

14. MACHILUS Rumphius ex Nees in Wallich, Pl. Asiat. Rar. 2: 61, 70. 1831.

润楠属 *run nan shu*

Wei Fa'nan (韦发南); Henk van der Werff

Evergreen trees or shrubs. Leaves alternate, entire, pinnately veined. Inflorescences usually paniculate, terminal, subterminal, or arising from near base of branchlet, with long peduncles or rarely without peduncles. Flowers bisexual, small or larger. Perianth tubes short; perianth lobes 6 in 2 series, equal, subequal, or occasionally outer ones conspicuously smaller than inner ones, usually persistent, rarely deciduous. Fertile stamens 9 in 3 series, anthers 4-celled, 1st and 2nd series of stamens eglandular, anthers introrse, 3rd series of stamens glandular, anthers extrorse or lateral, glands stipitate to sessile. Staminodes in 4th series, sagittate. Ovary sessile; stigmas small, dish-shaped or capitate. Fruit fleshy, globose, rarely ellipsoid or oblong, subtended at base by persistent and reflexed perianth lobes; fruiting pedicel not enlarged or slightly enlarged.

About 100 species: tropical and subtropical S and SE Asia; 82 species (63 endemic) in China; one additional species (endemic) is of uncertain placement.

The following species were described from China but could not be treated here because no material was seen by the present authors:

Machilus hemsleyi Nakai (J. Jap. Bot. 16: 122. 1940; *Persea hemsleyi* (Nakai) Kostermans), described from Hubei.

Machilus tingzhouensis M. M. Lin et al. (Bull. Bot. Res., Harbin 25: 5. 2005), described from Fujian.

Key 1

- 1a. Perianth lobes glabrous outside.
 - 2a. Fruit ellipsoid or oblong 1. *M. yunnanensis*
 - 2b. Fruit globose or subglobose.
 - 3a. Fruit smaller, less than 1.5 cm in diam.; flowers smaller, usually 5–7 mm Key 2
 - 3b. Fruit larger, usually more than 1.5 cm in diam.; flowers more than 7 mm Key 3
- 1b. Perianth lobes tomentose, pubescent, or sericeous outside.
 - 4a. Perianth lobes tomentose outside Key 4
 - 4b. Perianth lobes pubescent or sericeous outside.
 - 5a. Fruit smaller, not more than 1.2 cm in diam.; flowers usually 5–7 mm Key 5
 - 5b. Fruit larger, more than 1.3 cm in diam.; flowers usually larger Key 6

Key 2

- 1a. Inflorescences short, 1–4 cm.
 - 2a. Perianth lobes early deciduous.
 - 3a. Leaf blade abaxially glaucous; fruit usually farinaceous 12. *M. calcicola*
 - 3b. Leaf blade abaxially not glaucous; fruit not farinaceous 13. *M. glabrophylla*
 - 2b. Perianth lobes persistent.
 - 4a. Leaf blade apex usually rounded, blade 4–5 cm, lateral veins 4 or 5 pairs 17. *M. obovatifolia*
 - 4b. Leaf blade apex acuminate or obtuse, blade 6–11.5 cm, lateral veins 6–12 pairs.
 - 5a. Inflorescences terminal or subterminal; leaf blade lateral veins 6 or 7 pairs, blade obovate or elliptic, 6–8(–9) cm 14. *M. nanchuanensis*
 - 5b. Inflorescences arising from base of newly sprouted branchlet; leaf blade lateral veins 9–12 pairs, blade oblong, somewhat rhombic, or lanceolate, 7–11.5 cm.
 - 6a. Leaf blade oblong, somewhat rhombic, apex caudate-acuminate, glabrous on both surfaces 15. *M. gracillima*
 - 6b. Leaf blade lanceolate or oblong, apex obtuse, abaxially densely pubescent when young, pubescent along midrib when old 16. *M. salicoides*
- 1b. Inflorescences elongate, more than 5 cm.
 - 7a. Midrib elevated adaxially 2. *M. decursinervis*
 - 7b. Midrib concave adaxially.
 - 8a. Panicles terminal or subterminal.
 - 9a. Leaf blade base obtuse or subrotund 3. *M. phoenicis*
 - 9b. Leaf blade base cuneate.
 - 10a. Perianth lobes pubescent at base inside; peduncles slender; fruit 5–7 mm in diam.; leaf blade obovate, obovate-lanceolate, or oblong to elliptic 4. *M. microcarpa*
 - 10b. Perianth lobes glabrous on both surfaces; peduncles thicker, ca. 3 mm in diam. at base; fruit ca. 1 cm in diam.; leaf blade oblong to oblong-oblong 5. *M. chayensis*
 - 8b. Panicles arising from base of newly sprouted branchlet, rarely subterminal.
 - 11a. Bud scales golden brown or reddish brown, puberulent to tomentose.

- 12a. Leaf blade obovate to obovate-lanceolate, wider, 4.5–9(–13) × 3–6 cm, apex obtuse or abruptly cuspidate 6. *M. thunbergii*
- 12b. Leaf blade lanceolate to oblanceolate, narrower, 7–14.5 × 1.5–3 cm, apex acuminate 7. *M. rehderi*
- 11b. Bud scales not as above, reddish or other colored, pubescent to glabrous.
- 13a. Leaf blade shape variable, oblong-oblanceolate, ovate-oblanceolate, oblanceolate, or obovate-lanceolate.
 - 14a. Leaf blade base cuneate or attenuate, apex acuminate to shortly caudate, lateral veins 7–15 pairs 8. *M. japonica*
 - 14b. Leaf blade base obliquely obtuse, apex obtuse, lateral veins 6–8 pairs 9. *M. litseifolia*
- 13b. Leaf blade oblong.
 - 15a. Leaf blade apex caudate-acuminate, blade 11–15.5 × 3.3–4.5 cm; perianth lobes glabrous on both surfaces 10. *M. sichuanensis*
 - 15b. Leaf blade apex obtuse or obtuse-acuminate, blade 8.5–12 × 2.7–3.8 cm; perianth lobes sericeous inside 11. *M. chuanchienensis*

Key 3

- 1a. Leaf blade lateral veins more than 20 pairs; fruit 2–3 cm in diam.
 - 2a. Leaf blade narrowly elliptic to oblanceolate, 12–19 × 2–3.2 cm, lateral veins 20–23 pairs; fruit 2.5–3 cm in diam. 18. *M. multinervia*
 - 2b. Leaf blade oblong-oblanceolate or oblong-elliptic, 18–34 × 5–8 cm, lateral veins 24–30 pairs; fruit 2–2.5 cm in diam. 19. *M. wangchiana*
- 1b. Leaf blade lateral veins 8–12(–16) pairs; fruit 1.3–2.2 cm in diam.
 - 3a. Inflorescences short, 3–5 cm; fruit ca. 2.2 cm in diam.; leaf blade 6–12 × 2.2–4.5 cm 20. *M. chienkweiensis*
 - 3b. Inflorescences longer, 5.5–8 cm; fruit 1.3–1.7 cm in diam.; leaf blade 9.5–20 × 1.8–5.5 cm 21. *M. gongshanensis*

Key 4

- 1a. Leaf blade villous or pubescent abaxially.
 - 2a. Leaf blade oblong or elliptic to oblanceolate-elliptic, apex shortly acuminate, lateral veins 10–12 pairs 26. *M. wenshanensis*
 - 2b. Leaf blade obovate-elliptic, apex obtuse or somewhat rounded, lateral veins 6–8 pairs 27. *M. nakao*
- 1b. Leaf blade tomentose abaxially.
 - 3a. Petiole 1–2.5 cm; leaf blade lateral veins 8–11 pairs.
 - 4a. Leaf blade base cuneate, blade ferruginous tomentose abaxially 22. *M. velutina*
 - 4b. Leaf blade base ± rounded, blade yellow-brown tomentose abaxially 23. *M. grijsii*
 - 3b. Petiole longer, 2.5–4 cm; leaf blade lateral veins 10–20 pairs.
 - 5a. Leaf blade apex cuspidate-acuminate, lateral veins 16–20 pairs 24. *M. platycarpa*
 - 5b. Leaf blade apex obtuse or rounded, lateral veins 10–13 pairs 25. *M. dumicola*

Key 5

- 1a. Panicles terminal or subterminal.
 - 2a. Inflorescences with persistent larger involucre bracts during flowering stage; branchlets, petioles, and leaf blade abaxially yellowish brown puberulent 52. *M. fasciculata*
 - 2b. Inflorescences without persistent larger involucre bracts during flowering stage.
 - 3a. Inflorescences short, 1–1.5 cm.
 - 4a. Leaf blade glaucous or gray-blue abaxially, obovate-elliptic to oblanceolate; trees 53. *M. foonchewii*
 - 4b. Leaf blade not glaucous or gray-blue abaxially, castaneous when dry, obovate-oblong or oblong-oblanceolate; shrubs 54. *M. shiwandashanica*
 - 3b. Inflorescences elongate, more than 4 cm.
 - 5a. Inflorescences without peduncle 55. *M. pyramidalis*
 - 5b. Inflorescences pedunculate.
 - 6a. Branchlets glabrous, yellowish or yellowish brown when dry, usually with lenticels 56. *M. versicolora*
 - 6b. Branchlets glabrous or pubescent, color not as above when dry.
 - 7a. Leaf blade midrib and lateral veins concave adaxially 57. *M. daozenensis*
 - 7b. Leaf blade lateral veins elevated or flat adaxially.
 - 8a. Panicles 11–18 cm, patent 58. *M. glaucescens*
 - 8b. Panicles shorter, usually not more than 8 cm.
 - 9a. Leaf blade pubescent to puberulent abaxially.
 - 10a. Leaf blade glaucous abaxially 59. *M. glaucifolia*
 - 10b. Leaf blade not glaucous abaxially.
 - 11a. Winter buds 1–1.5 cm in diam.; leaf blade lateral veins 15–18 pairs 60. *M. submultinervia*

