

1. MANGLIETIA Blume, Verh. Batav. Genootsch. Kunst. 9: 149. 1823.

木莲属 mu lian shu

Paramanglietia Hu & W. C. Cheng; *Sinomanglietia* Z. X. Yu & Q. Y. Zheng.

Trees, evergreen or rarely deciduous (only *Manglietia decidua*). Stipules adnate to petiole, leaving long or short scar on petiole. Leaves folded in bud; leaf blade leathery, margin entire. Flowers terminal or terminal on terminal brachyblasts, bisexual. Tepals usually 9–13, 3 per whorl, greenish or red, subequal, subleathery but 3 of outer whorl usually thinner. Filaments short and inconspicuous; connective exerted and mucronate; anthers linear, dehiscing introrsely. Gynoecium sessile; carpels numerous, spirally arranged, distinct, abaxially usually with 1 or several furrows at base, adaxially completely connate to torus; ovules 4 or more per carpel. Fruit apocarpous, globose, ovoid, terete, or ellipsoid-ovoid; torus not elongated between carpels; mature carpels subwoody or thickly woody, persistent, dehiscing along dorsal suture or sometimes also along ventral suture, apex usually beaked. Seeds 1 to more than 10 per fruit.

About 40 species: tropical and subtropical Asia; 29 or 27 species (17 or 15 endemic) in China.

“*Manglietia fadouensis* Y. W. Law & R. Z. Zhou,” “*M. guangnanica* D. X. Li & R. Z. Zhou,” “*M. pingjiangensis* Y. W. Law & D. X. Li,” “*M. microflora* Y. W. Law & R. Z. Zhou,” and “*M. tianchiensis* D. X. Li & Y. W. Law” (in Y. H. Liu, *Magnolias China*, 136, 148, 186, 198. 2004) are of uncertain identity and are probably the same as already published *Manglietia* species but were not validly published because no Latin descriptions or diagnoses were provided and no types were indicated (*Vienna Code*, Art. 36.1 and 37.1).

- 1a. Mature carpels dehiscing along ventral sutures; torus dehiscent when fruit matured.
 - 2a. Evergreen; tepals 9, in 3 whorls, white, outer ones obovate-elliptic, inner ones nearly obovate-spatulate 20. *M. calcarea*
 - 2b. Deciduous; tepals 15 or 16, in 5 or 6 whorls, yellow, lanceolate to narrowly obovate 29. *M. decidua*
- 1b. Mature carpels dehiscing along dorsal sutures or rarely along ventral sutures; torus indehiscent when fruit matured.
 - 3a. Brachyblasts or peduncles slender; fruit pendulous.
 - 4a. Vegetative buds, young branches, petioles, leaf blade abaxial surfaces, and peduncles rust-colored tomentose or reddish brown erect villous.
 - 5a. Vegetative buds, young branches, petioles, leaf blade abaxial surfaces, and peduncles reddish brown erect villous 25. *M. longipedunculata*
 - 5b. Vegetative buds, young branches, petioles, leaf blade abaxial surfaces, and peduncles rust-colored tomentose.
 - 6a. Gynoecium glabrous 23. *M. kwangtungensis*
 - 6b. Gynoecium with trichomes 24. *M. rufibarbata*
 - 4b. Vegetative buds, young branches, petioles, leaf blade abaxial surfaces, and peduncles with sparse appressed trichomes or glabrous.
 - 7a. Leaf blade abaxially glaucous 28. *M. glaucifolia*
 - 7b. Leaf blade abaxially grayish green.
 - 8a. Stipular scar ca. 1/5 as long as petiole; inner tepals pure white 26. *M. conifera*
 - 8b. Stipular scar ca. 1/2 as long as petiole; inner tepals purplish 27. *M. ovoidea*
 - 3b. Brachyblasts robust; fruit erect after flowering.
 - 9a. Leaf blade apex obtuse to emarginate 10. *M. hongheensis*
 - 9b. Leaf blade apex acute, acuminate, cuspidate, or caudate.
 - 10a. Fruit subglobose; mature carpels only base inserted on torus adaxially, dehiscing along ventral suture first and then partly along dorsal suture 2. *M. aromatica*
 - 10b. Fruit ovoid-ellipsoid, subterete, or ovoid; mature carpels completely or mostly inserted on torus adaxially, dehiscing along dorsal suture first and then along ventral suture.
 - 11a. Gynoecium with trichomes.
 - 12a. Beak of mature carpel 5–7 mm 8. *M. ventii*
 - 12b. Beak of mature carpel less than 3 mm.
 - 13a. Fruit cylindrical 7. *M. zhengyiana*
 - 13b. Fruit ellipsoidal or ovoid.
 - 14a. Mature carpels abaxially tuberculate 11. *M. caveana*
 - 14b. Mature carpels not abaxially tuberculate.
 - 15a. Leaf blade leathery, abaxially pale brownish pubescent, midvein white villous; fruit ovoid, 8–10 cm 13. *M. szechuanica*
 - 15b. Leaf blade thinly leathery, both surfaces glabrous; fruit ovoid-ellipsoid, 5–6 cm 15. *M. duclouxii*
 - 11b. Gynoecium glabrous.
 - 16a. Androecium with trichomes 1. *M. dandyi*

- 16b. Androecium glabrous.
- 17a. Outer tepals abaxially with appressed reddish brown trichomes 19. *M. forrestii*
- 17b. Outer tepals abaxially glabrous.
- 18a. Gynoecium or fruit ovoid.
- 19a. Tepals white; stipular scar nearly 1/6 as long as petiole 16. *M. crassipes*
- 19b. Tepals pale red or purplish red; stipular scar 1/4–1/2 as long as petiole.
- 20a. Young branches and brachyblasts with rust-colored trichomes; stipular scar more than 1/2 as long as petiole 3. *M. lucida*
- 20b. Young branches and brachyblasts glabrous; stipular scar nearly 1/4 as long as petiole 4. *M. grandis*
- 18b. Gynoecium or fruit terete or ellipsoid.
- 21a. Stipular scar more than 1/2 as long as petiole.
- 22a. Leaf blade elliptic to obovate, 18–34.5 × 8–12 cm, abaxially with dense fine brown trichomes (difficult to see even under hand lens); tepals purple to purplish red 5. *M. garrettii*
- 22b. Leaf blade elliptic-obovate to narrowly obovate, 20–30 × 6–10 cm, abaxially glabrous; tepals white 6. *M. hookeri*
- 21b. Stipular scar less than 1/2 as long as petiole.
- 23a. Gynoecium terete.
- 24a. Leaf blade glabrous on both surfaces 12. *M. patungensis*
- 24b. Leaf blade abaxially ± with trichomes.
- 25a. Stipular scar less than 1/3 as long as petiole; leaf blade abaxial midvein reddish brown pubescent or scattered appressed hispidulous 9. *M. insignis*
- 25b. Stipular scar 1/10–1/5 as long as petiole; leaf blade abaxially with pale brownish red trichomes 14. *M. chevalieri*
- 23b. Gynoecium ovoid or long ovoid.
- 26a. Young branches glabrous; leaf blade obovate 21. *M. obovalifolia*
- 26b. Young branches ± with trichomes; leaf blade elliptic or narrowly elliptic.
- 27a. Tepals of inner 2 whorls transversely wavy striate 22. *M. oblonga*
- 27b. Tepals of inner 2 whorls smooth.
- 28a. Mature carpels abaxially furrowed but not tuberculate 17. *M. pachyphylla*
- 28b. Mature carpels abaxially not furrowed but tuberculate 18. *M. fordiana*

1. *Manglietia dandyi* (Gagnepain) Dandy in Pragowski, World Pollen Spore Fl. 3(Magnoliaceae): 5. 1974.

大叶木莲 da ye mu lian

Manglietia dandyi Gagnepain, Notul. Syst. (Paris) 8: 63. 1939; *M. megaphylla* (Hu & W. C. Cheng) V. S. Kumar; *Manglietia megaphylla* Hu & W. C. Cheng; ?*M. sinoconifera* F. N. Wei.

