488: meg, 3651: jav, 3788: iner, 3843: neph, 3939: meg, 4495, 4695: iner, 4740: neph,

4835: iner, 4844: luc, 4848: wall, 4909, 5261: luc, 5382: iner, 5482: jav, 5510: iner, 5542: neph, 5812, 5941: iner, 6386: meg, 6417, 6453: neph, 6469: meg, 6518: neph, 6522, 6831: meg, 6982: iner, 7070: meg (T), 7208: neph (T), 7231, 7235: neph, 7378: iner, 7751: ful (T), 7753: luc, 7825: neph, 7971: iner, 7991: neph, 8137: cat (T), 8624: neph, 10301: iner, 10589 neph, 10838: neph, 10903: iner; *Koorders* (all *jj* numbers) 1331: jav, 1341: tung, 1346: acum, 1349, 1350, 1351, 1352: jav, 1354, 1358: arg, 1380, 1384: jav, 1385: acum, 1392: arg, 1397: jav, 1398: tung, 1411, 1412, 1413, 1414, 1415, 1417: acum, 1421: tung, 1447, 1450, 1454: jav; 1483: arg, 1559: tung, 10943: arg, 11702: acum, 11722: arg, 11723: tung, 11922: jav, 11926: tung, 14061, 14091: arg, 15208: jav, 15561: acum, 15740: jav, 16617, 23085: acum, 24186: arg, 24187: tung, 24189: jav, 24190: tung, 25564: jav, 25695: tung, 25740, 25787: jav, 25798: arg, 25869, 29202: acum, 29665, 29842: arg, 30150, 32680, 33420: jav, 37293, 38664, 38665, 38718: acum, 39648, 39652, 42784: arg; *Korthals* s.n./fr.: cost (T), s.n./fl.: ovif, s.n./st.: arg; *Kostermans* 4292: jav, 6216: acum, 7032: mott, 7565: hypo, 7696: ovif, 8631: meg, 8652: ovif, 8702, 9117: mott, 9165: foxw, 9563: mott, 10165: cost, 10287, 10799: mott, 13478: psi, 13605: hypo, 13628: luc; *Kostermans & Anta* 1, 557, 624, 658, 690: rham, 733, 749: cost, 759, 852: rham., 1135: iner; *Kruijt* s.n./fr.: buru; *Kuhl & van Hasselt* s.n./ fr. XI: arg, s.n./st.: tung; *Kuswata & Soepadmo* 228, 229: buru.

Lam 3536: buru; *Lambach* 1257: tung; *Langlasse* 308: wall, 310: luc, 323: wall, 325: luc; *Leano* 2275: hypo; *Loher* 13825, 14213, 14980: phil; *Lörzing* 1428: jav, 7084: tung, 17302: rham, 17303: tung, s.n./yfr. VII-1928: arg.

Maingay KD 1459: luc., 1461: mal, 1462, 1463: luc, 1465: wall, 1479: tung (T); *Maradjo* 326: joh; *Melegrito* 3313: jav, 4804: evan; *Meijer* 117: jav, 4296: neph (T), 4464: arg, 4609a: ful, 4925: acum, 5000: rham, 5174: arg, 6286: jav, 7660: rham; *Monod de Froideville* 184: acum; *Monterie* 7: jav, 34: arg; *Murdoch* 3: luc.

Nauen s.n./yfr. IV: luc; *Nedi* (Exp. de Haan) 51: buru; *NGF series* 2808, 3382, 4114, 4152, 4159, 4801, 6524, 7492, 9177, 9178, 9179, 9584, 14794, 15051, 15259, 15497, 15932, 17139, 19072, 19945, 20250, 20414, 21547, 21608, 21686, 26387: acum; *Nur* 305: iner, 7832: sch; *Nurta & Hassan* 116: arg; *Nurta & van Ooststroom* 14158, 14184: acum.

Omar 7958: iner; *van Ooststroom* 14181: jav.

Paymans 150: meg; *PNH series* 9863: phil, 9943: mott, 34558, 38166: phil, 38255, 88419: mott, 41831: phil; *Poore* 1253: luc, 1278: sch, 1319: jav, 1322: rham, 1325: jav, 1350: meg, 1360: neph, 1362: meg, 1363: neph, 1386: sch; *Praetorius* s.n./fl. 1834: arg, s.n./d'fl. 1836: iner (T), s.n./st.: cost; *Puasa* 3531: clem, 4865: psi, 4883: olig; *Pulle* 1209: acum; *Pullen* 195, 209, 5878: acum.