- 11b. Winter buds much smaller, less than 1 cm in diam.; leaf blade lateral veins not more than 14 pairs.
 - 12a. Leaf blade 12–20 × 4–7 cm 61. *M. mangdangshanensis*
 - 12b. Leaf blade shorter and smaller, 5–10.5 × 1.5–4.5 cm.
 - 13a. Leaf blade elliptic to lanceolate, 5–10.5 × 1.5–2.8 cm, lateral veins 12–14 pairs; branchlets with conspicuous bud scars 62. *M. cicatricosa*
 - 13b. Leaf blade obovate or elliptic, 6–9 × 3.5–4.5 cm, lateral veins 6–9 pairs; branchlets without conspicuous bud scars 63. *M. miaoshanensis*
- 9b. Leaf blade glabrous on both surfaces.
 - 14a. Leaf blade narrowly lanceolate to lanceolate.
 - 15a. Leaf blade opaque on both surfaces; perianth lobes equal 64. *M. salicina*
 - 15b. Leaf blade shiny on both surfaces; perianth lobes conspicuously unequal 65. *M. parabreviflora*
 - 14b. Leaf blade shape not as above.
 - 16a. Inflorescences glabrous.
 - 17a. Petiole short, 3–5 mm; leaf blade obovate to obovate-lanceolate, 4–5 × 1.5–2 cm; perianth lobes persistent 66. *M. breviflora*
 - 17b. Petiole longer, 6–14 mm; leaf blade obovate-oblong to oblong-ob lanceolate, 5–8(–10) × 2–3(–4) cm; perianth lobes deciduous in fruiting stage 67. *M. chinensis*
 - 16b. Inflorescences pubescent.
 - 18a. Infructescences ca. 4.5 cm, rachis with lenticels 68. *M. lenticellata*
 - 18b. Infructescences 4–8(–11) cm, rachis without lenticels.
 - 19a. Leaf blade apex acute or obtuse, blade elliptic to oblong; branchlets lenticellate 69. *M. tenuipilis*
 - 19b. Leaf blade apex long acuminate, blade oblong to oblong-lanceolate; branchlets without lenticels 70. *M. reticulata*
- 1b. Panicles usually arising from near base of newly sprouted branchlet.
 - 20a. Leaf blade glabrous abaxially, occasionally slightly puberulent.
 - 21a. Involucral bracts of inflorescences leaflike, 3–3.5 × 1.5–2 cm, densely sericeous outside; leaf blade castaneous when dry 46. *M. grandibracteata*
 - 21b. Involucral bracts of inflorescences not as above, much smaller; leaf blade not castaneous when dry.
 - 22a. Young shoot puberulent to glabrate; leaf blade lateral veins 7–9 pairs 47. *M. longipes*
 - 22b. Young shoot glabrous; leaf blade lateral veins 10–17 pairs.
 - 23a. Leaf blade thickly leathery, lustrous on both surfaces, glaucous abaxially 48. *M. austroguizhouensis*
 - 23b. Leaf blade leathery, opaque on both surfaces, not glaucous abaxially.
 - 24a. Leaf blade lateral veins inconspicuous 49. *M. kurzii*
 - 24b. Leaf blade lateral veins conspicuous abaxially.
 - 25a. Leaf blade oblanceolate or elliptic to elliptic-lanceolate, apex usually abruptly cuspidate, lateral veins 10–12 pairs; inflorescences variable in length, 7–18 cm, peduncle slender to lignescent 50. *M. chekiangensis*
 - 25b. Leaf blade oblong or elliptic-lanceolate to obovate-lanceolate, apex acuminate to long acuminate, lateral veins 12–18 pairs; inflorescences 5–13 cm, peduncle slender 51. *M. duthiei*
 - 20b. Leaf blade, at least young blade, hairy abaxially (occasionally young blade glabrous).
 - 26a. Leaf blade villous or conspicuously pubescent abaxially, hairs visible with naked eye.
 - 27a. Leaf blade densely or sparsely brown villous on both surfaces when young, densely villous along midrib and lateral veins abaxially when old 43. *M. lichuanensis*
 - 27b. Leaf blade densely or sparsely pubescent abaxially.
 - 28a. Leaf blade obovate or obovate-elliptic, 2.8–6.3 cm in diam.; persistent perianth lobes 5–6 mm 44. *M. minkweiensis*
 - 28b. Leaf blade elliptic to narrowly elliptic, 1.7–2.3 cm in diam.; persistent perianth lobes ca. 4 mm 45. *M. fukienensis*
 - 26b. Leaf blade pubescent, puberulent, or sericeous, hairs only visible under lens.
 - 29a. Branchlets or young shoots hairy.
 - 30a. Young shoots puberulent to glabrate; leaf blade lateral veins to 14 pairs; inflorescences

- to 18 cm 28. *M. zuihoensis*
- 30b. Young shoots conspicuously pubescent, sericeous, or tomentose; leaf blade lateral veins 6–12 pairs; inflorescences shorter, up to 13 cm.
- 31a. Leaf blade apex subrotund or obtuse, lateral veins 6–8 pairs 33. *M. cavaleriei*
- 31b. Leaf blade apex acute or acuminate, lateral veins 8–13 pairs.
- 32a. Leaf blade narrowly lanceolate, (7–)11–18 × (1–)1.5–3 cm; branchlets and petioles tomentose when young 29. *M. oreophila*
- 32b. Leaf blade oblong to obovate or oblanceolate, (5–)6–15 × 1.5–5.5 cm.
- 33a. Leaf blade with dirty yellowish pubescence along midrib abaxially 30. *M. chrysotricha*
- 33b. Leaf blade appressed pubescent abaxially.
- 34a. Young shoots usually patent brown tomentose; leaf blade lateral veins 10–12 pairs; petiole ca. 1 cm; inflorescences and perianth lobes grayish yellow pubescent on both surfaces 31. *M. kwangtungensis*
- 34b. Young shoots with densely appressed gray-yellow pubescence; leaf blade lateral veins 7–10 pairs; petiole 1–2 cm; inflorescences and perianth lobes grayish or gray-white sericeous on both surfaces 32. *M. gamblei*
- 29b. Branchlets and young shoots glabrous (except for bases).
- 35a. Leaf blade apex acute or obtuse, rarely shortly acuminate.
- 36a. Nodes of branchlets swollen; fruit compressed globose 34. *M. minutiloba*
- 36b. Nodes of branchlets not swollen; fruit globose.
- 37a. Leaf blade lateral veins very slender, inconspicuous on both surfaces or only slightly conspicuous abaxially; fruiting pedicel slightly enlarged 37. *M. obscurinervis*
- 37b. Leaf blade lateral veins conspicuous on both surfaces; fruiting pedicel not enlarged.
- 38a. Leaf blade 6–12 cm, brownish abaxially; inflorescences to 10 cm 35. *M. dinganensis*
- 38b. Leaf blade 5–9 cm, usually glaucescent abaxially; inflorescences shorter, 2.5–5 cm 36. *M. lohuiensis*
- 35b. Leaf blade apex acuminate or shortly acuminate.
- 39a. Fruit compressed globose, 7–8 mm in diam. 38. *M. nanmu*
- 39b. Fruit globose, ca. 10 mm in diam.
- 40a. Winter buds to 1.5 cm in diam., bud scales minutely sericeous outside except for margin; leaf blade 24–32 cm, lateral veins 14–24 pairs 39. *M. leptophylla*
- 40b. Winter buds less than 1 cm in diam., bud scales completely densely sericeous or pubescent outside; leaf blade 7–24 cm, lateral veins 12–19 pairs.
- 41a. Leaf blade usually blackish when dry, elliptic or narrowly elliptic, sometimes oblanceolate, summit usually falcate; bud scales usually densely brownish sericeous outside 40. *M. pauhoi*
- 41b. Leaf blade not blackish when dry, oblong, obovate-oblong, oblong-lanceolate, or oblong-oblanceolate, summit not falcate; bud scales brownish or grayish white pubescent outside.
- 42a. Bud scales brownish pubescent outside; leaf blade oblong to obovate-oblong, 7–16(–21.5) × 2.3–5(–6.8) cm, lateral veins 9–13 pairs 41. *M. sichourensis*
- 42b. Bud scales grayish white pubescent outside; leaf blade oblong-lanceolate to oblong-oblanceolate, 10–24 × 2–6 cm, lateral veins 12–17 pairs 42. *M. ichangensis*

Key 6

- 1a. Fruit ovoid to suboblong.
- 2a. Fruit ovoid; leaf blade elliptic, 8–13 × 2.5–5 cm, lateral veins 8–10 pairs 71. *M. melanophylla*
- 2b. Fruit suboblong; leaf blade obovate, oblong, or oblanceolate, 13–24 × 5.5–8(–10) cm, lateral veins 14–16 pairs 72. *M. bonii*
- 1b. Fruit globose or compressed globose.
- 3a. Perianth lobes unequal.

- 4a. Leaf blade puberulent abaxially when mature, densely golden yellow sericeous on both surfaces when young, narrowly lanceolate, 7–17 × 1.8–3.5 cm 73. *M. viridis*
- 4b. Leaf blade glabrous abaxially when mature, glabrous at least adaxially when young, wider, 5–6 cm wide.
- 5a. Flowers large, to 9 mm; leaf blade lateral veins dense, 15–20 pairs 74. *M. rufipes*
- 5b. Flowers smaller; leaf blade lateral veins more sparse, 5–12 pairs.
- 6a. Perianth lobes oblong-elliptic, inner ones ca. 5.5 mm; leaf blade elliptic to oblanceolate or elliptic-lanceolate, 11–16 × 2–4 cm, lateral veins 10–12 pairs 75. *M. oculodracontis*
- 6b. Perianth lobes ovate, inner ones ca. 3.5 mm; leaf blade obovate or obovate-elliptic to elliptic, 6–12.5 × 2–5.6 cm, lateral veins 5–7 pairs 76. *M. monticola*
- 3b. Perianth lobes equal or subequal.
- 7a. Leaf blade abaxially densely gray-brown tomentose; fruit compressed globose 77. *M. velutinoides*
- 7b. Leaf blade glabrous on both surfaces or appressed puberulent abaxially; fruit globose.
- 8a. Involucral bracts persistent in flowering stage; leaf blade lateral veins 16–20 pairs 78. *M. shweliensis*
- 8b. Involucral bracts deciduous in flowering stage; leaf blade lateral veins (5–)9–13 pairs.
- 9a. Leaf apex obtuse or rotund 79. *M. pomifera*
- 9b. Leaf apex subacute to acuminate.
- 10a. Petiole 2.5–5 cm, 2–3.5 mm thick; leaf blade elliptic to obovate-elliptic or suboblong; flowers large, 7–8(–10) mm 80. *M. robusta*
- 10b. Petiole 1–2 cm, more slender; leaf blade elliptic to oblong; flowers smaller, 2.5–3.5 mm.
- 11a. Leaf blade 6–15.5 × 2–4.8 cm; panicles 2.5–5.5 cm, puberulent; perianth lobes puberulent on both surfaces 81. *M. verruculosa*
- 11b. Leaf blade 10.5–20 × 3.5–7 cm; panicles 12–15 cm, subglabrous; perianth lobes glabrous outside 82. *M. ovatiloba*

1. *Machilus yunnanensis* Lecomte, Nouv. Arch. Mus. Hist. Nat., sér. 5, 5: 100. 1913.

滇润楠 dian run nan

Trees, to 30 m tall; trunk to 80 cm d.b.h. Branchlets greenish when young and brownish when old, cylindric, glabrous. Petiole 1–1.5 cm, glabrous; leaf blade obovate, obovate-elliptic, or oblong to elliptic, 4–15 × 2–5.7 cm, leathery, glabrous on both surfaces, midrib conspicuously elevated abaxially, concave adaxially, lateral veins 7–9 pairs, curved, elevated on both surfaces, base cuneate, margin slightly revolute, apex shortly acuminate, summit obtuse. Panicles at lower part of short branchlet, (2–)3.5–7(–9) cm, glabrous throughout; peduncle (1–)1.5–3.5 cm; bracts 5–8 mm, outer ones smaller, densely ferruginous pubescent outside, subglabrous inside. Pedicel 4–10 mm. Flowers pale green, yellowish green, or yellowish white, 4–5 mm. Perianth lobes oblong, glabrous outside, pubescent inside. Filaments villous at base, those of 3rd series with stipitate glands. Fruit dark blue, glaucescent when mature, ellipsoid or oblong, to 1.8 × 1 cm, glabrous; persistent perianth lobes not thickened, reflexed. Fl. Apr–May, fr. May–Oct.

• Evergreen broad-leaved forests, moist and fertile places on mountain slopes; 1500–2100 m. NW Guangxi, W Sichuan, S Xizang, C, NW, and W Yunnan.