Trees, 30–50 m tall, 80–100 cm d.b.h. Branches, leaf blade abaxial surfaces, petioles, stipules, peduncles, and spatheaceous bracts densely long ferruginous tomentose. Stipular scar 1/3–2/3 as long as petiole. Leaves usually 5 or 6 clustered on branch apex; petiole 2–3 cm; leaf blade obovate, 25–50 × 10–20 cm, leathery, basal ca. 2/3 narrowed, adaxially glabrous, secondary veins 20–22 on each side of midvein, reticulate veins sparse and prominent on both surfaces when dry, base cuneate, apex acute. Brachyblasts thick and strong, 3.5–4 × ca. 1.5 cm; spatheaceous bract 1, ca. 3 mm basal to tepals. Tepals 9 or 10, in 3 whorls, fleshy; tepals of outer whorl obovate-oblong, 4.5–5 × 2.5–2.8 cm, adaxially ca. 7-striated; tepals of inner 2 whorls smaller. Stamens villous, 1.2–1.5 cm; filaments flat, ca. 2 mm; connective exerted with a ca. 1 mm triangular appendage; anthers 8–10 mm, thecae distinct and ca. 1 mm wide. Gynoecium ovoid, 2–2.5 cm; carpels 60–75, ca. 1.5 cm, glabrous, with 1 furrow reaching to style apex. Fruiting brachyblasts thick and strong, 1–3 × 1–1.3 cm. Fruit ovoid to long ellipsoid, 6.5–11 cm; mature carpels 2.5–3 cm, extrorsely slightly curved, dehiscent

along dorsal and ventral sutures, apex acute. Fl. Jun, fr. Sep–Dec. $2n = 38$.

Evergreen broad-leaved forests; 400–1500 m. W Guangxi, SE Yunnan [Laos, Vietnam].

“*Manglietia admirabilis* Y. W. Law & R. Z. Zhou” (in Y. H. Liu, Magnolias China, 120. 2004) probably belongs here but was not validly published because no Latin description or diagnosis was provided and no type was indicated (*Vienna Code*, Art. 36.1 and 37.1).

The status of *Manglietia sinoconifera* is uncertain because the authors have been unable to see the holotype, although it may be conspecific with *M. dandyi*.

Manglietia dandyi is grown as an ornamental and used for timber.

2. *Manglietia aromatica* Dandy, J. Bot. 69: 231. 1931.

香木莲 xiang mu lian

Manglietia aromatica (Dandy) V. S. Kumar; *Paramanglietia aromatica* (Dandy) Hu & W. C. Cheng.

Trees, to 35 m tall, to 1.2 m d.b.h., glabrous except vegetative buds white appressed pubescent, aromatic. Bark gray and smooth. Young twigs pale green; terminal buds ellipsoid, ca. 3 × 1.2 cm. Stipular scar 1/4–1/3 as long as petiole. Petiole 1.5–2.5 cm; leaf blade narrowly obovate to narrowly elliptic, 15–19 × 6–7 cm, thinly leathery, lower ca. 1/3 gradually tapered, secondary veins 12–16 on each side of midvein, reticulate veins

sparse and conspicuously prominent on both surfaces when dry, base slightly decurrent, apex shortly acuminate to acuminate. Peduncle strong, 10–15 × 6–8 mm in fruit; bract scar 1, 5–7 mm basal to tepals. Tepals 11 or 12, in 4 whorls of 3, white; outer 3 tepals obovate-oblong, 7–11 × 3.5–5 cm, nearly leathery; tepals of inner whorls obovate-spoon-shaped, 9–11.5 × 4–5.5 cm, fleshy, base clawed. Stamens ca. 100, 1.5–1.8 cm. Carpels glabrous. Fruit red when fresh, subglobose to ovoid, 7–8 cm in diam.; mature carpels dehiscing along ventral and then dorsal sutures. Fl. May–Jun, fr. Sep–Oct. $2n = 38$.

Evergreen broad-leaved forests; 900–1600 m. SW Guangxi, Guizhou, SE Yunnan [Vietnam].

3. *Manglietia lucida* B. L. Chen & S. C. Yang, Acta Sci. Nat. Univ. Sunyatseni 1988(3): 94. 1988.

亮叶木莲 liang ye mu lian

Manglietia lucida (B. L. Chen & S. C. Yang) V. S. Kumar.

Trees, to 18 m tall, to 65 cm d.b.h. Young twigs grayish, 8–10 mm in diam., smooth, often longitudinally wrinkled when dry, glabrous or with minute trichomes. Stipules pubescent, scar 1.6–4.5 cm. Petiole 3.6–6 cm, often thickened toward base, glabrous; leaf blade obovate, 27–44 × 11–16 cm, leathery, midvein abaxially rather elevated lengthwise, adaxially sulcate, secondary veins 13–19 on each side of midvein, apically curved, and meeting in an intramarginal vein, reticulate veins coarse and adaxially rather dull, base cuneate and decurrent with 2 ridges into petiole, apex acuminate, acumen 1–2.5 cm. Brachyblasts ca. 1.4 × 0.6 cm, pubescent; spatheaceous bract 1, ± at base of peduncle, broadly obovate, ca. 8.3 × 6.9 cm, thickly leathery, abaxially pubescent. Peduncle 5–6 mm, with same indumentum as brachyblast. Tepals 9(–11), purple; outer 3 tepals narrowly obovate, 12–14 × 5.8–6 cm, fleshy; inner 6–8 tepals in 2 whorls, shorter and narrower than outer ones. Stamens many. Gynoecium ovoid, ca. 2.7 × 1.8 cm; carpels 70–80, nearly entirely connate when young, glabrous. Fruiting brachyblasts ca. 4.5 × 1 cm; pedicel ca. 2.5 × 1 cm. Fruit ovoid-globose, ca. 9.5 × 8–10 cm; torus ca. 3 × 2 cm, with scars of perianth and stamens; mature carpels 2–3.5 × 0.8–1 cm, woody, abaxial part 1–1.5 cm, dehiscing along dorsal suture at first and later also along ventral suture. Seeds ca. 3 per carpel. Fl. Mar–May, fr. Sep–Oct.

• Secondary evergreen broad-leaved forests; 500–700 m. SE Yunnan.

4. *Manglietia grandis* Hu & W. C. Cheng, Acta Phytotax. Sin. 1: 158. 1951.

大果木莲 da guo mu lian

Manglietia grandis (Hu & W. C. Cheng) V. S. Kumar.

Trees, to 12 m tall. Twigs pale gray, thick and strong, glabrous. Stipules glabrous, scar ca. 1/4 as long as petiole. Petiole 2.6–4 cm; leaf blade elliptic to obovate, 20–35.5 × 10–13 cm, leathery, glabrous, abaxially papillate, adaxially lucid, secondary veins 17–26 on each side of midvein and conspicuous when dry, base broadly cuneate, apex acute to cuspidate. Tepals 12, red; outer tepals thinner, obovate-oblong, 9–11 cm, 9–11-striated; innermost 3 tepals obovate-spoon-shaped, 8–12 × 3–6 cm,

fleshy. Stamens 1.4–1.6 cm; connective with a ca. 1 mm mucro; anthers ca. 1.3 cm. Gynoecium ovoid, ca. 4 cm; carpels with midvein abaxially concave to apex of style. Fruiting brachyblasts thick and strong, ca. 1.3 cm in diam. Fruit ellipsoid-ovoid, 10–12 cm; mature carpels 3–4 cm, dehiscing along ventral sutures, apex acute and minutely incurved. Fl. May, fr. Sep–Oct. $2n = 38^*$.

• Evergreen broad-leaved forests; 800–1500 m. SW Guangxi, SE Yunnan.

This species is used for timber.

5. *Manglietia garrettii* Craib, Bull. Misc. Inform. Kew 1922: 166. 1922.

泰国木莲 tai guo mu lian

Manglietia garrettii (Craib) V. S. Kumar.