Rahmat si Boeea 1476: tung (T), 8974, 9323a: tung; *Rahmat si Toroos*, see *Rahmat si Boeea*; *Rajab* 468, 481, 494: jav, 1514: ful; *Ramos* 360, 672: phil; *Rant* 271: acum, 563: arg; *Reinwardt* 1729: jav; *Richards* 1240: ovif, 1923: jav (T); *Ridley* 583, 1593: sch, 1608: wall, 3388, 3389: sch, 3842: wall, 3861: luc, 3959: wall, 4862, 5118, 5119: luc, 5567: wall, 5737: hull, 6440: neph, 6683: meg, 7023: iher, 10621: curt, 11353: sch (T), 14143: luc; *Robbins* 397, 1118, 1228: acum; *Rossum* 2: cost; *van Royen* 3911, 4952: acum; *van Royen & Sleumer* 6832, 6854, 7015, 7067, 7139, 7178, 7240: acum; *van Royen, Sleumer & Schram* 7670: acum; *RSNB series* 1477: clem, 1717: foxw, 2505: hypo, 4141: foxw, 4152: dens, 4338, 4732: foxw, 4736, 4798: dens, 4839: foxw.

Saad 20662: sch; *SAN series* A 541: hypo, A 1192: mott, A 2962: psi, A 3132: mott, A 3249: evan, A 3480: olig, A 3489, A 3491: evan, A 4385: pauc (T), A 4486:

foxw, A 4737: psi, A 4794: mott, 10402, 10451: olig, 15553: evan, 16132: mott., 16289: foxw, 16293: cost, 16445: cost, 16560: meg, 16668: dens, 16747: cost, 16780: psi, 16802: olig, 16803: meg, 16805: ped (T), 16943: born, 18828: meg, 18830: psi, 19189: olig, 19638, 19740: mott, 20410: cost, 20619, 20620, 20630: mott, 20733: hypo, 20998: jav, 21337: hypo, 21412, 21629: psi, 22507: hypo, 24008, 24176: jav, 25202: evan, 25315: clem (T), 25340: mott, 25577: psi, 25801: ovif, 25953: psi (T), 26161, 26280: mott, 26775: meg, 26778: ful, 26908: hypo, 27101: mott, 27234: hypo, 27360: cost, 27701: mott, 28260: cost, 28945: clem, 292124: foxw, 29238: acum, 30016: hypo, 30040: mott, 30244: born, 30968: mott, 31133, a, b: ovif, 31595: hypo, 32375: acum, 32603: mott, 32836: olig (T), 32836b: olig, 32998: mott, 33037: hypo, 33466: olig (T), 34280: evan, 34411: hypo, 34679, 34687, 34687b: ovif, 34687a: ovif (T), 34739: olig, 35784: psi, 35845: hypo, 36191: foxw, 36299: ful, 36698: olig, 37707: clem, 37976: foxw, 38140: psi, 38328: foxw, 39019: evan, 39258: olig, 39261: mott, 39628: ovif, 39665: mott, 39712: hypo, 40268: ovif, 40316: hypo, 40479: evan, 40481, 40673: hypo, 40803: evan, 41301: born, 41809: clem, 41881: foxw, 42013: born, 42098: foxw, 42114: psi, 42116: evan, 42145: evan, 42461: acum, 42528: jav, 42852: cost, 43288, 43289: born, 44332.: clem, 46074: hypo, 46513: foxw, 47196: hypo, 48109: dens (T), 48110: foxw, 48182, 49560: mott, 49571: jav, 49775: buru, 51358: jav, 51405: foxw, 53161: olig; *Sapirin* 3: arg; *SAR series* 0091, 0442, 0477: foxw, 0880.: ful, 0881, 2280: foxw, 3382: ful, 4097: mott, 4416: foxw, 4454: psi, 4700: foxw, 4897: ful, 8472: born, 8663, 8692, 8938, 9439: foxw, 9492: mott, 9645: evan, 9753, 10490: foxw, 14744: mic, 15116: cost, 15259: ful, 15411: hypo, 15658: foxw, 15666: meg, 15681: born, 15791: ful, 15804: meg, 16422: mott, 16635 foxw, 16639, 16951: born, 17013: ovif, 18108: mott, 18532: ovif, 19170: pauc, 19702: mott., 20139: ovif, 20206: jav, 21891: mic, 21921: psi, 21940, 21987: pauc, 22123: mic, 22359: cost, 22511: mic (T), 22617: jav, 22846: psi, 23233: ovif (T), 23677: born., 23768: ful, 26794: mic; *Saunders* 1070: acum; *Sauveur* 68: meg; *Schodde* 1370, 1382, 2155, 2879, 2880, 2882, 2887, 2896: acum; *Scortechini* 167: iner, 1153: neph, s.n./fr.: scor (T); *SF series* 533, 2008: meg, 2415, 3684: wall, 10153: joh, 10821: wall, 10829: neph, 11614: mal, 13134: meg, 17039, 17186, 21267, 22611: iner, 23326: rham (T), 23626: scor, 24538: iner, 24826: meg, 26179: luc, 26958: jav, 28171, 28709: iner, 29733: rham, 31696, 33486: iner, 34506, 34920: mal, 3494i: iner, 35617: foxw, 35736: olig, 35770: luc, 35982: iner, 36869: joh, 37363: ful, 37770: wall, 39070: jav, 40264: luc, 40566: iner, 40569: tung, 40643: luc, 40754: meg, 41019: sch; *Shah* 79: sch, 409: luc, 425: sch; *Shah & Kadim* 415: meg; *Shah & Noor* 625: neph; *Sinclair* s.n./st. 18-VI-50: wall, s.n./st. 27-V-51: meg; *Soekaria* 66: tung; *Soepadmo* 5: tung; *van Steenis* 12755: jav; *Stern* 2113: mott; *Strugnell* 11114: curt; *Stuart* s.n./?fl. IV-1917: acum.