- 1a. Leaf blade obovate or obovate-elliptic, occasionally elliptic, (5–)7–9(–12) × (2–)3.5–4(–5) cm; fruit ca. 1.4 cm, less than 1 cm in diam. 1a. var. *yunnanensis*
- 1b. Leaf blade oblong to elliptic, 4–15 × 2–5.7 cm; fruit to 1.8 cm, ca. 1 cm in diam. 1b. var. *tibetana*

1a. *Machilus yunnanensis* var. *yunnanensis*

滇润楠(原变种) dian run nan (yuan bian zhong)

Machilus bracteata Lecomte; *M. ichangensis* Rehder & E. H. Wilson var. *synechothrix* Handel-Mazzetti; *M. longipedicellata* Lecomte; *M. longipedicellata* var. *synechothrix* (Handel-Mazzetti) Handel-Mazzetti; *M. yunnanensis* var. *duclouxii* Lecomte; *Persea bracteata* (Lecomte) Kostermans; *P. longipedicellata* (Lecomte) Kostermans; *P. yunnanensis* (Lecomte) Kostermans.

Trees, up to 30 m tall. Leaf blade pale green or glaucous abaxially when dry, obovate or obovate-elliptic, occasionally elliptic, (5–)7–9(–12) × (2–)3.5–4(–5) cm. Fruit ca. 1.4 cm, less than 1 cm in diam. Fr. Jun–Oct.

• Evergreen broad-leaved forests; 1500–2000 m. NW Guangxi, W Sichuan, C, NW, and W Yunnan.

1b. *Machilus yunnanensis* var. *tibetana* S. K. Lee, Acta Phytotax. Sin. 17(2): 45. 1979.

西藏润楠 xi zang run nan

Medium-sized trees, ca. 10 m tall; trunk 10–15 cm d.b.h. Leaf blade not pale green abaxially when dry, oblong to elliptic, 4–15 × 2–5.7 cm. Fruit to 1.8 × 1 cm. Fr. May–Jun.

• Evergreen mixed broad-leaved forests; 1800–2100 m. S Xizang.

2. *Machilus decursinervis* Chun, Acta Phytotax. Sin. 2: 170. 1953.

基脉润楠 ji mai run nan

Persea decursinervis (Chun) Kostermans.

Trees, 6–13 m tall, rarely up to 20 m; trunk to 27 cm d.b.h. Branchlets thick, dark brown when dry, glabrous. Winter buds broadly ovoid, ca. 1.6 × 1.8 cm; bud scales subrounded,

brownish puberulent outside. Petiole thick, 3–4 cm, glabrous; leaf blade glaucous abaxially, broadly elliptic or elliptic, ca. 13.5 × 8.8 cm, leathery, glabrous on both surfaces, midrib thick, prominently elevated adaxially, lateral veins 8–12 pairs, slender, sometimes forked, base broadly cuneate, usually oblique, apex acuminate or acute. Panicles 3–8, subterminal, 6–11 cm, glabrous; peduncle flattened, branched ca. at middle. Perianth lobes subequal, oblong, ca. 6 mm, puberulent inside. Stamens glabrous, those of 3rd series 3.5–4 mm, with slender long stipitate glands at base. Fruit globose, ca. 1.2 cm in diam.; persistent perianth lobes ca. 8 × 3 mm, membranous; fruiting pedicel slightly thickened, 1–1.5 cm.

Mountains, mixed broad-leaved forests; 500–1100 m (to nearly 2000 m in Jinping, Yunnan). Guangxi, SE Guizhou, S and W Hunan, SE Yunnan [Vietnam].

3. *Machilus phoenicis* Dunn, Bull. Misc. Inform. Kew 1910: 279. 1910.

凤凰润楠 feng huang run nan

Machilus levinei Merrill; *Persea phoenicis* (Dunn) Kostermans; *P. levinei* (Merrill) Kostermans.

Medium-sized trees, ca. 5 m tall, glabrous throughout. Bark brown. Branchlets purple-brown, stout. Bud scales glabrous outside, sericeous inside. Petiole thick, 1.3–3.6 cm; leaf blade elliptic or oblong to narrowly oblong, 9.5–18(–21) × 2.5–5.5 cm, thickly leathery, midrib abaxially strongly conspicuously elevated, adaxially slightly concave, lateral veins 8–12(–15) pairs, veinlets slender, inconspicuous on both surfaces, base obtuse to subrounded, apex acuminate, acumen obtuse. Panicles numerous, arising from apex of branchlet, 5–8 cm, branched at upper part of peduncle; peduncle reddish brown. Perianth lobes subequal, oblong or narrowly oblong, 6–10 × ca. 3 mm, green when alive, glabrous outside, puberulent at apex inside, apex obtuse. Stamens glabrous, those of 3rd series with sessile glands at base. Ovary glabrous. Fruit globose, ca. 9 mm in diam.; persistent perianth lobes thinly leathery; fruiting pedicel enlarged.

• Mixed forests. Fujian, Guangdong, Hunan (Manshan), Jiangxi, S Zhejiang.

4. *Machilus microcarpa* Hemsley, J. Linn. Soc., Bot. 26: 376. 1891.

小果润楠 xiao guo run nan

Trees, up to 8 m tall or more, glabrous. Branchlets slender, glabrous. Terminal buds ovoid; bud scales wide, caducous, densely sericeous. Petiole slender, 8–30 mm, glabrous; leaf blade abaxially glaucous, obovate, oblanceolate to elliptic, or oblong, 5–9 × 3–5 cm, leathery, glabrous on both surfaces, midrib conspicuously elevated abaxially, impressed adaxially, lateral veins 8–10 pairs, slender, slightly conspicuous on both surfaces, veinlets densely reticulate on both surfaces, base cuneate, apex long acuminate. Panicles clustered at apex of branchlet, shorter or longer than leaf blade, 3.5–14 cm. Pedicel equal to length of flowers or longer. Perianth lobes subequal, ovate-oblong, 4–5 mm, glabrous outside, pubescent at base inside

with longitudinal veins, apex obtuse. Filaments glabrous, those of 3rd series with stipitate glands; stipe with hairs at base. Ovary subglobose; style slightly curved; stigmas dish-shaped. Fruit globose, 5–7 mm in diam.

• Mountains, mixed broad-leaved forests, thickets; ca. 1500 m. Guizhou, Hubei, Sichuan.

- 1a. Infructescences 3.5–9 cm, ramifications of lower parts short; petiole usually 8–15 mm 4a. var. *microcarpa*
1b. Infructescences 12–14 cm, ramifications of lower parts long, (1.5–)2–2.5 cm; petiole usually (15–)20–30 mm 4b. var. *omeiensis*

4a. *Machilus microcarpa* var. *microcarpa*

小果润楠(原变种) xiao guo run nan (yuan bian zhong)

Persea microcarpa (Hemsley) Kostermans.

Petiole usually 8–15 mm. Infructescence 3.5–9 cm.

• Mountains, mixed broad-leaved forests. Guizhou, Hubei, Sichuan.

4b. *Machilus microcarpa* var. *omeiensis* S. K. Lee, Acta Phytotax. Sin. 17(2): 46. 1979.

峨眉润楠 e mei run nan

Petiole usually (1.5–)2–3 cm. Infructescence 12–14 cm.

• Mixed broad-leaved forests, thickets; ca. 1500 m. Sichuan (Emei Shan).

5. *Machilus chayuensis* S. K. Lee, Acta Phytotax. Sin. 17(2): 46. 1979.

察隅润楠 cha yu run nan

Persea chayuensis (S. K. Lee) Kostermans.

Trees, ca. 20 m tall, trunk to 80 cm d.b.h. Bark with lenticels. Branchlets deep brown to brown, glabrous, longitudinally striate. Terminal buds ovoid; bud scales subrounded, leathery, puberulent or pubescent abaxially, margin ciliate, apex acute. Leaves clustered at apex of branchlet; petiole slightly thick, 1.6–2 cm; leaf blade oblong or oblong-oblanceolate, older blades usually 10–13 × 2.6–3.6 cm, sometimes longer and wider, mixed with some smaller ones, ca. 6 × 1.7 cm, leathery, glabrous on both surfaces, midrib elevated abaxially, impressed adaxially, lateral veins 10–13 pairs, abaxially slightly elevated, adaxially plane, more conspicuous abaxially, obliquely ascendant, veinlets inconspicuous on both surfaces, densely reticulate (observed by lens), base cuneate, slightly decurrent to upper part of petiole. Flowers not seen. Infructescences subterminal, 3.5–7.5 cm, glabrous; peduncle red, somewhat thick, 1–4 cm. Fruit green, globose, ca. 1 cm in diam.; persistent perianth lobes oblong, glabrous on both surfaces; surviving filaments glabrous; fruiting pedicel slightly thick, ca. 5 mm. Fr. Jul.

• Open slopes, evergreen forests; ca. 2000 m. SE Xizang (Zayü).

6. *Machilus thunbergii* Siebold & Zuccarini, Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4(3): 302. 1846.

红楠 hong nan

Litsea coreana H. Léveillé, p.p. (as to *Taquet 1356*); *Machilus arisanensis* (Hayata) Hayata; *M. kwashotensis* Hayata; *M. macrophylla* Hemsley var. *arisanensis* Hayata; *M. nanshoensis* Kanehira; *M. taiwanensis* Kamikoti; *M. thunbergii* var. *kwashotensis* (Hayata) Yamamoto; *M. thunbergii* var. *trochodendroides* Masamune; *Persea arisanensis* (Hayata) Kostermans; *P. thunbergii* (Siebold & Zuccarini) Kostermans.

Evergreen trees, usually 10–15(–20) m tall; trunk 65–130 cm d.b.h. Bark yellowish brown. Older branchlets rough; young branchlets purple-brown when fresh, glabrous. Buds ovoid or oblong-ovoid; bud scales golden brown or reddish brown, sub-orbicular, leathery, ciliate, apex rotund, outer scales puberulent, inner ones tomentose outside. Petiole slender, 1–3.5 cm, reddish when fresh; leaf blade lustrous on both surfaces, abaxially glaucescent, obovate to obovate-lanceolate, 4.5–9(–13) × 3–6 cm, leathery, glabrous on both surfaces, midrib distinctly elevated abaxially, somewhat impressed adaxially, lateral veins 7–12 pairs, slightly straightly ascendant, nearly curved at margin, veinlets obscure, base cuneate, apex obtuse or abruptly cuspidate. Inflorescences arising from base of young shoots, 5–11.8 cm, branched at upper part of peduncle, glabrous, many flowered. Pedicel 6–9 mm. Perianth lobes oblong, ca. 5 mm, outer ones narrower, slightly short, apex acute, glabrous outside, pubescent toward apex inside. Filaments glabrous, those of 3rd series with stipitate glands at base. Staminodes hispid at base. Ovary globose, glabrous; style slender; stigma capitate. Fruit green becoming dark purple, compressed globose, 8–10 mm in diam.; peduncle and fruiting pedicel reddish purple. Fl. Feb, fr. Jun–Aug.

Mountain slopes or valleys, broad-leaved forests; below 800 m. Anhui, Fujian, Guangdong, Guangxi, Hunan, Jiangsu, Jiangxi, Shandong, Taiwan, Zhejiang [Japan, Korea].

7. *Machilus rehderi* C. K. Allen, J. Arnold Arbor. 17: 326. 1936.

狭叶润楠 xia ye run nan

Persea rehderi (C. K. Allen) Kostermans.