Trees, to 20 m tall, to 1.2 m d.b.h. Young twigs, stipules, petioles, and peduncles densely brown pubescent with short to long and straight to slightly undulate trichomes. Twigs brown, 5–8 mm in diam. Stipules adnate to petiole, scar 1.8–2.5 cm. Petiole 3–5 cm, thickened toward base; leaf blade elliptic to obovate, 18–34.5 × 8–12 cm, leathery, abaxially densely coated with minute (hardly visible even with hand lens) brownish trichomes, secondary veins 12–21 on each side of midvein and abaxially prominently elevated, reticulate veins coarse and prominent on both surfaces, base cuneate to rounded, apex shortly acuminate. Brachyblasts 1.5–4 × 0.6–0.9 cm. Flower buds elongate, 6–6.5 × 2.2–2.5 cm. Tepals 9, purple to violet red, thick and succulent; outer 3 tepals 6–6.5 × ca. 3 cm; inner tepals slightly smaller. Stamens 1.1–1.5 cm; connective appendage triangular, ca. 3 mm. Gynoecium ovoid to narrowly ovoid, ca. 3 × 2 cm, glabrous; carpels 66–68; styles glabrous, 2–3 mm. Fruit broadly ovoid-oblong, 4–9 × 3.5–6 cm; scar on torus of perianth and stamens 10–12 × ca. 9 mm; dorsal face of mature carpels 2.5–3.2 cm for basal ones and 1–2 cm for apical ones, apex shortly beaked. Seeds ellipsoid to obovoid, 9–14 × 5–8 mm, irregularly shaped.

Evergreen broad-leaved forests; 1300–1900 m. S Yunnan [N Thailand, Vietnam].

6. *Manglietia hookeri* Cubitt & W. W. Smith, Rec. Bot. Surv. India 4: 273. 1913.

中緬木莲 zhong mian mu lian

Manglietia hookeri (Cubitt & W. W. Smith) D. C. S. Raju & M. P. Nayar.

Trees, to 25 m tall, young parts grayish white to pale brown appressed pilose. Stipular scar obtusely triangular, 2–3 cm. Petiole 3–5 cm; leaf blade elliptic-obovate to narrowly obovate, 20–30 × 6–10 cm, both surfaces glabrous, secondary veins 16–20 on each side of midvein, reticulate veins prominent on both surfaces when dry, base cuneate, apex acute to shortly acuminate. Flowers ca. 10 cm in diam. at anthesis; bract scar 5–10 mm basal to tepals. Tepals 9–12, white; outer 3 tepals basally green and apically milky white, obovate-oblong, 6–8 × 2.5–3 cm; middle and inner tepals thickly obovate to spatulate, 6–8 × 1.5–2.5 cm, fleshy, base clawed. Fruit ovoid-ellipsoid to nearly terete, 7–10 × ca. 6 cm, smooth, not tuberculate; mature

carpels more than 100, rhombic on exposed side, dehiscent along dorsal suture, apex shortly beaked. Seeds 1–4 per carpel. Fl. Apr–May, fr. Sep. $2n = 38$.

Evergreen broad-leaved forests; 1400–3000 m. Guizhou (Wangmo), C and S Yunnan (Jingdong, Xishuangbanna) [Myanmar, Thailand].

This species is grown as an ornamental and used for timber.

7. *Manglietia zhengyiana* N. H. Xia, *sp. nov.*

锈毛木莲 xiu mao mu lian

Type: China. Yunnan: Maguan Xian, Laojun Shan (老君山), Sitaipo (四台坡), alt. 1300–1600 m, 20 Dec 1947, K. M. Feng 13960 (holotype, KUN; isotypes, A, PE).

Arbor usque ad 25 m alta, trunco usque ad 30 cm diametro, ramunculis gemmisque indumento denso ferrugineo indutis, gemmis ellipsoideis 1.3–2 cm longis et 0.5–0.9 cm latis. Folium petiolo 1.2–1.8 cm longo pilis ferrugineis induto cica-trice 7–10 mm longa; lamina obovata usque elliptica 15–21.5 cm longa et 5.5–9 cm lata acumine 0.6–1.1 cm longo, nervis utroque costae latere 8 ad 11. Brachyblastus florifer 1.5–2 cm longus. Flos tepalis albis; androecio pilis longis ferrugineis induto; carpellis glabris ca. 30, pilis ferrugineis dense indutis. Brachyblastus fructifer 1.5–3 cm longus et 4–5 mm latus pilis ferrugineis dense indutus. Fructus cylindraceus 5–8.3 cm longus et 2–2.8 cm latus.

Trees, to 25 m tall, to 30 cm d.b.h. Branchlets with dense rust-colored trichomes; vegetative buds ellipsoid, 1.3–2 × 0.5–0.9 cm, with dense rust-colored trichomes. Stipular scar 7–10 mm. Petiole 1.2–1.8 cm, with rust-colored trichomes; leaf blade obovate to elliptic, 15–21.5 × 5.5–9 cm, papery to thinly leathery, abaxially glaucous and with rust-colored trichomes, adaxially glabrous, secondary veins 8–11 on each side of midvein, base broadly cuneate, apex acuminate to acute, acumen 0.6–1.1 cm. Brachyblasts 1.5–2 cm. Tepals 9, white; outer tepals 3, oblong, ca. 3 × 2 cm, thinly leathery, outside with rust-colored trichomes at base; middle and inner tepals slightly fleshy, shorter and narrower. Stamens many, ca. 1.2 cm; filaments 1.5–2 mm; connectives exerted, with a ca. 1 mm triangular appendage; anthers ca. 1 cm, thecae distinct. Stamen scars with long rust-colored trichomes. Carpels ca. 30, with dense rust-colored trichomes. Fruiting brachyblasts 1.5–3 cm × 4–5 mm, with dense rust-colored trichomes. Fruit cylindrical, 5–8.3 × 2–2.8 cm; mature carpels 1–1.5 × 0.6–1 cm, dehiscent along dorsal sutures. Seeds cordate. Fl. May–Jun, fr. Sep–Oct.

• Forests; 1300–1600 m. SE Yunnan (Maguan, Xichou).

K. M. Feng reported the type as being from “Mar-li-po: Sze-tai-po (loa-chün-shan),” but modern maps show that Sitaipo is in Dulong Zhen (都龙镇) in Maguan Xian, on the SW flank of Laojun Shan very close to the border with Malipo Xian (see: Atlas of roads and kilometers of Yunnan and neighboring regions (云南及周边地区公路里程地图册) 34. 2008). Feng also misspelled the first character of the mountain name as “loa” rather than “lao.” *Manglietia zhengyiana* has been mistakenly included in *M. rufibarbata* (FRPS 31: 89. 1996; Fl. Yunnan. 16: 5. 2006) or in *M. dandyi* (B. L. Chen & H. P. Nootboom, Ann. Missouri Bot. Gard. 80: 1037. 1993). Also, see the comment under *M. rufibarbata* regarding the paratypes of *M. pubipetala*.

8. *Manglietia ventii* N. V. Tiep, Feddes Repert. 91: 560. 1980.

毛果木莲 mao guo mu lian

Magnolia hebecarpa (C. Y. Wu & Y. W. Law) V. S. Kumar; *M. ventii* (N. V. Tiep) V. S. Kumar; *Manglietia hebecarpa* C. Y. Wu & Y. W. Law.

Trees, to 30 m tall. Young twigs blackish gray, 2–3.5 mm in diam., densely appressed tomentulose with short straight glistening yellowish trichomes, old ones ± gray pubescent to glabrescent. Stipular scar 1–2 cm. Leaves usually crowded at apex of twigs; petiole slender, 2.6–3 cm, tomentulose, with same trichomes as on young twigs, glabrescent; leaf blade elliptic, broadly elliptic, obovate-elliptic, or obovate, 9–18 × 2.2–6.5 cm, papery to thinly leathery, abaxially appressed tomentulose with short straight glistening yellowish to silver trichomes, adaxially glabrous, midvein abaxially elevated and densely pubescent to glabrescent and adaxially impressed, secondary veins 12–16 on each side of midvein, fine, abaxially visible, and adaxially inconspicuous, reticulate veins lax and faint on both surfaces, base cuneate to obtuse, apex shortly acuminate to acuminate, acumen 0.3–1.7 cm and sometimes asymmetric. Flower not seen. Fruiting brachyblasts 10–15 × 4–6 mm, yellowish appressed tomentulose, with a bract scar. Pedicel absent. Fruit ovoid to long globose, 3.5–7 × 2.5–4.5 cm; torus with 6–9 × ca. 7 mm scar of perianth and stamens; scar of fallen tepals ca. 10 mm; mature carpels ca. 64, long ovoid, 2–2.2 cm, erect or recurved, dehiscent along dorsal suture, beak rather long, 5–7 mm; basalmost carpels ± yellowish pubescent especially toward base, basally decurrent along torus. Seeds 1–3 per carpel, subcordate to ovoid, 7–7.5 × 5–6 mm, ± impressed. Fl. Apr–May, fr. Aug–Sep.