Teysmann HB 677: cost, HB 680: cost (T), HB 1666: buru, HB 1827: buru (T), HB 1868: buru (T), HB 4377: tung (T), HB 4432, HB 4459: rham, HB 4519: iner, HB 7605: rham, HB 7608: cost, HB 7609: tung, HB 7648: jav, HB 11434, HB 11436: rham, HB 11441: sch (T), HB 11447: jav, HB 11449: rham, HB 11456: jav, HB 11457: iner (T), HB 16383: buru (T), HB 16384: buru, s.n./fl. 3-?: cost (T), s.n./?fl.: cost (T), s.n./fl.: rham, s.n./st.: rham; *Thorenaar* 70 T 1 P 126: iner.

Versteegh 1703: acum; *Vidal* 611, 611b: phil (T); *Vink* 16387: acum; *de Voogd* s.n./st. 1-1941: acum, s.n./fr. 25-111-41: tung; *Herb. de Vriese* 1857-1861: buru; *de Vriese & Teijsmann* s.n./yfr.: cost; *van Vuuren & Noerka*, s 231: buru.

Waltz s.n./yfr., fl., st.: arg; *WalUch* 2590: luc (T), 2762: iner (T), 2763: wall (T), 2791: iner (T); *Wenzel* 619: phil, 737: phil (T); *Winckel* 149, 191: jav, 224: tung,

232, 308: arg, 473b: jav, 1629b: arg, 1671b: jav, 1704b: tung; *Hub. Winkler* 2354a: psi, 2406: luc, 3329: ovif 3329a: foxw; *Wood's Collector* 2415: foxw, 2455, 2478: evan; *Wray* 803: cost, 811, 2168, 4229: iner.

Yates 1281: jav; *Yeop* 9494: iner.

Zoilinger 780: tung, 781, 1435: arg.

INDEX

Names are referred to the abbreviation of their proper specific epithet under *Castanopsis*. Accepted names in Roman type, synonyms in *italics*, and new names in bold type.