Small trees, 4–15 m tall. Branchlets purple-black, glabrous, striate when dry. Leaves clustered at upper part of branchlet; petiole glabrous, 1.5–2 cm; leaf blade shiny, adaxially yellowish green, lanceolate to oblanceolate, 7–14.5 × 1.5–3 cm, leathery, glabrous on both surfaces, midrib slightly impressed, lateral veins 7–9 pairs, inconspicuous, ascendant at ca. 45° angle, veinlets indistinct on both surfaces, base cuneate, apex acuminate, summit obtuse. Inflorescences in panicle or raceme at base of branchlet, 10–11 cm, glabrous; peduncle 3–5 cm, slender; bracts caducous, tomentose. Pedicel 0.7–1.3 cm, glabrous. Flowers 8–9 mm. Perianth lobes 6–7 mm, glabrous outside, outer ones lanceolate, apex obtuse, pubescent inside. Stamens ca. 5 mm, equal or subequal; filaments of 1st and 2nd series ca. 3.5 mm, glabrous, those of 3rd series slightly villous at base, glands reniform, stipitate. Staminodes stalked. Ovary subglobose; style shorter than filaments. Fruit globose, 7–8 mm in diam., glabrous with reflexed persistent perianth lobes at base. Fl. Apr, fr. Jun.

• Slope thickets, sparse forests, valleys, streamsides; ca. 1000 m. Guangxi, S Guizhou, Hunan.

8. *Machilus japonica* Siebold & Zuccarini, Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4(3): 302. 1846.

长叶润楠 chang ye run nan

Evergreen large trees. Branchlets thick. Bud scales imbricate, pubescent, becoming glabrate to glabrous. Petiole thick, 0.8–3 cm; leaf blade lustrous, oblong-oblanceolate, ovate-oblanceolate, or oblanceolate, 10–22 × 2.5–8.5 cm, leathery to thinly leathery, abaxially puberulent to glabrous, adaxially glabrous, midrib elevated abaxially, impressed adaxially, lateral veins 7–15 pairs, veinlets inconspicuous or slightly conspicuous on both surfaces, base cuneate or attenuate, apex acuminate, acutely to shortly caudate. Inflorescences arising from base of branchlet, to 20 cm, glabrous; peduncle 3–15 cm; involucre bracts greenish yellow or light reddish. Pedicel 0.4–1 cm. Perianth lobes glabrous to glabrate outside, pubescent inside. Stamens glabrous; filaments of 3rd series ca. 2.3 mm, glands stipitate; stipe barbate. Ovary and style glabrous; stigma capitate. Fruit compressed globose, ca. 1.2 cm in diam., with persistent and reflexed perianth lobes. Fl. Jan–Apr, fr. Aug–Oct.

Broad-leaved forests; low elevations to 2300 m. Taiwan [S Japan, Korea].

- 1a. Leaf blade 10–13 × 2.5–4 cm, oblong-oblanceolate to oblanceolate; involucre bracts greenish yellow 8a. var. *japonica*
- 1b. Leaf blade longer and wider, 15–22 × 4–8.5 cm, broadly ovate-oblanceolate; involucre bracts light reddish 8b. var. *kusanoi*

8a. *Machilus japonica* var. *japonica*

长叶润楠(原变种) chang ye run nan (yuan bian zhong)

Machilus pseudolongifolia Hayata; *M. thunbergii* var. *japonica* (Siebold & Zuccarini) Yatabe; *Persea japonica* (Siebold & Zuccarini) Kostermans; *P. pseudolongifolia* (Hayata) Kostermans.

Branchlets yellowish when dry. Petiole 0.8–1.8 cm; leaf blade thinly leathery, oblong-oblanceolate to oblanceolate, 10–13 × 2.5–4 cm, abaxially puberulent at first, becoming glaucescent after, lateral veins 9–12 pairs, flattened on both surfaces, veinlets slightly conspicuously reticulate abaxially, inconspicuous adaxially. Involucre bracts greenish yellow. Fr. Aug–Oct.

Broad-leaved forests; 700–2300 m. Taiwan [S Japan, Korea].

8b. *Machilus japonica* var. *kusanoi* (Hayata) J. C. Liao, Mem. Coll. Agric. Natl. Taiwan Univ. 22(2): 15. 1982.

大叶润楠 da ye run nan

Machilus kusanoi Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 241. 1911; *Persea kusanoi* (Hayata) H. L. Li.

Bark grayish. Petiole 2–3 cm; leaf blade leathery, broadly ovate-oblanceolate, 15–22 × 4–8.5 cm, abaxially glabrate to glabrous, adaxially glabrous, lateral veins 7–15 pairs, abaxially elevated, adaxially flattened, veinlets reticulate abaxially, inconspicuous adaxially. Involucre bracts light reddish. Fr. Aug–Sep.

- Broad-leaved forests; low elevations to 1100 m. Taiwan.

9. *Machilus litseifolia* S. K. Lee, Acta Phytotax. Sin. 17(2): 46. 1979.

木姜润楠 mu jiang run nan

Persea litseifolia (S. K. Lee) Kostermans.

Trees, up to 13 m tall; trunk ca. 18 cm d.b.h. Bark black, black-brown, or brown. Branchlets glabrous. Terminal buds subglobose; bud scales broadly orbicular, subglabrous. Leaves usually clustered at apex of branchlet; petiole slender, 1–2 cm; leaf blade abaxially glaucescent, adaxially shiny, oblanceolate or obovate-lanceolate, 6.5–12 × 2–4.4 cm, leathery, glabrous on both surfaces when older, densely appressed puberulent when young, midrib abaxially conspicuously raised, adaxially impressed, lateral veins 6–8 pairs, abaxially distinct, curved, anastomosing near margin, veinlets slender, densely foveolate on both surfaces, base obliquely obtuse, apex obtuse. Cymose panicles arising from near base of young branchlet or subterminal, 4.5–8 cm, few flowered; peduncle red, somewhat thick. Pedicel slender, 5–7 mm. Flowers ca. 5 mm. Perianth lobes subequal, oblong, ca. 5 × 2 mm, glabrous, rarely sparsely puberulent outside, pubescent inside, apex orbicular or obtuse. Filaments glabrous. Ovary glabrous. Fruit globose, ca. 7 mm in diam., glaucescent when young; persistent perianth lobes ± thickening at lower part; fruiting pedicel ca. 5 mm. Fl. Mar–May, fr. Jun–Jul.

- Mountains, mixed broad-leaved forests, thickets; 800–1500 m. Guangdong, N Guangxi, Guizhou, S Zhejiang.

10. *Machilus sichuanensis* N. Chao ex S. K. Lee et al., Acta Phytotax. Sin. 17(2): 47. 1979.

四川润楠 si chuan run nan

Persea sichuanensis (N. Chao ex S. K. Lee et al.) Kostermans.

Trees, to 20 m tall, glabrous throughout. Branchlets pale brown. Petiole 1.8–2.2 cm; leaf blade abaxially glaucescent and adaxially green when fresh, abaxially pale brown when dry, oblong, 11–15.5 × 3.3–4.5 cm, leathery, midrib raised abaxially, slightly impressed adaxially, lateral veins ca. 9 pairs, somewhat raised on both surfaces, veinlets densely foveolate, adaxially more conspicuous than abaxially, base cuneate, apex caudate-acuminate. Inflorescences usually at base of young branchlet, 7–11 cm, branched ca. at middle of peduncle; peduncle 3–4.5 cm. Pedicel 7–14 mm. Flowers yellowish, ca. 6 mm. Perianth lobes oblong, ca. 5 × 2 mm, outer ones shorter and more narrow. Stamens ca. 5 mm, white villous at base; filaments of 3rd series with stipitate glands at base. Staminodes sagittate, ca. 2 mm. Ovary ovoid; style ca. 3 mm. Fruit unknown. Fl. Apr–May.

- Sichuan (Guanxian).

11. *Machilus chuanchienensis* S. K. Lee, Acta Phytotax. Sin. 17(2): 47. 1979.

川黔润楠 chuan qian run nan

Persea chuanchienensis (S. K. Lee) Kostermans.

Trees, ca. 5 m tall. Branchlets purple-brown, sometimes with distinctly raised elliptic lenticels, branchlets and young shoots smooth, glabrous. Terminal buds conical, puberulent. Leaves clustered at upper part of branchlet; petiole slender, 1.8–2.2 cm; leaf blade abaxially pale green, adaxially green, oblong, 8.5–12 × 2.7–3.8 cm, thinly leathery, abaxially appressed puberulent when young, midrib abaxially distinctly elevated, adaxially impressed, lateral veins 8 or 9 pairs, abaxially raised, adaxially slightly raised, veinlets densely reticulate, sometimes foveolate on both surfaces, base cuneate, apex obtuse or obtuse-acuminate. Cymose panicles near base of newly sprouted branchlet or sometimes subterminal, 6–10.5 cm, few flowered, branched at upper part of peduncle. Pedicel slender, ca. 7 mm. Flowers ca. 5 mm. Perianth lobes oblong, equal or subequal, glabrous outside, sericeous inside. Fruit unknown. Fl. Jun.

- NE Guizhou, SE Sichuan.

12. *Machilus calcicola* C. J. Qi, Bull. Bot. Res., Harbin 1(1–2): 153. 1981.

灰岩润楠 hui yan run nan

Small trees, 5–8 m tall. Branchlets reddish brown, glabrous. Terminal buds ovoid; bud scales reddish brown sericeous. Petiole 1.2–2 cm, glabrous; leaf blade shiny, obovate-oblong or oblong-elliptic, rarely oblong-lanceolate, leathery, glabrous on both surfaces, lateral veins 9–11 pairs, midrib elevated abaxially, plane adaxially, veinlets conspicuous on both surfaces, base cuneate, apex acuminate or shortly cuspidate. Panicles arising from base of newly sprouted branchlet, 3–4 cm, glabrous. Flowers white-green, 3–3.5 mm. Perianth lobes subequal, oblong, glabrous outside. Fruit blue-black, globose, 8–10 mm in diam., somewhat farinaceous; fruiting pedicel ca. 1 cm; perianth lobes caducous in fruiting stage.

- Limestone hills, open forests; 200–300 m. Guangdong, NE Guangxi, Hunan.

13. *Machilus glabrophylla* J. F. Zuo, J. Trop. Subtrop. Bot. 3: 34. 1995.

光叶润楠 guang ye run nan

Machilus reticulata S. K. Lee & F. N. Wei, Guihaia 8: 306. 1988, not K. M. Lan (1986).

Trees, to 16 m tall. Bark thin, rough. Branchlets glabrous, longitudinally striate. Bud scales densely pubescent outside, subglabrous inside. Petiole ca. 1.5 cm, glabrous; leaf blade elliptic or obovate-elliptic, 7–12 × 2.5–3 cm, thinly leathery, glabrous on both surfaces, midrib elevated abaxially, concave adaxially, lateral veins slender, 8 or 9 pairs, conspicuous abaxially, slightly conspicuous adaxially, foveolate on both surfaces, base cuneate or attenuate, apex shortly acuminate to acuminate, rarely obtuse. Panicle terminal, 3–4 cm, glabrous. Perianth lobes subequal, 3–4 × 1.2–1.5 mm, glabrous outside, pubescent inside, apex obtuse. Filaments glabrous except base, glands sagittate, long stipitate. Staminode villous below middle. Ovary ovoid; style elongate; stigma inflated. Young fruit globose; perianth lobes usually early deciduous. Fl. Oct.

- Guangdong, SE and W Guangxi.

14. *Machilus nanchuanensis* N. Chao ex S. K. Lee et al., *Acta Phytotax. Sin.* 17(2): 47. 1979.

南川润楠 nan chuan run nan

Persea nanchuanensis (N. Chao ex S. K. Lee et al.) Kostermans.