Forests; 800–1200 m. SE Yunnan (Pingbian) [Vietnam].

9. *Manglietia insignis* (Wallich) Blume, Fl. Javae 19–20 (Magnoliaceae): 23. 1829.

红花木莲 hong hua mu lian

Magnolia insignis Wallich, Tent. Fl. Nepal. 3. 1824; *M. insignis* var. *angustifolia* (J. D. Hooker & Thomson) H. J. Chowdhery & P. Daniel; *M. insignis* var. *latifolia* (J. D. Hooker & Thomson) H. J. Chowdhery & P. Daniel; *M. shangpaensis* Hu; *Manglietia insignis* var. *angustifolia* J. D. Hooker & Thomson; *M. insignis* var. *latifolia* J. D. Hooker & Thomson; *M. maguanica* Hung T. Chang & B. L. Chen; *M. rufisyncarpa* Y. W. Law et al.; *M. yunnanensis* Hu.

Trees, to 30 m tall, to 20 cm d.b.h. Twigs glabrous or nodes ferruginous to yellowish brown pubescent when young. Stipular scar 0.5–1.2 cm. Petiole 1.8–3.5 cm; leaf blade narrowly ovate or elliptic, 10–26 × 4–10 cm, leathery, adaxially glabrous, midvein abaxially reddish brown pubescent or scattered appressed hispidulous, basal ca. 2/3 tapered to base, apex acuminate to caudate-acuminate. Brachyblasts thick and strong, 8–10 mm in diam.; bract scar 1, ca. 1 cm basal to tepals. Flowers fragrant. Tepals 9–12; outer 3 tepals abaxially brown and adaxially reddish to purplish red, obovate-oblong, ca. 7 cm, curved outward; middle and inner tepals milky whitish pink,

obovate-spatulate, 5–7 cm, erect, basal ca. 1/4 tapered and clawed. Stamens 1–1.8 cm; filaments nearly as long as exerted part of connective; connective exerted and forming a triangular mucro; thecae slightly distinct. Gynoecium terete, 5–6 cm; carpels glabrous, abaxially shallowly furrowed. Fruit purplish red when fresh, ovoid-ellipsoid, 7–12 cm; mature carpels tuberculate, completely dehiscent along dorsal sutures. Fl. May–Jun, fr. Aug–Sep. $2n = 38$.

Evergreen broad-leaved forests; 900–1200 m. Guangxi, Guizhou, SW Hunan, SW Sichuan, SE Xizang, Yunnan [NE India, N Myanmar, Nepal, Thailand].

“*Manglietia carimina* Y. W. Law & R. Z. Zhou,” “*M. laojunia* Y. W. Law & R. Z. Zhou,” “*M. malipoensis* S. C. Yang & Y. W. Law,” “*M. miechangensis* Y. W. Law & D. X. Li,” “*M. nucifera* D. X. Li & R. Z. Zhou,” “*M. parvicula* Y. W. Law & R. Z. Zhou,” “*M. tengchongensis* S. C. Yang & Y. W. Law,” and “*M. zhengkangensis* R. Z. Zhou & D. X. Li” (in Y. H. Liu, *Magnolias China*, 126, 158, 166, 173, 176, 184, 196, 204. 2004) belong here but were not validly published because no Latin descriptions or diagnoses were provided and no types were indicated (*Vienna Code*, Art. 36.1 and 37.1).

This species is grown as an ornamental and used for timber.

10. *Manglietia hongheensis* Y. M. Shui & W. H. Chen, *Bull. Bot. Res.*, Harbin 23: 129. 2003.

红河木莲 hong he mu lian

Magnolia hongheensis (Y. M. Shui & W. H. Chen) V. S. Kumar.

Trees, 10–15 m tall. Old twigs robust, 1.1–1.5 cm in diam., sparsely lenticellate; young twigs densely rust-colored appressed hispid. Stipular scar 7–8 mm. Petiole ca. 3.3 cm, densely rust-colored appressed hispid; leaf blade oblong, ca. 21 × 11 cm, leathery, abaxially densely rust-colored appressed hispid (visible under hand lens), adaxially glabrous, midvein abaxially prominent and adaxially impressed, secondary veins 12–14 on each side of midvein, reticulate veins adaxially conspicuous, base rounded, margin slightly involute, apex obtuse to emarginate. Flowers not seen. Fruiting brachyblasts 2.3–2.4 × ca. 0.7 cm, smooth, sparsely lenticellate. Fruit ovoid-ellipsoid to cylindrical, 10–11 × ca. 4.4 cm; mature carpels ca. 100, ellipsoid, 1.9–2 cm, glabrous, tuberculate, dehiscent along dorsal and ventral sutures, apex shortly beaked. Seeds 2–5 per carpel, irregularly polygonal, smooth; testa red. Fr. Oct.

• Evergreen broad-leaved forests; 1900–2600 m. SE Yunnan (Lüchun, Yuanyang).

11. *Manglietia caveana* J. D. Hooker & Thomson, *Fl. Ind.* 1: 76. 1855.

西藏木莲 xi zang mu lian

Magnolia caveana (J. D. Hooker & Thomson) D. C. S. Raju & M. P. Nayar; *M. tibetica* V. S. Kumar; *Manglietia microtricha* Y. W. Law; *M. tenuifolia* Hung T. Chang & B. L. Chen.

Trees, 30–40 m tall, 40–60 cm d.b.h. Twigs thick and strong, 6–10 mm in diam.; vegetative buds orangish red appressed pubescent. Stipular scar 1/3–1/2 as long as petiole.

Leaves usually 6–9 clustered on apex of twigs; petiole 2–2.5 cm; leaf blade obovate, 13–17 × 5–7 cm, leathery, abaxially grayish white, adaxially glabrous, midvein adaxially impressed, secondary veins 15–17 on each side of midvein, reticulate veins fine, dense, and prominent on both surfaces when dry, base cuneate, apex shortly acute. Flowers not seen; bract scar 1, just basal to tepals. Fruiting peduncle 1.5–2 cm, glabrous. Fruit ovoid, ca. 6 × 4 cm, usually curved because of carpels partly undeveloped; mature carpels abaxially narrowly elliptic, tuberculate, brownish appressed pilose and pale brown appressed finely pilose, apex with a ca. 3 mm beak. Seeds pale brown. Fr. Sep–Oct.

Evergreen broad-leaved forests; ca. 2000 m. SE Xizang (Mêdog), SE Yunnan (Maguan) [NE India, Myanmar].

12. *Manglietia patungensis* Hu, *Acta Phytotax. Sin.* 1: 335. 1951.

巴东木莲 ba dong mu lian

Trees, to 25 m tall, to 1.4 m d.b.h. Bark pale grayish brown and reddish. Twigs grayish brown. Stipular scar 1/7–1/5 as long as petiole. Petiole 2.5–3 cm; leaf blade obovate-elliptic, 14–18(–20) × 3.5–7 cm, thinly leathery, both surfaces glabrous, abaxially pale green, adaxially green and glossy, midvein abaxially prominent, secondary veins 13–15 on each side of midvein, base cuneate, apex caudate-acuminate. Flowers 8.5–11 cm in diam., fragrant. Peduncle ca. 1.5 cm; bract scar 1, 5–10 mm basal to tepals. Tepals 9, white; outer 3 tepals narrowly oblong, 4.5–6 × 1.5–2.5 cm, nearly leathery, apex obtuse; middle and inner tepals obovate, 4.5–5.5 × 2–3.5 cm, fleshy. Stamens 6–8 mm; anthers purplish red, 5–6 mm; connective exerted and forming a ca. 1 mm mucro; thecae adnate at base, sometimes apex slightly free. Gynoecium conic, ca. 2 cm; carpels not abaxially furrowed; ovules 4–8 per carpel. Fruit pale purplish red, terete-ellipsoid, 5–9 × 2.5–3 cm; mature carpels dotted on exposed side. Fl. May–Jun, fr. Jul–Oct.

• Forests; 600–1000 m. Chongqing, W Hubei, NW Hunan, E Sichuan.

This species is used medicinally.

13. *Manglietia szechuanica* Hu, *Bull. Fan Mem. Inst. Biol., Bot.* 10: 117. 1940.

四川木莲 si chuan mu lian

Magnolia figlarii V. S. Kumar (2006), not *M. szechuanica* (Dandy) Figlar (2000).