<i>Alseodaphne lucida</i> Nees in Wall.	luc.	<i>catalpaefoha</i> King ex Hook. f.	cat.
<i>Callaeocarpus rhamnifolia</i> (Miq.) Miq.	rham. iner.	<i>catappaefolia</i> King ex Hook. f.	cat.
<i>sumatrana</i> Miq.	iner.	<i>clemensii</i> Soepadmo	clem.
<i>Castanea acuminatissima</i> Bl.	acum.	<i>conspersispina</i> Merr.	tung.
<i>argentea</i> Bl.	arg.	<i>costata</i> (Bl.) Miq.	cost.
var. <i>rigida</i> Bl.	arg.	/} <i>bancana</i> Scheff.	cost.
<i>brevicuspis</i> Miq.	cost.	<i>curtisii</i> King	curt.
<i>buruana</i> (Miq.) Oerst.	buru.	<i>densinervia</i> Soepadmo	dens.
<i>cooperta</i> (Blanco) Oerst.: see		<i>discocarpa</i> (Hance) Hance	jav.
<i>Lithocarpus ootata</i> Bl.	e#st.	<i>dispersispina</i> Merr.	hypo.
<i>costata</i> Bl.	cost	<i>elmeri</i> Merr.	evan.
<i>furfurella</i> Miq.: see <i>Lithocarpus</i>		<i>endertii</i> Hatus. ex Soepadmo	end.
<i>glomerata</i> [non (Roxb.) Wall.		<i>evansii</i> Elmer	evan.
ex BL] Bl.	iner.	<i>foxworthyi</i> Schottky	foxw.
<i>inermis</i> Lindl. ex Wall.	iner.	<i>fulva</i> Gamble	ful.
<i>javanica</i> Bl.	jav.	<i>glabra</i> Merr.	phil.
var. <i>fuscescens</i> Bl.	jav.	<i>hullettii</i> King ex Hook. f.	luc.
<i>montana</i> (Bl.) Bl.	jav.	<i>hypophoenicea</i> (v. Seem.)	
<i>latifolia</i> Bl.: see <i>Lithocarpus</i>		Soepadmo	hypo.
<i>montana</i> Bl.	jav.	<i>inermis</i> (Lindl. ex Wall.) Benth.	
<i>rhamnifolia</i> (Miq.) Oerst.	rham.	& Hook. f.	iner.
<i>sessilifolia</i> Bl.	acum.	<i>javanica</i> (Bl.) A. DC.	jav.
<i>spectabilis</i> Miq.	cost.	var. <i>montana</i> (Bl.) A. DC.	jav.
<i>sumatrana</i> (Miq.) Oerst.	iner.	<i>johorensis</i> Soepadmo	joh.
<i>tungurrut</i> Bl.	tung.	<i>juvghuhnii</i> (Miq.) Markgr.	acum.
f. <i>sumatrana</i> Miq.	tung.	<i>kinabaluensis</i> A. Cam.	foxw.
<i>Castanopsis acuminatissima</i> (Bl.) A. DC.	acum.	<i>lentiginosa</i> E. F. Warb.	jav.
<i>andersonii</i> Gamble	sch.	<i>longispicata</i> Hu	acu-n.
<i>argentea</i> (Bl.) A. DC.	arg.	<i>lucida</i> (Nees in Wall.) Soepadmo	luc.
<i>bejaudii</i> A. Cam.	acum.	<i>malaccensis</i> Gamble	mal.
<i>borneensis</i> King	born.	<i>megacarpa</i> Gamble	mega.
<i>brevicuspis</i> (Miq.) A. DC.	cost.	<i>microphylla</i> Soepadmo	mic.
<i>brevispina</i> Schottky	? psi.	<i>mitifica</i> Hance	iner.
<i>buruana</i> Miq.	buru.	<i>mottleyana</i> King	mott.
f. <i>grandifolia</i> Miq.	buru.	<i>nebularum</i> Hickel & A. Cam.	acum.
		<i>nephelioides</i> King ex Hook. f.	neph.