Trees, to 15 m tall. Branchlets slender. Terminal buds subglobose, densely brown tomentose. Leaves clustered at upper part of branchlet; petiole slender, 1.5–2 cm; leaf blade abaxially pale green, adaxially lustrous and green, obovate or elliptic, 6–8(–9) × 2–2.6(–4) cm, leathery, glabrous on both surfaces, midrib abaxially slightly elevated, adaxially impressed, lateral veins 6 or 7 pairs, slender, inconspicuous on both surfaces, veinlets slender, somewhat foveolate on both surfaces, base cuneate, sometimes oblique, apex shortly acuminate or shortly caudate. Panicles slender, fasciculate, terminal or subterminal, 2–3 cm, few flowered, with persistent involucre bracts at base in flowering period; peduncle red. Pedicel red, short, ca. 3 mm. Flowers white, all parts glabrous. Perianth lobes oblong, ca. 3 × 1 mm. Young fruit green, subglobose. Fl. May, fr. Jun.

- Mixed forests. Chongqing.

15. *Machilus gracillima* Chun, *Acta Phytotax. Sin.* 2: 171. 1953.

柔弱润楠 rou ruo run nan

Persea gracillima (Chun) Kostermans.

Small trees, to 4 m tall; trunk to 10 cm d.b.h., glabrous throughout. Branchlets slender. Petiole 10–12 mm; leaf blade abaxially grayish brown and glaucous, adaxially grayish green, oblong, somewhat rhombic, 10–11 × 2.5–3.5 cm, thinly leathery, midrib slender, abaxially elevated, adaxially concave, lateral veins 10–12 pairs, together with reticulate veinlets slender on both surfaces but distinctly visible by lens, base cuneate, apex caudate-acuminate. Flowers unknown. Infructescences very short, solitary in leaf axil. Fruit subglobose, ca. 1.3 cm in diam. (immature); persistent perianth lobes yellowish, patent, oblanceolate, subequal, ca. 5 × 1.2 mm, papery; fruiting pedicel shorter than petiole, ca. 5 mm, upper parts slightly thickened.

- Dense broad-leaved forests. N Guangxi.

This is a very rare species apparently known only from the type gathering.

16. *Machilus salicoides* S. K. Lee, *Acta Phytotax. Sin.* 17(2): 48. 1979.

华荃润楠 hua ying run nan

Persea salicoides (S. K. Lee) Kostermans.

Trees, to 15 m tall. Bark brownish. Branchlets brownish, glabrous; current year branchlets red-brown, glabrous. Axillary bud small, ovoid; bud scales glabrous outside, densely ciliate. Leaves clustered at apex of branchlet; petiole 8–10 mm; leaf blade abaxially grayish green, lanceolate or oblong, 7–11.5 × 1.5–4.3 cm, thinly leathery, abaxially densely pubescent when young, pubescent along midrib when old, midrib distinctly elevated abaxially, concave adaxially, lateral veins 9 or 10 pairs,

abaxially more conspicuous, adaxially slightly elevated, veinlets slender, densely foveolate on both surfaces, base cuneate, apex obtuse or obtuse-acuminate. Panicles subterminal, short, ca. 3 cm, few flowered; involucre bracts caducous, densely yellowish brown tomentose; bracteoles linear, ca. equal to length of pedicel, glabrous. Pedicel slender, ca. 2 mm. Perianth lobes ovate, subequal, ca. 1.5 mm, glabrous outside. Fruit unknown.

- Open slopes. Chongqing and/or E Sichuan (Huaying Shan).

17. *Machilus obovatifolia* (Hayata) Kanehira & Sasaki, *Trans. Nat. Hist. Soc. Formosa* 20: 381. 1930.

倒卵叶润楠 dao luan ye run nan

Cinnamomum obovatifolium Hayata, *Icon. Pl. Formosan.* 3: 161. 1913; *Machilus suffrutescens* Hayata; *Persea obovatifolia* (Hayata) Kostermans.

Small trees. Branchlets glabrous. Bud ovoid-globose; bud scales glabrous or glabrate. Leaves clustered at apex of branchlet; petiole 5–10 mm, glabrous; leaf blade obovate, 4–5 × 1–2.5 cm, thinly leathery, glabrous on both surfaces, midrib flat or slightly elevated abaxially, concave adaxially, lateral veins 4 or 5 pairs, slightly elevated on both surfaces, veinlets distinctly reticulate, base cuneate, apex usually rounded. Inflorescences in few flowered cymose panicles, subterminal, ca. 3 cm, glabrous or glabrate. Pedicel 3–4 mm. Perianth lobes subequal, glabrous outside, puberulent to glabrate inside, outer ones ovate, smaller, ca. 1.6 mm, inner ones larger, 2–2.4 mm. Filaments barbate at base, those of 3rd series longer, glands shortly stipitate. Stamens sagittate. Ovary subglobose. Fruit compressed globose, 1–1.5 cm in diam.

- Mixed broad-leaved forests of lowlands. S Taiwan (Hengchun).

18. *Machilus multinervia* H. Liu, *Laurac. Chine & Indochine*, 56. 1932.

多脉润楠 duo mai run nan

Persea multinervia (H. Liu) Kostermans.

Small trees, 5–8 m tall. Branchlets reddish brown, slightly thick, with longitudinal striations and 5 or 6 circular scars. Leaves clustered at apex of branchlet; petiole thick, 1–2 cm; leaf blade abaxially glaucous and brownish when dry, adaxially lustrous, narrowly elliptic to oblanceolate, 12–19 × 2–3.2 cm, leathery, abaxially scattered appressed sericeous, midrib abaxially distinctly elevated, thick, reddish, adaxially concave, lateral veins slender, 20–23 pairs, veinlets slender, foveolate, base attenuate, decurrent to petiole, apex acuminate. Panicles 8–10 at upper part of 1-year-old branchlet, reddish, to 11 cm, glabrous; peduncle laterally compressed. Pedicel 6–8 mm. Flowers yellowish white. Perianth lobes obovate, apex acute, with 5–7 longitudinal veins and hairs at base inside, unequal, inner one longer, ca. 6 mm. Stamens 4–4.5 mm, with hairs at base; filaments of 3rd series with stipitate glands inserted at base. Stamens triangular, shortly stipitate, with hairs at base. Ovary subglobose. Infructescences 11–13 cm. Fruit subglobose, 2.5–3 cm in diam.; fruiting pedicel slightly thick, 8–10 mm. Fr. Sep–Oct.

- Limestone hills, open slopes. Guangxi, Guizhou.

19. *Machilus wangchiana* Chun, Acta Phytotax. Sin. 2: 166. 1953.

信宜润楠 xin yi run nan

Persea kadooriei Kostermans; *P. wangchiana* (Chun) Kostermans.

Trees, 6–15 m; trunk ca. 35 cm d.b.h. Bark gray. Young shoots glabrous, older branchlets with conspicuous leaf scars and elevated lenticels. Leaves clustered on upper part of branchlet; petiole usually ca. 2 cm; leaf blade greenish brown on both surfaces when dry, abaxially slightly glaucous, oblong-ob lanceolate to oblong-elliptic, 18–34 × 5–8 cm, leathery, midrib thick, abaxially elevated, adaxially canaliculate, lateral veins 24–30 pairs, sometimes forked, abaxially conspicuous, veinlets dense, foveolate, base cuneate, decurrent, apex acute-acuminate to acuminate. Inflorescences subracemose at base of newly sprouted branchlet, few flowered, 5–12 cm; peduncle thick, car-nose and purple when fresh. Pedicel ca. 8 mm. Perianth lobes oblong-elliptic, thinly leathery, glabrate to glabrous outside, pubescent inside, unequal, outer one smaller, inner one larger, ca. 7 mm. Stamens 4.2–4.4 mm, glabrous or glabrate, glands of 3rd series clavate, ca. 2 mm, puberulent. Staminodes ca. 2 mm, compressed clavate, puberulent. Ovary glabrous. Fruit dark blue, globose, 2–2.5 cm in diam.; fruiting pedicel purple when mature. Fr. Apr–May.

• Dense or open forests in valleys. Guangdong, Guangxi, Guizhou.

20. *Machilus chienkweiensis* S. K. Lee, Acta Phytotax. Sin. 17(2): 48. 1979.

黔桂润楠 qian gui run nan

Persea chienkweiensis (S. K. Lee) Kostermans.

Trees, 7–11 m tall; trunk to 25 cm d.b.h. Branchlets yellowish green to purplish brown, somewhat thick, with many circular scars of bud scales. Terminal buds compressed globose; bud scales subrounded, wide, outer ones glabrous outside, ciliate, inner ones yellowish brown tomentose. Petiole slender, 1.2–2(–2.5) cm; leaf blade abaxially slightly glaucous-green, adaxially lustrous, elliptic or oblong, usually 6–12(–15) × 2.2–4.5 cm, thinly leathery, glabrous on both surfaces, midrib abaxially elevated, adaxially narrowly canaliculate, lateral veins (8–)10–12 pairs, slightly slender, somewhat raised on both surfaces, veinlets densely reticulate, foveolate on both surfaces. Flowers unknown. Inflorescences arising from lower part of newly sprouted branchlet, short, 3–5 cm, glabrous; peduncle reddish. Fruit globose, ca. 2.2 cm in diam., green and slightly glaucous when immature; perianth lobes glabrous outside; fruiting pedicel reddish, ca. 7 × 2 mm. Fr. Jun–Jul.

• Dense or open mountain forests in valleys or on slopes; 800–1200 m. N Guangxi, SE Guizhou.

21. *Machilus gongshanensis* H. W. Li, Acta Phytotax. Sin. 17(2): 48. 1979.

贡山润楠 gong shan run nan

Persea gongshanensis (H. W. Li) Kostermans.

Small to medium-sized trees, 3–10 m tall; trunk to 20 cm d.b.h. Bark dark brown. Branchlets brownish, longitudinally striate, glabrous. Terminal buds large, ovoid, to 8 mm; bud scales subrounded, wide, glabrous outside, ciliate. Leaves congested at apex of branchlet; petiole 1–2(–3) cm; leaf blade abaxially pale green or brownish, adaxially greenish, oblong to obovate-elliptic, (6–)9.5–20 × (1.5–)1.8–5.5 cm, leathery, glabrous on both surfaces, midrib abaxially elevated, adaxially concave, lateral veins 8–11(–16) pairs, conspicuous on both surfaces, veinlets somewhat conspicuous, base cuneate, apex acuminate, summit sharp. Cymose panicles arising from lower part of newly sprouted branchlet, (3.5–)5.5–8 cm, branched at upper part of peduncle; peduncle and pedicels somewhat compressed, glabrous. Pedicel 4–5 mm. Flowers yellowish. Perianth lobes oblong, subequal, glabrous outside, pubescent inside, ciliate. Stamens subequal; filaments pubescent at base, glands of 3rd series stipitate, sparsely pubescent at base. Ovary ovoid; style slender, curved. Fruit globose, 1.3–1.7 cm in diam.; fruiting pedicel slightly thickened. Fl. Apr–May, fr. Aug–Oct.

• Mountain slopes or valleys, mixed broad-leaved forests; 1600–2300 m. NW Yunnan.

22. *Machilus velutina* Champion ex Bentham, Hooker's J. Bot. Kew Gard. Misc. 5: 198. 1853 [*“velutinus”*].

绒毛润楠 rong mao run nan

Actinodaphne magniflora C. K. Allen; *Persea velutina* (Champion ex Bentham) Kostermans.