Trees, to 20 m tall, to 60 cm d.b.h. Older twigs grayish yellow; young twigs green, densely villous, hairs gradually deciduous, only residual at nodes. Stipular scar 4–6(–9) cm. Petiole 1.5–2.5 cm, white villous; leaf blade narrowly obovate to obovate, 11–20 × 3–6 cm, lower ca. 1/3 tapered, abaxially pale green and pale brown pubescent, adaxially deep green and glabrous, midvein white villous, secondary veins 13–16 on each side, reticulate veins sparse and prominent on both surfaces when dry, base cuneate, apex acuminate to shortly caudate. Flower buds ovoid; bract scar 1, 3–6 mm basal to tepals. Tepals 9, purplish red; outer 3 tepals pale green and usually flushed purplish, obovate, 5.5–6.5 × ca. 3 cm, sparsely villous; middle

and inner tepals purplish red, 4–5.5 × 2.5–3 cm but inner ones smaller. Stamens 1.2–2 cm; filaments deep red, ca. 1 mm; connective exerted and forming a ca. 1 mm triangular mucro; anthers ca. 1 cm, introrse. Gynoecium ovoid-ellipsoid, 2–2.5 cm; carpels pale green, narrowly ellipsoid, 0.8–1 cm, densely shortly brown tomentose; styles pale red, ca. 3 mm. Fruit ovoid, 8–10 cm. Fl. Apr–May, fr. Aug–Sep.

• Evergreen broad-leaved forests; 1300–2000 m. C and S Sichuan, N Yunnan.

14. *Manglietia chevalieri* Dandy, J. Bot. 68: 204. 1930.

睦南木莲 mu nan mu lian

Manglietia chevalieri (Dandy) V. S. Kumar.

Trees, to 10 m tall. Bark grayish brown. Perules, young twigs, leaf blade abaxial surfaces, petioles, and stipular scars with pale reddish brown appressed trichomes. Young twigs green. Stipular scar semi-orbicular to semi-elliptic, 1/10–1/5 as long as petiole. Petiole 1.5–3 cm; leaf blade obovate to narrowly obovate, 10–18(–20) × 3.5–5(–6.5) cm, leathery, adaxially glabrous, secondary veins 10–18 on each side of midvein, base cuneate, apex cuspidate to shortly caudate. Tepals 9, in 3 whorls; outer (2 or) 3 tepals oblong-elliptic, ca. 7.5 × 3 cm, thin, abaxially greenish; tepals of inner 2 whorls white and slightly yellowish, obovate, fleshy, base gradually tapered and forming a long claw; inner tepals smaller and narrower. Stamens 6–9 mm; connective exerted and forming a ca. 1.5 mm mucro. Gynoecium terete, ca. 1.7 × 1 cm; carpels narrowly obovoid, ca. 6 mm, exposed part of apical ones shallowly furrowed; ovules 8–10 per carpel, stalked. Fruit ovoid to ellipsoid, 5–9 × ca. 4 cm. Fl. Feb–Apr, fr. Sep–Oct.

Forests. S Yunnan [N Laos, Vietnam].

This species is grown as an ornamental.

15. *Manglietia duclouxii* Finet & Gagnepain, Bull. Soc. Bot. France 52(Mém. 4): 33. 1906.

川滇木莲 chuan dian mu lian

Manglietia duclouxii (Finet & Gagnepain) Hu in Hu & Chun, Icon. Pl. Sin. 2: 18. 1929.

Trees, to 6 m tall. Twigs glabrous. Stipular scar ca. 1/3 as long as petiole. Petiole 1–2.3 cm, adaxially deeply furrowed; leaf blade narrowly obovate to obovate-narrowly elliptic, 8–13 × 2.5–4 cm, thinly leathery, glabrous, adaxially deep green, midvein impressed and abaxially grayish green, reticulate veins inconspicuous, base cuneate, apex acuminate. Peduncle glabrous; spatheaceous bract 1, next to tepals. Tepals 9, fleshy; outer 3 tepals red, abaxially tuberculate; tepals of inner 2 whorls purplish red, obovate, 2.8–4.5 × 1.5–2.5 cm, transversely veined, clawed, base thickened. Stamens 1–1.2 cm; filaments short and broad, 1–1.5 mm; connective exerted and forming a 2–3 mm triangular mucro; anthers 6–7 mm, thecae slightly distinct and dehiscent introrsely. Gynoecium narrowly ellipsoid, 7–8 mm, villous; ovules 5 per carpel; styles 2–3 mm. Fruit ovoid-ellipsoid, 5–6 cm. Fl. May–Jun, fr. Sep–Oct.

Evergreen broad-leaved forests; 1300–2000 m. Guangxi, SE Si-

chuan, NE Yunnan [N Vietnam].

This species is used medicinally.

16. *Manglietia crassipes* Y. W. Law, Bull. Bot. Res., Harbin 2(4): 133. 1982.

粗梗木莲 cu geng mu lian

Manglietia crassipes (Y. W. Law) V. S. Kumar.

Trees or shrubs, to 4 m tall. Twigs, vegetative buds, and abaxial surfaces of leaf blade glaucous. Twigs thick and strong, 0.6–10 mm in diam. Stipular scar ca. 1/6 as long as petiole. Petiole thick and strong, 3–3.5 cm × 2–2.5 mm; leaf blade narrowly obovate to obovate-elliptic, 13–26 × 5–8 cm, leathery, abaxially glaucous, adaxially green, midvein adaxially slightly prominent to flat, secondary and reticulate veins prominent on both surfaces when dry, secondary veins 8–14 on each side of midvein, reticulate veins sparse, base broadly cuneate, apex shortly acute. Peduncle thick and strong, 3.5–4 cm; spatheaceous bract 1, thin. Tepals 9, in 3 whorls, white; outer 3 tepals obovate-oblong, 3.5–4 × 2–2.5 cm, thin, 5-striated; tepals of inner 2 whorls thick, fleshy. Stamens numerous, 1–1.5 cm; connective exerted, triangular, 2–3 mm; anthers 8–9 mm. Gynoecium ovoid, ca. 1.5 × 1.8 cm. Fruiting peduncle thick and strong, 4.5–5.5 × ca. 1 cm. Fruit ovoid, 5–6 × 4–5 cm; mature carpels ellipsoid, 1.5–2 cm, dehiscent into 2 valves along both ventral and dorsal sutures, apex shortly beaked. Fl. May, fr. Sep. $2n = 38^*$.

• Forests; ca. 1300 m. Guangxi (Jinxu).

17. *Manglietia pachyphylla* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 1: 55. 1961.

厚叶木莲 hou ye mu lian

Trees, to 16 m tall, to 30 cm d.b.h. Bark grayish black. Twigs thick and strong, glaucous and glabrous; vegetative buds pale yellow to dark brown villous. Stipular scar 2–3 mm. Petiole thick and strong, 3–5 cm; leaf blade obovate-elliptic to obovate-oblong, 12–32 × 6–10 cm, thickly leathery, rigid, both surfaces glabrous, abaxially pale green, adaxially deep green and glossy, secondary veins 12–14 on each side of midvein and inconspicuous on both surfaces, reticulate veins inconspicuous, base cuneate, apex acute. Peduncle thick and strong, ca. 1 cm in diam., glabrous; bract scar 1, ca. 5 mm basal to tepals. Flowers fragrant. Tepals 9(or 10), white; outer 3 tepals obovate, 7–8 × 3–3.5 cm; middle 3 tepals obovate, 5.5–6 cm, fleshy; inner 3(or 4) tepals obovate, ca. 5 × 2.5 cm, fleshy, base narrowed and forming a claw; innermost tepal narrower and longer, ca. 5.5 × 2 cm. Stamens ca. 1.2 cm; filaments ca. 1 mm, basally connate; connective exerted and forming a mucro; anthers ca. 1 cm. Gynoecium ovoid, ca. 2.2 × 1.8 cm; carpels ca. 5 mm; ovules 10–12 per carpel; styles 1–2 mm. Fruit ellipsoid, ca. 7 × 4.5 cm; mature carpels 38–46, 2–2.5 cm, abaxially furrowed, apex shortly beaked. Seeds 3 or 4, orbicular, 5–6 mm. Fl. May, fr. Sep–Oct.

• Montane forests; 800–1500 m. SC Guangdong.

This species is grown as an ornamental and used for timber.