oligoneura Soepadmo	olig.	<i>woodii</i> Merr.	evan.
oviformis Soepadmo	ovif.	<i>Fagus argentea</i> Bl.	arg.
<i>pachycarpa</i> A. Cam.	rham.	<i>javanica</i> Bl.	jav.
<i>paucispina</i> Soepadmo	pauc.	<i>philipensis</i> Blanco	phil.
<i>pearsonii</i> Merr.	mott.	<i>Lauras ludda</i> Wall.	luc.
pedunculata Soepadmo	ped.	<i>Lithocarpus hypophoenicea</i>	
<i>psnangensis</i> A. Cam.	jav.	(v. Seem.) Barn.	hypo.
<i>philipensis</i> (Blanco) Vidal	phil.	<i>Pasania acuminatissima</i> (Bl.)	
<i>psilophylla</i> Soepadmo	psi.		
<i>reflexa</i> (King) Rehd.: see		Oerst.	acum.
<i>Lithocarpus</i>		<i>discocarpa</i> (Hance) Gamble	jav.
<i>rhamnifolia</i> (Miq.) A. DC.	rham.	<i>Quercus acuminatissima</i> (Bl.)	
<i>ridleyi</i> Gamble	tung.	A. DC.	acum.
<i>schefferiana</i> Hance	sch.	<i>discocarpa</i> Hance	jav.
<i>schlenkeriae</i> Bailey	acum.	<i>fagiformis</i> Jungh.	acum.
<i>scorteehinii</i> Gamble	scor.	<i>hypophoenicea</i> v. Seem.	hypo.
<i>selangorensis</i> A. Cam.: doubtful	species	<i>javanica</i> (A. DC.) Drake	jav.
<i>spectabilis</i> (Miq.) A. DC.	cost.	<i>junghuhii</i> Miq.	acum.
<i>sumatrana</i> (Miq.) A. DC.	iner.	<i>lineata</i> (non Bl.) Miq.	acum.
<i>trisperma</i> Scheff.	cost.	<i>rhamnifolia</i> Miq.	rham.
<i>tungurrut</i> (Bl.) A. DC.	tung.	<i>varingaefolia</i> Miq.	acum.
<i>turbinata</i> Stapf: see		<i>Synaedrys discocarpa</i> (Hance)	
<i>Lithocarpus</i>		Koidz.	jav.
<i>wallichii</i> King ex Hook. f.	wall.	<i>fagiformis</i> (Jungh.) Koidz.	acum.

STUDIES OF MALESIAN PANDANACEAE. II. TWO NEW SPECIES OF PANDANUS STICKM. SECT. FUSIFORMA ST. JOHN

BENJAMIN C. STONE*)

SUMMARY

Pandanus saint-johnii and *P. soboliferus* spp. nov. are described and illustrated and placed in sect. *Fusiforma*. It is proposed to include *P. (Acrostigma) biplicatus* St. John and *P. (Rykia) magnifibrosus* St. John in sect. *Fusiforma* also.

INTRODUCTION

On the basis of its stigmatic structure, sect. *Fusiforma* St. John (*in Pacif. Sci.* 16: 227. 1962. — Type species: *Pandanus dumetorum* Holttum & St. John) is most closely allied in the genus *Pandanus* Stickm. to the sect. *Acrostigma* Kurz. Its chief differences are the blunter styles, the constantly caespitose soboliferous habit, and the extraordinary hardness of the dark leaves. All members of sect. *Fusiforma* produce their long stiff leaves directly from ground level. It is this acaulescent rhizomatous habit which characterizes best all the species known to date and which gives a firm basis to the sectional ranking. As is also true of most species of sect. *Acrostigma*, the ventral pleats of the leaf tips are prickly with small antrorse teeth.

The discovery of the two new species to be described below brings the number of species in sect. *Fusiforma* up to five, but a sixth species is almost surely also to be included. *Pandanus dumetorum* Holttum & St. John (*in Pacif. Sci.* 16: 227, fig. 102. 1962. — Holotypus: *Corner 80066* in SING) has been, until now, the sole member of sect. *Fusiforma*. Other undoubted members of the section are the North Bornean *P. pachyphyllus* Merr. (*in J. Roy. Asiatic Soc., Str. Branch* 85: 154. 1922. — Holotypus: *Ramos 1541* in PNH, now destroyed; isotypus in US; the following recent collections from Sabah in KLU are referable here: Sandakan, Kebon China Forest Reserve, 17 March 1967, Stone, Meijer & Gaudet 6699, immature fruit; Sepilok Forest Reserve, N. of Sandakan, 20 March 1967, Stone &

*) School of Biological Sciences, University of Malaya, Kuala Lumpur, Malaysia,