Trees, to 18 m tall; trunk ca. 40 cm d.b.h., all parts densely ferruginous tomentose. Petiole 1–2.5(–3) cm; leaf blade lustrous adaxially, narrowly obovate, elliptic, or narrowly ovate, 5–11(–18) × 2–2.5(–5.5) cm, leathery, midrib abaxially raised, slightly concave adaxially, lateral veins 8–11 pairs, abaxially conspicuously raised, veinlets very slender, inconspicuous, base cuneate, apex attenuate or shortly acuminate. Inflorescences terminal, 2–3 cm; peduncle very short. Flowers yellowish, fragrant, densely ferruginous tomentose. Perianth lobes slightly unequal, inner ones ovate, ca. 6 × 3 mm. Stamens ca. 5 mm; filaments of 3rd series tomentose at base, glands cordate, stipitate. Staminodes ca. 2 mm, tomentose. Ovary reddish when alive. Fruit purplish red, globose, ca. 4 mm in diam. Fl. Oct–Dec, fr. Feb–Mar.

Fujian, Guangdong, Guangxi, Guizhou, Hainan, Jiangxi, Zhejiang [Cambodia, Laos, Vietnam].

Machilus velutina var. *longipedunculata* C. J. Qi (Bull. Bot. Res., Harbin 1(1–2): 154. 1981) was described from Hunan but could not be treated here because no material was seen by the present authors.

23. *Machilus grijsii* Hance, Ann. Sci. Nat., Bot., sér. 4, 18: 226. 1863.

黄绒润楠 huang rong run nan

Persea grijsii (Hance) Kostermans.

Trees, to 5 m tall. Buds, branchlets, petioles, and leaf blade abaxially yellow-brown velutinous. Petiole somewhat thick, 8–18 mm; leaf blade obovate-oblong, 7.5–14(–18) × 3.7–6.5(–7) cm, leathery, glabrous adaxially, midrib and lateral veins abax-

ially raised, adaxially concave, lateral veins 8–11 pairs, veinlets slender and indistinct, base \pm rounded, apex attenuate. Inflorescence short, fasciculate at apex of branchlet, ca. 3 cm, densely yellowish brown velutinous; peduncle 1–2.5 cm. Pedicel ca. 5 mm. Perianth lobes thin, oblong, subequal, ca. 3.5 mm, outside ones more narrowed, tomentose on both surfaces. Filaments of 3rd series with sessile glands inserted at base. Fruit globose, ca. 1 cm in diam. Fl. Mar, fr. Apr.

• Thickets, dense forests. Fujian, Guangdong, Hainan, Jiangxi, Zhejiang.

24. *Machilus platycarpa* Chun, Acta Phytotax. Sin. 2: 164. 1953.

扁果润楠 bian guo run nan

Persea platycarpa (Chun) Kostermans.

Large trees, up to 24 m tall; trunk ca. 50 cm d.b.h. Bark yellowish gray, longitudinally striate, ca. 3 mm thick. Branchlets thick, with sparse tomentum and scattered lenticels. Terminal buds large, triangular-ovoid; outer bud scales covered with persistent tomentum. Petiole 3–4 cm, thick, with opaque tomentum; leaf blade oblong-ovate or oblong-oblancoate, sometimes oblong-elliptic, larger one to 34×12 cm, smaller one $15-23 \times 6-8$ cm, leathery, abaxially ferruginous tomentose, adaxially brownish when dry and only lower part of midrib sometimes opaque tomentose, midrib abaxially elevated, adaxially concave, lateral veins 16–20 pairs, distant, veinlets abaxially distinct, especially along midrib and lateral veins, base broadly cuneate, margin slightly revolute, apex cuspidate-acuminate. Flowers not seen. Withered inflorescences racemose, terminal, ca. 8 cm, ferruginous tomentose, few flowered. Pedicel thick, ca. 8×2 mm. Perianth lobes leathery, oblong-elliptic or oblong-ovate, $8-9 \times 4-5$ mm, outer ones smaller. Stamens 5–6 mm; filaments slightly flattened, gradually wide and hairy toward base, those of 3rd series with ovoid glands ca. 2 mm. Ovary globose with yellowish hairs at base. Fruit compressed globose, ca. 2.2 cm, ca. 4 cm in diam. Fr. Apr–May.

W Guangdong, S Guangxi [Vietnam].

25. *Machilus dumicola* (W. W. Smith) H. W. Li, Acta Phytotax. Sin. 17(2): 49. 1979.

灌丛润楠 guan cong run nan

Alseodaphne dumicola W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 152. 1921; *Persea dumicola* (W. W. Smith) Airy Shaw.

Small trees, ca. 7 m tall. Branchlets thick, to 1 cm in diam., striate, densely pubescent; young shoot thick, to 5 mm in diam., obtusely angled, densely yellowish ferruginous tomentose. Leaves almost congested at top of young shoot; petiole 2.5–4 cm, 2–3 mm in diam.; leaf blade usually obovate to obovate-oblong, $12-20 \times 6-10$ cm, abaxially densely ferruginous tomentose, adaxially glabrous, lateral veins 10–13 pairs, apex obtuse or rounded. Inflorescences subterminal to 8.5 cm; peduncle conspicuously flattened, together with pedicels yellowish ferruginous tomentose. Perianth lobes subequal, yellowish ferruginous tomentose on both surfaces. Stamens 5–

5.6 mm; filaments pubescent, glands sessile. Ovary ca. 3 mm in diam.; style puberulent. Fruit not seen.

• Valleys, thickets; ca. 2400 m. W Yunnan.

26. *Machilus wenshanensis* H. W. Li, Acta Phytotax. Sin. 17(2): 49. 1979.

文山润楠 wen shan run nan

Persea wenshanensis (H. W. Li) Kostermans.

Trees, ca. 15 m tall; trunk ca. 30 cm d.b.h. Branchlets robust, ca. 8 mm in diam., longitudinally striate, lenticellate, pubescent or densely dirty yellowish tomentose when young. Bud scales densely dirty yellowish or ferruginous tomentose. Petiole 1.2–2.3 cm, dirty yellowish pubescent; leaf blade oblong or elliptic to oblanceolate-elliptic, ca. $12.5 \times 3-4$ cm, densely dirty yellowish villous on both surfaces when young, abaxially sparsely dirty yellowish villous and adaxially glabrous when old, midrib abaxially elevated, adaxially concave, lateral veins 10–12 pairs, abaxially raised, adaxially impressed, veinlets somewhat conspicuous on both surfaces, \pm foveolate, base cuneate or broadly cuneate, apex acute or acuminate. Inflorescences arising from axillary shortened branchlet, many flowered, densely dirty yellowish pubescent; peduncle (2–)3–6 cm; bracts and bracteoles caducous. Pedicel ca. 1.5 mm. Flowers ca. 6 mm in diam. in flowering period. Perianth lobes dirty yellowish tomentose on both surfaces, slightly unequal, outer ones ca. 4.2×2.2 mm, inner ones ca. 4.5×2.5 mm. Filaments sparsely pubescent, those of 3rd series with stipitate glands. Stamines sagittate, pubescent. Ovary ovoid, glabrous; style slender, to 2.6 mm. Fruit not seen. Fl. Apr.

• Evergreen broad-leaved forests in valleys or on slopes; ca. 1800 m. NW Guangxi, SW Guizhou (Anlong), SE Yunnan.

27. *Machilus nakao* S. K. Lee, Acta Phytotax. Sin. 8: 188. 1963.

纳稿润楠 na gao run nan

Persea nakao (S. K. Lee) Kostermans.

Trees, to 20 m; trunk to 1 m d.b.h. Bark gray-brown to blackish gray. Branchlets gray-brown, terete, with longitudinally elevated lenticels and leaf scars; young branchlets brownish, brownish tomentose, becoming glabrate. Leaves scattered on upper part of branchlet; petiole 9–20 mm, tomentose when young, glabrate later; leaf blade obovate-elliptic, $8.5-18 \times 2.8-5.8$ cm, leathery, abaxially sparsely pubescent especially along veins, brownish red when dry, adaxially glabrous, midrib abaxially conspicuously raised, adaxially concave, lateral veins 6–8(–10) pairs, abaxially distinctly elevated, adaxially flat and slender, veinlets foveolate adaxially, base cuneate, apex obtuse or rounded. Inflorescences in patent pleiochasium, terminal or on upper part of branchlet, 4–17 cm, branched at middle or upper part of peduncle; peduncle up to 1/2 or 2/3 length of inflorescence, densely pubescent. Flowers white or yellowish, ca. 5 mm. Perianth lobes ovate, tomentose on both surfaces, unequal, inner ones ca. 5 mm, outer ones smaller. Stamens shorter than perianth lobes, hairy at base, glands of 3rd series reniform. Stamines sagittate, shorter than stamens. Ovary globose, glabrous; style longer than ovary,

curved. Fruit green, globose, ca. 3 cm in diam.; persistent perianth lobes not thickened. Fl. Jul–Oct, fr. Sep–Apr.

Thickets on slopes, open forests, sometimes in forests by streams. Guangxi (Luchuan), Hainan [Vietnam].

28. *Machilus zuihoensis* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 244. 1911.

香润楠 xiang run nan

Medium-sized or large trees. Branchlets terete, lenticellate, puberulent becoming glabrate, blackish when dry. Bud scales glabrous or yellowish brown pilose. Petiole 1.5–2.5 cm, puberulent to glabrate; leaf blade yellowish green to green or deep green to blue-green when alive, oblong, elliptic, or lanceolate to oblanceolate, 7–22 × 2.5–6 cm, leathery, abaxially hairy, glaucous, adaxially glabrous, midrib abaxially elevated, adaxially slightly impressed, lateral veins 7–14 pairs, slender, veinlets densely reticulate, inconspicuous on both surfaces, base cuneate or sometimes obtusely cuneate, apex acute to acuminate. Inflorescences in cymose panicles, arising from base of newly sprouted branchlet, to 18 cm, pubescent, branched at upper part of peduncle; involucre bracts caducous. Pedicel 3–4 mm, pubescent. Perianth lobes subequal, oblong to oblanceolate, ca. 3.7 × 1.7 mm, pubescent on both surfaces, apex obtuse. Stamens equal in length, those of 3rd series villous at base with stipitate glands. Staminodes barbate at base. Ovary ovoid, glabrous; style glabrous. Fruit compressed globose, 7–10 mm in diam., black when mature; persistent perianth lobes reflexed. Fl. Dec–Apr, fr. Jul–Aug.

• Broad-leaved and mixed forests, common; 100–1400 m. Taiwan.

- 1a. Leaf blade base cuneate, 7–14 × 2.5–3.5 cm; fruit 7–8 mm in diam. 28a. var. *zuihoensis*
- 1b. Leaf blade base obtusely cuneate, blade much larger, 12–22 × 2.5–6 cm; fruit 9–10 mm in diam. 28b. var. *mushaensis*

28a. *Machilus zuihoensis* var. *zuihoensis*

香润楠(原变种) xiang run nan (yuan bian zhong)

Machilus longipaniculata Hayata; *M. longisepala* Hayata; *M. zuihoensis* f. *longipaniculata* (Hayata) T. S. Liu & J. C. Liao; *Persea zuihoensis* (Hayata) H. L. Li.

Medium-sized trees. Petiole ca. 1.5 cm; leaf blade yellowish green to green when alive, 7–14 × 2.5–3.5 cm, base almost cuneate. Fruit 7–8 mm in diam.