18. *Manglietia fordiana* Oliver, Hooker's Icon. Pl. 20: t. 1953. 1891.

木莲 mu lian

Trees, to 25 m tall, to 45 cm d.b.h. Bark pale grayish brown. Young twigs and vegetative buds reddish brown pubescent, later glabrescent. Stipular scar semi-elliptic, 3–5 mm. Petiole 1–3(–4.5) cm, base slightly swollen; leaf blade narrowly obovate, narrowly elliptic-obovate, or rarely narrowly elliptic, 8–17(–20) × 2.5–5.5(–9.5) cm, leathery or thinly leathery, abaxially sparsely reddish brown pubescent, secondary veins 8–17 on each side of midvein, reticulate veins conspicuous or inconspicuous on both surfaces when dry, base cuneate and decurrent along petiole, margin slightly involute and wavy or not wavy, apex acute to acuminate. Peduncle 5–11(–40) × 4–10 mm, with 1 annular bract scar, with or without reddish brown pubescence. Tepals 9, 3 per whorl, white; outer 3 tepals slightly thinner, oblong-elliptic, broadly ovate or obovate, 5–7 × 3–4 cm, nearly leathery; tepals of inner 2 whorls obovate, 4–6 × 2–3 cm, usually fleshy. Stamens red, ca. 1 cm; connective forming an obtuse mucro; anthers ca. 8 mm. Gynoecium 1.5–2.5 cm, smooth; carpels 18–32, basal ones 5–10 × 3–5 mm, middle ones ca. 5 mm wide on exposed side; ovules 5–10 per carpel; styles inconspicuous or to 1 mm. Fruit brown, ovoid to ellipsoid-ovoid, 2–6 cm; mature carpels with dot-protuberance on exposed side, apex with or without a ca. 1 mm beak. Seeds slightly flat, 7–8 × 5–6 mm; testa red. Fl. Apr–May, fr. Sep–Oct.

Hills, forests, beside rivers; 300–1200 m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Yunnan, Zhejiang [Vietnam].

This species is used medicinally and for timber.

- 1a. Leaf blade leathery, reticulate veins inconspicuous on both surfaces when dry, margin not wavy; peduncle with reddish brown trichomes; outer tepals oblong-elliptic; carpel with ca. 1 mm beak 18a. var. *fordiana*
- 1b. Leaf blade thinly leathery, reticulate veins conspicuous on both surfaces when dry, margin wavy; peduncle glabrous; outer tepals broadly ovate to obovate; carpel without a beak 18b. var. *hainanensis*

18a. *Manglietia fordiana* var. *fordiana*

木莲(原变种) mu lian (yuan bian zhong)

Magnolia fordiana (Oliver) Hu; *M. yuyuanensis* (Y. W. Law) V. S. Kumar; *Manglietia yuyuanensis* Y. W. Law; *Paranglietia microcarpa* Hung T. Chang.

Leaf blade leathery, reticulate veins inconspicuous on both surfaces when dry, margin not wavy. Peduncle with reddish brown trichomes. Outer tepals oblong-elliptic. Carpel with a ca. 1 mm beak. Fl. May, fr. Oct. $2n = 38$.

Hills; ca. 1200 m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Yunnan, Zhejiang [Vietnam].

This taxon is used medicinally and for timber.

18b. *Manglietia fordiana* var. *hainanensis* (Dandy) N. H. Xia,

comb. et stat. nov.

海南木莲 hai nan mu lian

Basionym: *Manglietia hainanensis* Dandy, J. Bot. 68: 204. 1930; *M. albistaminea* Y. W. Law et al.

Leaf blade thinly leathery, reticulate veins conspicuous on both surfaces when dry, margin wavy. Peduncle glabrous. Outer tepals broadly ovate to obovate. Carpel without a beak. Fl. Apr–May, fr. Sep–Oct.

- Forests, beside rivers; 300–1200 m. Hainan.

“*Manglietia albistaminata* Y. W. Law & R. Z. Zhou” and “*M. renzhangii* Y. W. Law” (in Y. H. Liu, *Magnolias China*, 122, 187. 2004) belong here but were not validly published because no Latin descriptions or diagnoses were provided and no types were indicated (*Vienna Code*, Art. 36.1 and 37.1). “*Manglietia albistaminata*” was subsequently validly published as *M. albistaminea*.

This taxon is used for timber.

19. *Manglietia forrestii* W. W. Smith ex Dandy, Notes Roy. Bot. Gard. Edinburgh 16: 126. 1928.

滇桂木莲 dian gui mu lian

Magnolia fordiana (Oliver) Hu var. *forrestii* (W. W. Smith ex Dandy) V. S. Kumar; *Manglietia fordiana* Oliver var. *forrestii* (W. W. Smith ex Dandy) B. L. Chen & Nooteboom.

Trees, to 25 m tall, ca. 30 cm d.b.h. Young twigs, buds, petioles, abaxial base of outer tepals, and peduncles reddish brown appressed glossy villous. Stipular scars 3–10 mm. Petiole 1–3 cm; leaf blade obovate to oblong-obovate, 11–20 × 5–9.5 cm, leathery, abaxially sparsely covered with reddish brown erect trichomes, adaxially glabrous, secondary veins 12–16 on each side of midvein, base cuneate to broadly cuneate, apex abruptly acute to acuminate. Flowers fragrant. Tepals 9(or 10), white; outer 3 tepals oblong-obovate, 4.5–7 cm; tepals of inner 2 whorls obovate, ca. 4.5 cm, thickly fleshy, glabrous; inner 3 tepals smaller. Stamens 1.1–1.5 cm; connective exerted, obtuse; anthers ca. 1 cm, ± distinct or only connate at base. Gynophore 1–2.5 cm. Gynoecium ovoid, ca. 2.5 cm; carpels glabrous. Fruit ovoid, 4–6 cm; mature carpels densely tuberculate, dehiscent along dorsal and ventral sutures, apex shortly beaked. Seeds black, abaxially with several furrows, ventral furrow impressed, base sharp. Fl. Jun, fr. Sep–Oct.

- Forests; 1100–2900 m. SW Guangxi, S and W Yunnan.

One of the co-authors (Nooteboom) considers that this taxon would be better treated as a variety of *Manglietia* (*Magnolia*) *fordiana*.

This species is used for timber.

20. *Manglietia calcarea* X. H. Song, J. Nanjing Inst. Forest. 1984(4): 46. 1984.

石山木莲 shi shan mu lian

Magnolia fordiana (Oliver) Hu var. *calcarea* (X. H. Song) V. S. Kumar; *Manglietia fordiana* Oliver var. *calcarea* (X. H. Song) B. L. Chen & Nooteboom.

Trees, to 14 m tall, ca. 35 cm d.b.h., glabrous except for

stipules. Young twigs 5–7 mm in diam. Stipules densely covered with straight appressed brown trichomes, adnate to base of petiole, scars 4–5 mm. Petiole 2.8–3.8 cm, dilated toward base; leaf blade obovate-elliptic to narrowly obovate, 14.5–20 × 3.5–7 cm, leathery and rigid, adaxially dark green, midrib abaxially prominent and adaxially impressed, secondary veins 14–17 on each side of midvein, abaxially visible to slightly prominent, and adaxially inconspicuous, base attenuate-cuneate, apex rounded with a 6–10(–14) mm acumen. Peduncle 5–8(–20) × 5–6 mm. Tepals 9, white; outer 3 tepals obovate-elliptic, ca. 6.2 × 2.5 cm, apex rounded; inner tepals spatulate, 4.5–5.5(–6) cm. Stamens many, ca. 1.2 cm; filament ca. 2 mm; connective exerted into a triangular ca. 1.8 mm tip. Perianth and stamens scar band 8–14 × 5–6 mm. Gynoecium broadly ellipsoid, 1.6–2 × ca. 1 cm; carpels 12–16(–30); ovules ca. 7 per carpel. Fruiting gynophore 9–11 × ca. 6 mm. Fruit ovoid to ovoid-globose, ca. 6 × 5 cm; mature carpels woody, dorsal face elliptic, dehiscent along dorsal suture; perianth and stamens scar band 1.2–1.3 × 0.7–0.8 cm. Seeds 2–5 per carpel, oblong, 8–10 × 5–6 mm.

- Forest margins, limestone areas; 600–800 m. Guizhou.