• Mixed forests, common; 100–1400 m. Taiwan.

28b. *Machilus zuihoensis* var. *mushaensis* (F. Y. Lu) Y. C. Liu, Lign. Pl. Taiwan, 144. 1981.

青叶润楠 qing ye run nan

Machilus mushaensis F. Y. Lu, Quart. J. Chin. Forest. 2(3): 19. 1969.

Large trees. Petiole 1.5–2.5 cm; leaf blade deep green to

blue-green when alive, base obtusely cuneate. Fruit 9–10 mm in diam.

• Broad-leaved forests, common; medium elevations. Taiwan.

29. *Machilus oreophila* Hance, Ann. Sci. Nat., Bot., sér. 4, 18: 227. 1863.

建润楠 jian run nan

Persea oreophila (Hance) Kostermans.

Shrubs to small trees, usually 5–8 m tall. Young branchlets, terminal buds, and young leaf blade abaxially and adaxially along midrib densely yellowish brown tomentose, older branchlets glabrate. Petiole 1–1.5 cm, tomentose initially; leaf blade narrowly lanceolate, (7–)11–18 × (1–)1.5–3 cm, thinly leathery, abaxially pubescent, especially along midrib and veins, adaxially glabrous, midrib abaxially raised, lateral veins 8–10 pairs, veinlets usually conspicuous, base cuneate, apex acuminate. Panicles 3.5–6.5 cm, densely brownish pubescent, branched at top of peduncle. Perianth lobes oblong, subequal, yellowish brown pubescent on both surfaces. Filaments of stamens hairy at base, those of 3rd series with shortly stipitate glands. Fruit globose, 7–10 mm in diam., black-purple when mature; fruiting pedicel 7–8 mm, pubescent. Fl. Mar–Apr, fr. May–Aug.

• Valleys, mixed forests, streamsides, watersides. Fujian, Guangdong, Guangxi, Guizhou, Hunan.

30. *Machilus chrysotricha* H. W. Li, Acta Phytotax. Sin. 17(2): 50. 1979.

黄毛润楠 huang mao run nan

Persea chrysotricha (H. W. Li) Kostermans.

Trees, 5–15 m tall. Young shoots longitudinally striate, somewhat golden yellow pubescent, glabrous when old. Petiole 1.5–2 cm; leaf blade oblong to obovate-oblong, 9–13 × 3.2–4.5 cm, abaxially with dirty yellowish pubescence mainly along midrib and lateral veins, adaxially glabrous, midrib abaxially raised, adaxially concave, lateral veins 8–11 pairs, sometimes forked and ± irregular, anastomosing and disappearing near margin, veinlets reticulate, ± foveolate on both surfaces. Numerous cymose panicles from base of current year branchlet, 4–7 cm, densely dirty yellowish pubescent; peduncle 2–3.5 cm. Pedicel as long as flower. Flowers greenish yellow to white, to 5.5 mm. Perianth densely golden yellow pubescent on both surfaces; perianth lobes oblong, slightly unequal, outer ones ca. 4 mm, inner ones ca. 4.5 mm. Stamens villous at base, those of 1st and 2nd series ca. 4 mm, those of 3rd series somewhat longer, with stipitate glands at base. Staminodes ca. 1.5 mm, villous. Ovary ovoid, glabrous. Fruit not seen. Fl. May–Jul.

• Dry mixed forests; ca. 1900 m. C and NW Yunnan.

31. *Machilus kwangtungensis* Yen C. Yang, J. W. China Border Res. Soc., Ser. B, 15: 77. 1945.

广东润楠 guang dong run nan

Machilus cathayensis Chun ex Hung T. Chang; *M. kwangtungensis* var. *sanduensis* Y. K. Li; *Persea kwangtungensis* (Yen

C. Yang) Kostermans.

Trees, to ca. 10 m tall; trunk ca. 18 cm d.b.h. Young shoots densely ferruginous tomentose, 1-year-old and 2-year-old branchlets blackish when dry, glabrous with yellowish brown lenticels and circular scars of bud scales. Petiole ca. 1 cm, pubescent; leaf blade oblong or oblanceolate, 6–11(–15) × 2–4.5 cm, thinly leathery, abaxially appressed pubescent, adaxially glabrate, midrib abaxially elevated, adaxially impressed, lateral veins usually 10–12 pairs, slender, inconspicuous on both surfaces, base attenuate, apex acuminate. Panicles arising from lower part of current year branchlet, 5–10.5 cm, grayish yellow pubescent; peduncle slightly compressed. Pedicel slender, 5–7 mm. Perianth lobes subequal, oblong, ca. 5 mm, grayish yellow pubescent on both surfaces, apex obtuse. Filaments hairy, those of 3rd series with stipitate glands at base. Staminodes sagittate. Ovary glabrous; style slender. Fruit subglobose, slightly compressed, 8–9 mm in diam., blackish when ripe. Fl. Mar–Apr, fr. May–Jul.

• Mountain slopes, broad-leaved forests in valleys, valleys by watersides. Guangdong, NE Guangxi, S Guizhou, S Hunan.

32. *Machilus gamblei* King ex J. D. Hooker, Fl. Brit. India 5: 138. 1886.

黄心树 *huang xin shu*

Machilus bombycina King ex J. D. Hooker; *M. suaveolens* S. K. Lee; *Persea bombycina* (King ex J. D. Hooker) Kostermans; *P. gamblei* (King ex J. D. Hooker) Kostermans; *P. suaveolens* (S. K. Lee) Kostermans.

Trees, to 25 m tall; trunk to 40 cm d.b.h. Bark blackish brown or brownish. Branchlets slender, terete, with 3–5 circular scars, young shoots with densely gray-yellow pubescence, becoming glabrate. Terminal buds tomentose. Petiole 5–20 mm, sericeous; leaf blade oblong, obovate, or oblanceolate, (5–)6–15 × 1.5–5.5 cm, thinly leathery, ferruginous appressed sericeous on both surfaces when young, abaxially glaucescent-green and minutely pubescent especially along veins and adaxially glabrate when old, midrib abaxially elevated, adaxially concave, lateral veins 7–10 pairs, slightly conspicuous on both surfaces, veinlets inconspicuous. Numerous panicles arising from lower part of young shoots, 4–13 cm; peduncle (2–)4–8.5 cm, densely grayish sericeous. Flowers white or yellowish. Perianth lobes subequal, oblong, ca. 4 × 1.5 mm, densely minutely gray-white sericeous. Stamens ca. 3 mm, barbate at base; glands of 3rd series shortly stipitate. Staminodes sagittate. Ovary subglobose. Fruit globose, 7–8 mm in diam., blackish when ripe. Fl. Mar–Apr, fr. May–Jun.

Slopes, open or dense forests in valleys, lowlands. Guangdong, Guangxi, Guizhou, Hainan, SE Xizang (Médog), Yunnan [Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Thailand, Vietnam].

33. *Machilus cavaleriei* H. Léveillé, Bull. Acad. Int. Géogr. Bot. 24: 142. 1914.

安顺润楠 *an shun run nan*

Alseodaphne cavaleriei (H. Léveillé) Kostermans.

Shrubs or small trees, ca. 2.5 m tall. Bark gray. Branchlets yellowish brown, somewhat thick, longitudinally elliptic-lenticellate, young parts grayish white or pale brown pubescent. Leaves scattered on upper part of branchlet; petiole slightly slender, 8–12(–26) mm; leaf blade abaxially slightly glaucescent-green, obovate or oblong, 5–10.5 × 2–3(–4.2) cm, young leaf blade puberulent on both surfaces, becoming glabrous adaxially, midrib abaxially elevated, adaxially slightly impressed, lateral veins 6–8 pairs, slender, veinlets foveolate, somewhat conspicuous on both surfaces. Panicles arising from lower part of young shoot, 3.8–7 cm, gray pubescent; peduncle purple, slender, branched at upper part. Pedicel slender, 3–5 mm, pubescent. Perianth lobes oblong, 3–4 mm, slightly unequal, pubescent on both surfaces, with 5 longitudinal veins, apex obtuse. Filaments villous at base; glands of 3rd series shortly stipitate. Ovary subglobose; stigma dish-shaped. Fruit globose when young; persistent perianth lobes thinly leathery.

• Mountain slopes, open or dense forests; ca. 1300 m. NW Guangxi, S Guizhou.

34. *Machilus minutiloba* S. K. Lee, Acta Phytotax. Sin. 17(2): 50. 1979.

雁荡润楠 *yan dang run nan*

Persea minutiloba (S. K. Lee) Kostermans.

Small trees. Branchlets blackish brown with small elliptic lenticels, glabrous, conspicuously swollen and densely brown tomentose at nodes. Terminal buds almost brown tomentose. Leaves clustered at apex of branchlet; petiole slender, 8–12 mm; leaf blade oblong, 6–10 × 1.5–2.8 cm, leathery, abaxially puberulent, midrib conspicuously elevated abaxially, slightly concave adaxially, lateral veins slender, 10–14 pairs, veinlets slender, densely reticulate, base cuneate, apex obtuse. Flowers unknown. Inflorescences paniculate, at lower part of current year branchlet, 5.5–9.5 cm, branched at middle of peduncle. Fruit compressed globose, ca. 1.2 cm in diam.; persistent perianth lobes oblong, gray appressed pubescent on both surfaces; fruiting pedicel slender, 6–8 mm. Fr. Jun.

• Mixed forests on mountain slopes. SE Zhejiang (Yandang Shan).

35. *Machilus dinganensis* S. K. Lee & F. N. Wei, Guihaia 4: 94. 1984.

定安润楠 *ding an run nan*

Persea dinganensis (S. K. Lee & F. N. Wei) Kostermans.

Trees, ca. 8 m tall. Branchlets glabrous when young, blackish when dry. Petiole 1–1.5 cm, glabrous; leaf blade abaxially brownish, adaxially shiny, elliptic or oblanceolate, 6–12 × 2–3.5(–4.5) cm, abaxially puberulent, adaxially glabrous, midrib abaxially elevated, adaxially impressed, lateral veins 9–11 pairs, conspicuous on both surfaces, base cuneate, apex acute or obtuse, rarely shortly acuminate. Inflorescences arising from base of branchlet, to 10 cm, densely grayish pubescent. Pedicel ca. 5 mm, pubescent. Perianth lobes oblong, gray-white pubescent on both surfaces, unequal, inner ones longer, ca. 4.8 × 2 mm. Stamens hairy at base, ca. 4 mm; glands of 3rd series cor-

date, stipitate. Staminodes sagittate, ca. 1.6 mm, hairy below middle. Ovary ovoid; style slender; stigma capitate. Fruit globose, 6–7 mm in diam. Fl. Dec, fr. May–Jun.

- Mixed broad-leaved forests. Guangdong, Hainan.

36. *Machilus lohuiensis* S. K. Lee, Acta Phytotax. Sin. 8: 184. 1963.

乐会润楠 le hui run nan

Machilus wenchangensis G. A. Fu & X. J. Hong; *Persea lohuiensis* (S. K. Lee) Kostermans.