One of the co-authors (Nooteboom) considers that this taxon would be better treated as a variety of *Manglietia (Magnolia) fordiana*.

This species is grown as an ornamental and used for timber.

21. *Manglietia obovalifolia* C. Y. Wu & Y. W. Law, Acta Phytotax. Sin. 34: 89. 1996.

倒卵叶木莲 dao luan ye mu lian

Manglietia obovalifolia (C. Y. Wu & Y. W. Law) V. S. Kumar.

Trees, to 30 m tall, to 50 cm d.b.h. Twigs 3–4 mm in diam., glabrous. Stipular scar 2–3 mm. Petiole 1.5–2 cm, glabrous, adaxially furrowed; leaf blade obovate, 6–11 × 3–6 cm, thinly leathery, both surfaces glabrous, midvein adaxially impressed, secondary veins 9–11 on each side of midvein, reticulate veins prominent on both surfaces when dry, base broadly cuneate and slightly decurrent, margin slightly reflexed, apex cuspidate with a 5–10 mm mucro. Flower buds ovoid, 3–4 cm. Peduncle 1–1.5 cm, glabrous, with a bract scar; spathaceous bract 1, just next to tepals, tuberculate, glabrous, dehiscing along one side. Tepals 9, fleshy; outer 3 tepals ovate, 3–3.5 × ca. 1.5 cm; tepals of inner 2 whorls smaller. Gynoecium narrowly ovoid-ellipsoid, ca. 2.5 × 0.8 cm; carpels conspicuously with 2 or 3 series, tuberculate, furrowed along dorsal suture, furrow not reaching to style apex; ovules ca. 6 per carpel; styles 5–6 mm. Fruit not seen. Fl. Apr–May.

- Forests; 1400–1500 m. S Guizhou, SE Yunnan.

22. *Manglietia oblonga* Y. W. Law et al., Ann. Bot. Fenn. 43: 64. 2006.

椭圆叶木莲 tuo yuan ye mu lian

Trees, to 20 m tall, to 40 cm d.b.h. Bark blackish brown. Vegetative buds, petioles, leaf blade abaxial surfaces, flower buds, and peduncles golden yellow appressed pubescent. Twigs pale green when young, brown when old. Stipular scar ca. 6

mm. Petiole 2–2.5 cm; leaf blade obovate-elliptic, 13–20 × 3.5–4.5 cm, leathery, secondary veins 12–15 on each side of midvein, base cuneate, apex acuminate. Tepals 9, outer 3 pale green and thinner, inner 6 white and fleshy, transversely wavy striate; tepals of middle whorl 3, ovate, 4.5–5.5 × 2.5–3.5 cm; innermost 3 tepals long ovate, 4–5 × 2–3 cm. Stamens numerous, red, 6–7 mm; connective exerted and forming a triangular mucro; anthers 5–6 mm. Gynoecium ovoid; carpels 14 or 15, long ovoid, ca. 7 mm, brownish pubescent; styles white. Fruit not seen. Fl. Apr–May.

- Evergreen broad-leaved forests; 800–1200 m. Guangxi (Lingui, Xing'an).

23. *Manglietia kwangtungensis* (Merrill) Dandy, Bull. Misc. Inform. Kew 1927: 264. 1927.

毛桃木莲 mao tao mu lian

Manglietia kwangtungensis Merrill, J. Arnold Arbor. 8: 5. 1927; *M. fordiana* (Oliver) Hu var. *kwangtungensis* (Merrill) V. S. Kumar; *M. moto* (Dandy) V. S. Kumar; *Manglietia fordiana* Oliver var. *kwangtungensis* (Merrill) B. L. Chen & Nooteboom; *M. moto* Dandy.

Trees, to 20 m tall, to 60 cm d.b.h. Bark deep gray, with several lenticels transversely arranged or linked into pieces. Young twigs, vegetative buds, petioles, young leaf blades, and fruiting peduncles densely rust-colored tomentose. Stipules narrowly ovate, ca. 6 × 1.2 cm, ferruginous tomentose, scar narrowly triangular, ca. 1/3 as long as petiole. Petiole 2–4 cm, apical part narrowly furrowed; leaf blade obovate-elliptic, narrowly obovate-elliptic, or narrowly obovate, 12–25 × 4–8 cm, leathery, abaxially ferruginous tomentose especially along midvein, adaxially glabrous, secondary veins 10–15 on each side of midvein, base cuneate to broadly cuneate, apex acute to acuminate. Flowers fragrant. Peduncle 6–12 cm. Tepals 9, milky white; outer 3 tepals nearly oblong, 6.5–7.5 cm, leathery; middle 3 tepals obovate, 6.5–7 × 3.5–4 cm, thickly fleshy; inner 3 tepals obovate-spoon-shaped, 6–6.5 × 2–2.5 cm, thickly fleshy. Stamens red, 1.1–1.3 cm; connective exerted 1.5–2 mm, apex mucronate; anthers ca. 1 cm. Gynoecium ovoid, ca. 2 × 1.5 cm; basal carpels narrowly ellipsoid, 10–12 × ca. 3 mm (including style), dorsally 4–6-ridged, glabrous; apical carpels abaxially shallowly furrowed, apex sharply long acuminate; ovules 6–8 per carpel. Fruit ovoid, 5–7 × 3.5–6 cm; mature carpels abaxially tuberculate, apex with a 2–3 mm beak. Fl. May–Jun, fr. Aug–Dec.

- Evergreen broad-leaved forests, on acidic yellow soil; 400–1200 m. S Fujian, Guangdong, W Guangxi, S Hunan.

This species is used for timber.

24. *Manglietia rufibarbata* Dandy, Notes Roy. Bot. Gard. Edinburgh 16: 128. 1928.

毛瓣木莲 mao ban mu lian

Manglietia rufibarbata (Dandy) V. S. Kumar; *Manglietia pubipetala* Q. W. Zeng.

Trees to 20 m tall, to 30 cm d.b.h. Bark grayish brown. Young twigs, vegetative buds, stipules, petioles, young leaf

blades, and fruiting peduncles densely rust-colored tomentose. Stipules adnate to petiole; scar as long as 1/3–1/2 of petiole. Petiole 2–2.5 cm; leaf blade obovate-oblong, 18–24 × 7–8 cm, thinly leathery, basal ca. 1/2 gradually narrower, abaxially with dense rust-colored trichomes, adaxially glabrous, base broadly cuneate, apex caudate-acuminate. Flower buds ovoid, ca. 3.5 × 2 cm. Peduncle ca. 2.5 cm. Tepals 12; outer 3 tepals pale green, oblong, ca. 3.8 × 2 cm, rust-colored tomentose; middle 3 tepals white, ca. 3.2 × 2.3 cm, fleshy, base rust-colored tomentose; inner 6 tepals spatulate, ca. 3 × 1.6 cm, fleshy. Stamens many, red, abaxially sparsely hirsute; filaments 1–1.5 mm; connective exerted, with a ca. 1 mm triangular appendage; anthers ca. 1 cm, thecae distinct and ca. 1 mm wide. Gynoecium obovoid, ca. 2 × 1.5 cm, densely rust-colored hirsute; carpels many; ovules 5–8 per carpel. Mature fruit unknown. Fl. May.

Evergreen broad-leaved forests; ca. 1500 m. Yunnan (Maguan) [Vietnam].

Although the holotype of *Manglietia pubipetala* is conspecific with *M. rufibarbata*, the paratypes (*T. X. Gao & D. Q. Zhu 05, Q. W. Zeng 67*) are conspecific with *M. zhengyiana*.

25. *Manglietia longipedunculata* Q. W. Zeng & Y. W. Law, *Ann. Bot. Fenn.* 41: 151. 2004.

长梗木莲 chang geng mu lian

Magnolia longipedunculata (Q. W. Zeng & Y. W. Law) V. S. Kumar.

Trees, to 15 cm tall, to 50 cm d.b.h. Bark blackish brown. Vegetative buds, young twigs, petioles, peduncles, and leaf blade abaxial surfaces reddish brown erect villous. Twigs green when young, brown when old. Stipular scar 7–8 mm. Petiole 2.5–3.5 cm, furrowed; leaf blade obovate-elliptic to elliptic, 13–19(–22) × 5–7 cm, thickly leathery, abaxially pale green, adaxially dark green, midvein abaxially prominent, secondary veins 13 or 14 on each side of midvein, base cuneate, apex shortly acuminate to acuminate. Peduncle 5.5–6 cm, slender. Flowers fragrant. Tepals 9 or 11(or 12); outer 3 tepals elliptic, 10–10.5 × ca. 4 cm, abaxially pale green, adaxially white, 5-veined; middle 3 tepals white, obovate-elliptic, 8–9 × ca. 3.5 cm, thickly fleshy; inner 3 tepals white, obovate-spatulate, 7–8 × 2.5–3 cm, thickly fleshy. Stamens numerous, red, ca. 2.5 cm; filaments purplish red, ca. 3 mm; connective red, exerted and forming a semiorbicular mucro; anthers yellow, ca. 2 cm. Gynoecium pale yellowish green, ovoid, ca. 3.5 × 3 cm; carpels 50–60; ovules 3 or 4 per carpel; styles lanceolate, slightly curved; stigmas pale red, glabrous. Fruiting peduncle 5.5–6 cm. Fruit ovoid; mature carpels thickly woody, tuberculate, dehiscing along dorsal suture. Seeds compressed ovoid. Fl. May–Jun, fr. Aug–Sep.

• Evergreen broad-leaved forests; 700–800 m. Guangxi (Longmen).

26. *Manglietia conifera* Dandy, *J. Bot.* 68: 205. 1930.

桂南木莲 gui nan mu lian

Magnolia conifera (Dandy) V. S. Kumar; *M. conifera* var. *chingii* (Dandy) V. S. Kumar; *Manglietia chingii* Dandy; *M. conifera* subsp. *chingii* (Dandy) J. Li; *M. tenuipes* Dandy.

Trees, to 20 m tall. Bark gray and smooth. Vegetative buds and young twigs reddish brown pubescent. Stipular scar 3–5 mm. Petiole 2–3 cm, narrowly furrowed, at first appressed villous; leaf blade narrowly obovate to narrowly obovate-elliptic, 12–15 × 2–5 cm, leathery, abaxially at first grayish green and hispidulous or glaucous, adaxially glabrous, secondary veins 12–14 on each side of midvein, base narrowly cuneate to cuneate, apex shortly acuminate to rotund. Peduncle 4–7 cm, slender, pendulous, with 1 bract scar basal to tepals. Flower buds ovoid. Tepals 9 or 11, 3 per whorl; outer 3 tepals usually green, elliptic, 4–5 × 2.5–2.8 cm, thinner, apex rotund; middle 3 tepals obovate-elliptic, 5–5.5 × 2.5–3 cm, fleshy; inner 3 or 4 tepals pure white, obovate-spoon-shaped, 4–4.5 × 1.5–2 cm, fleshy. Stamens 1.5–2 cm; connective exerted and forming a triangular mucro; anthers 8–9 mm. Gynoecium 1.5–2 cm; basal carpels 0.8–1 cm, abaxially 3- or 4-furrowed; styles ca. 2 mm. Fruit ovoid, 4–5 cm; mature carpels tuberculate, apex shortly beaked; endotesta dotted. Fl. May–Jun, fr. Sep–Oct.

Hills, wet places in valleys; 700–1300 m. N Guangdong, Guangxi, SE Guizhou, S Hunan, SE Yunnan [N Vietnam].

This species is grown as an ornamental. It is used medicinally and for timber.

27. *Manglietia ovoidea* Hung T. Chang & B. L. Chen, *Acta Sci. Nat. Univ. Sunyatseni* 1988(1): 108. 1988.

卵果木莲 luan guo mu lian

Magnolia ovoidea (Hung T. Chang & B. L. Chen) V. S. Kumar.

Trees, to 10 m tall, to 30 cm d.b.h. Twigs robust, at first with rust-colored trichomes but glabrescent. Stipular scar ca. 1/2 as long as petiole. Petiole at first with rust-colored trichomes; leaf blade narrowly elliptic to elliptic-oblong, 13–14 × 4–5 cm, leathery, abaxially pale green, adaxially dark green, midvein adaxially impressed, secondary and reticulate veins inconspicuous, base cuneate, apex shortly acute. Peduncle with trichomes, 1.5–2 cm. Tepals 11, pale yellowish green, fleshy; outer 3 tepals obovate, ca. 3.5 × 2.4 cm; innermost 2 tepals purplish, spatulate-obovate. Stamens numerous. Gynoecium broadly ovoid to subglobose, 3.2–3.6 cm. Fruiting peduncle with trichomes, 2.7–3.2 cm; mature carpels ellipsoid, abaxially papillate. Fl. Apr, fr. Oct–Nov.

• Evergreen broad-leaved forests; 1700–2000 m. Guangxi, SE Yunnan.

28. *Manglietia glaucifolia* Y. W. Law & Y. F. Wu, *Guihaia* 6: 263. 1986.

苍背木莲 cang bei mu lian

Trees, to 8 m tall. Twigs yellowish brown, glabrous; vegetative buds glabrous. Stipular scar 1/3–1/2 as long as petiole. Petiole 1.5–2 cm; leaf blade narrowly obovate to narrowly elliptic, 9–18 × 2–3.5 cm, both surfaces glabrous, abaxially glaucous, adaxially deep green, midvein adaxially impressed, secondary and reticulate veins inconspicuous, secondary veins 10–15 on each side of midvein, base cuneate, apex acuminate.

Peduncle ca. 4 cm. Tepals 9, white; tepals of outer whorls 3, oblong-obovate, 4–5 cm; tepals of inner whorls 6, obovate to obovate-spoon-shaped, fleshy. Stamens numerous, 1–1.5 cm; connective thick, exerted, apically tapered triangular; anthers 8–10 mm. Gynoecium ellipsoid, 1.6–2 cm; carpels numerous; ovules 10 per carpel. Fruiting peduncle 4–6 cm. Fruit ovoid, 4.5–5 cm, pendulous; mature carpels ellipsoid, 1.5–2 cm, abaxially papillate, apex shortly beaked. Seeds heart-shaped, ca. 7 × 5 mm. Fl. May–Jun, fr. Aug.

- Forests; 1500–1600 m. Guizhou.

29. *Manglietia decidua* Q. Y. Zheng, J. Nanjing Forest. Univ. 19(1): 46. 1995.

落叶木莲 *luo ye mu lian*

Manglietia decidua (Q. Y. Zheng) V. S. Kumar; *Sinomanglietia glauca* Z. X. Yu & Q. Y. Zheng.

Trees, deciduous, to 15 m tall, to 45 cm d.b.h. Bark grayish white. Twigs purple, smooth, scattered with white suborbicular lenticels; vegetative buds subglabrous. Stipular scar 1/4–1/2 as long as petiole. Leaves often clustered on apex of branches; petiole 2.5–4.5(–6) cm; leaf blade narrowly obovate, narrowly elliptic, or elliptic, ca. 20 × 3.5–7 cm, papery, abaxially with gray and white trichomes but later glabrescent, adaxially dark green and smooth, midvein adaxially slightly impressed, secondary veins 9–12 on each side of midvein, base cuneate, margin slightly revolute, apex obtuse to shortly acute. Flower buds narrowly ovoid, subtended by a spatheaceous bract. Peduncle ca. 1 cm, at first with trichomes but later glabrescent. Tepals 15 or 16, in 5 or 6 whorls, pale yellow, lanceolate to narrowly obovate, becoming shorter and narrower inward, glabrous; outer 3 tepals 7–7.4 × 1.8–2 cm; innermost 3 or 4 tepals 5.5–6 × 0.3–0.8 cm. Stamens 54–60, 6–7 mm; filaments ca. 1 mm; connective exerted and forming a ca. 1 mm triangular mucro; anthers 4–5 mm. Gynoecium sessile, long ovoid, ca. 1 cm; carpels 15–22; ovules 6–8 per carpel. Fruiting peduncle ca. 1.6 cm. Fruit reddish brown when fresh but pale brown when dry, ovoid to subglobose, 4.7–7 × 4–4.5 cm; mature carpels long ovoid to long ellipsoid, 1.5–3 × 1–1.7 × 0.3–0.7 cm, woody, dehiscing along ventral sutures first then along dorsal suture. Seeds nearly cordate to subglobose, 7–11 × 7–11 × 5–8 mm; testa red. Fl. May, fr. Sep–Oct.

- Bamboo forests; 400–700 m. Jiangxi (Yichun).