Trees, ca. 7 m tall; trunk ca. 10 cm d.b.h. Bark brown. Branchlets brown or purple-brown, terete; young branchlets dark brown, glabrous. Petiole 1–1.5 cm; leaf blade abaxially glaucescent, oblanceolate, elliptic, or obovate-elliptic to broadly elliptic, 5–9 × 2.5–4.5 cm, subleathery, puberulent when young, midrib elevated abaxially, concave adaxially, lateral veins 8–10 pairs, slender, somewhat elevated on both surfaces, veinlets conspicuous on both surfaces, base broadly cuneate and decurrent, margin slightly revolute, apex acute or obtuse. Cymose panicles at upper part of branchlet, 2.5–5 cm, pubescent, branched at ca. middle or upper part of peduncle, usually 3-flowered per branch. Flowers yellow, aromatic. Perianth lobes subequal, oblong when dry, ca. 3 mm, puberulent on both surfaces, apex obtuse. Stamens somewhat shorter than perianth, hairy at base; glands of 3rd series shortly stipitate. Staminodes sagittate. Ovary globose; style as long as ovary. Infructescences 2.5–9 cm. Fruit globose, ca. 7 mm in diam. Fl. and fr. Aug–Sep.

- Open forests. Hainan [Vietnam].

37. *Machilus obscurinervis* S. K. Lee, Acta Phytotax. Sin. 17(2): 51. 1979.

隐脉润楠 yin mai run nan

Persea obscurinervis (S. K. Lee) Kostermans.

Large trees, 30–40 m tall. Branchlets grayish, longitudinally striate, yellowish brown lenticellate, rough; 1-year-old branchlet somewhat compressed, ± angular, glabrous. Terminal buds small, subovoid; bud scales glabrous outside, margin ciliate. Leaves clustered at apex of branchlet; petiole 1–2.4 cm; leaf blade abaxially grayish green, elliptic, 6–10(–12.5) × 2.3–4 cm, thinly leathery, appressed puberulent, midrib elevated abaxially, slightly concave adaxially, lateral veins slender, 10–12 pairs, inconspicuous on both surfaces, veinlets densely reticulate, abaxially inconspicuous, adaxially visible, base cuneate, apex obtusely acute. Flowers not seen. Infructescences paniculate, at lower part of 1-year-old branchlet, 6–10.5 cm; peduncle reddish, compressed. Fruit globose, ca. 1 cm in diam.; persistent perianth lobes reflexed, oblong, ca. 5 mm, puberulent on both surfaces, apex acute; fruiting pedicel ca. 1 cm, red when fresh, puberulent, thickened to 2 mm in diam. Fr. Aug.

- Evergreen mixed broad-leaved forests; ca. 2000 m. SE Xizang.

38. *Machilus nanmu* (Oliver) Hemsley, J. Linn. Soc., Bot. 26: 376. 1891.

润楠 run nan

Persea nanmu Oliver, Hooker's Icon. Pl. 14: 10, t. 1316. 1880; *Machilus pingii* W. C. Cheng ex Yen C. Yang; *P. pingii* (W. C. Cheng ex Yen C. Yang) Kostermans; *Phoebe nanmu* (Oliver) Gamble.

Large trees, to 40 m tall or more; trunk ca. 40 cm d.b.h. Branchlets glabrous, blackish when dry. Terminal buds ovoid; bud scales densely grayish sericeous outside, glabrous near margin. Petiole somewhat slender, 1–1.5 cm, densely grayish puberulent when young, glabrous when old; leaf blade elliptic or elliptic-oblong, 5–10(–13.5) × 2–5 cm, leathery, abaxially appressed puberulent, adaxially glabrous, young leaf blade abaxially densely grayish yellow puberulent, midrib conspicuously elevated abaxially, concave adaxially, lateral veins 8–10 pairs, inconspicuous on both surfaces, veinlets densely reticulate, foveolate adaxially, base cuneate, apex acuminate or long acuminate. Panicle at base of young branchlet, 5–6.5(–9) cm, grayish yellow puberulent, branched at upper part of peduncle; peduncle 3–5 cm. Pedicels slender, 5–7 mm. Flowers small, ca. 3 mm, 4–5 mm in diam. Perianth lobes oblong, sericeous on both surfaces, with 3–5 longitudinal veins. Stamens subequal; glands of 3rd series hastate, stipitate. Staminodes hairy at base. Ovary glabrous. Fruit black, compressed globose, 7–8 mm in diam. when mature. Fl. Apr–Jun, fr. Jun–Aug.

- Single tree or mixed forests; below 1000 m. Sichuan, NE Yunnan.

39. *Machilus leptophylla* Handel-Mazzetti, Symb. Sin. 7: 252. 1931.

薄叶润楠 bao ye run nan

Persea leptophylla (Handel-Mazzetti) Kostermans.

Large trees, to 28 m tall. Bark grayish brown. Branchlets thick, deeply brown, glabrous. Terminal buds subglobose; outer bud scales broadly ovate, ca. 2 mm, minutely sericeous except for margin, inner longer, yellowish brown sericeous. Petiole slightly thick, 1–3 cm, glabrous; leaf blade abaxially glaucous, obovate-oblong, 14–24(–32) × 3.5–7(–8) cm, thinly papery, abaxially densely appressed sericeous when young, sparsely sericeous to glabrate later, adaxially glabrous, midrib impressed abaxially, conspicuously elevated adaxially, lateral veins 14–20(–24) pairs, reddish when fresh, veinlets sparse, inconspicuous, base cuneate, apex shortly acuminate. Panicles many, congested on base of young branchlet, 8–12(–15) cm, slender, many flowered, densely grayish puberulent. Pedicel ca. 5 mm. Flowers ca. 7 mm, white when fresh. Perianth subequal, oblong-elliptic, farinose-pubescent outside, puberulent or glabrous inside, margin ciliate. Stamens with fascicled hairs at base; glands of 3rd series large, orbicular-reniform, shortly stipitate. Fruit globose, ca. 1 cm in diam.; fruiting pedicel 5–10 mm.

- Valleys, mixed forests; 400–1200 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Zhejiang.

40. *Machilus pauhoi* Kanehira, Trop. Woods 23: 8. 1930.

刨花润楠 bao hua run nan

Machilus polyneura Hung T. Chang; *Persea pauhoi* (Kanehira) Kostermans.

Trees, to 20 m tall; trunk to 30 cm d.b.h. Branchlets glabrous or puberulent at base of young shoot. Terminal buds usually densely brownish sericeous. Leaves usually congested at apex of branchlet; petiole 1.1–1.6(–2.5) cm, glabrous; leaf blade elliptic or narrowly elliptic, sometimes oblanceolate, 7–15(–17) × 2–4(–5) cm, leathery, abaxially appressed sericeous, rarely glabrate, adaxially glabrous, midrib distinctly elevated abaxially, concave adaxially, lateral veins slender, 12–17 pairs, veinlets most slender, inconspicuous on both surfaces, base cuneate, apex acuminate or long acuminate. Cymose panicles on lower part of 1-year-old branchlet, ca. as long as leaf blade, puberulent, with a few flowers, branched ca. at middle or upper part of peduncle. Pedicel slender, 8–13 mm. Perianth lobes ovate-lanceolate, ca. 6 mm, puberulent on both surfaces. Stamens glabrous; glands of 3rd series stipitate. Staminalodes ca. as long as glands, ca. 1.5 mm. Ovary subglobose; style longer than ovary. Fruit globose, ca. 1 cm in diam., black when mature.

• Slope thickets, open forests in valleys. Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Zhejiang.

41. *Machilus sichouensis* H. W. Li, Acta Phytotax. Sin. 17(2): 51. 1979.

西畴润楠 xi chou run nan

Persea sichouensis (H. W. Li) Kostermans.

Trees, ca. 7 m tall. Branchlets blackish brown, subterete, glabrous. Terminal buds small, ca. 3 mm; bud scales ovate-orbicular to broadly ovate-orbicular, brownish pubescent outside. Petiole 5–15(–20) mm, glabrous; leaf blade oblong to ovate-oblong, 7–16(–21.5) × 2.3–5(–6.8) cm, leathery, abaxially densely yellowish brown puberulent and adaxially subglabrous when young, abaxially ± sericeous-puberulent or glabrate and adaxially glabrous when old, midrib elevated abaxially, concave adaxially, lateral veins 9–13 pairs, conspicuous on both surfaces, veinlets inconspicuous abaxially, ± foveolate adaxially, base cuneate or broadly so, apex long acuminate. Flowers unknown. Inflorescences to 12.5 cm, arising from base of 1-year-old branchlet, yellowish brown puberulent; peduncle 7–8 cm, compressed. Fruit globose, less than 1 cm in diam., glabrous; persistent perianth lobes oblong, 3–4 × 2–3 mm, outer ones smaller, densely yellowish brown puberulent, reflexed; fruiting pedicel ca. 1.5 mm thick. Fr. May.

• Evergreen broad-leaved forests. SE Yunnan.

42. *Machilus ichangensis* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 621. 1916.

宜昌润楠 yi chang run nan

Trees, 7–15 m tall. Branchlets slender, glabrous. Terminal buds subglobose; bud scales suborbicular, grayish white deciduous pubescent outside, margin usually densely ciliate. Petiole slender, 8–20(–25) mm; leaf blade oblong-lanceolate to oblong-oblanceolate, 10–24 × 2–6 cm, usually ca. 16 × 4 cm, thickly papery, abaxially appressed sericeous or glabrous, adaxially glabrous, midrib abaxially conspicuously elevated, adaxially concave, lateral veins slender, 12–17 pairs, abaxially more con-

spicuous than adaxially, veinlets slightly conspicuous on both surfaces, sometimes foveolate adaxially, base cuneate, apex shortly acuminate. Panicles arising at base of 1-year-old branchlet, 5–18 cm, grayish yellow appressed sericeous or glabrate; peduncle 2.2–5 cm, branched ca. at middle. Pedicel 5–7(–9) mm, appressed sericeous. Flowers white, 5–6 mm. Perianth lobes appressed sericeous on both surfaces, outer ones more narrow. Stamens shorter than perianth, glabrous; glands of 3rd series stipitate. Ovary glabrous. Fruit subglobose, ca. 1 cm in diam. Fl. Apr, fr. Aug.

• Mountain slopes, open forests in valleys, mixed broad-leaved forests; 600–1400 m. W Gansu, N Guangxi, SE Guizhou, Hubei, S Hunan, S Shaanxi, Sichuan.

- 1a. Young leaf blade ± hairy abaxially; inflorescences 5–9 cm 42a. var. *ichangensis*
- 1b. Young leaf blade glabrous on both surfaces; inflorescences longer, 11–18 cm 42b. var. *leiophylla*

42a. *Machilus ichangensis* var. *ichangensis*

宜昌润楠(原变种) yi chang run nan (yuan bian zhong)

Persea ichangensis (Rehder & E. H. Wilson) Kostermans.

Young leaf blade ± hairy abaxially. Inflorescences 5–9 cm.

• Mountain slopes, open forests in valleys; 600–1400 m. W Gansu, Hubei, S Shaanxi, Sichuan.

42b. *Machilus ichangensis* var. *leiophylla* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 58: 146. 1921.

滑叶润楠 hua ye run nan

Young leaf blade glabrous on both surfaces. Inflorescences 11–18 cm.

• Mixed broad-leaved forests; 800–1000 m. N Guangxi, SE Guizhou, S Hunan.

43. *Machilus lichuanensis* W. C. Cheng ex S. K. Lee et al., Acta Phytotax. Sin. 17(2): 51. 1979.

利川润楠 li chuan run nan

Persea lichuanensis (W. C. Cheng ex S. K. Lee et al.) Kostermans.

Large trees, to 32 m tall; trunk ca. 1.2 m d.b.h. Branchlets lenticellate, branchlets and young shoot densely brownish villous; 1-year-old branchlet ferruginous tomentose. Terminal buds ovoid or ovoid-globose; bud scales ferruginous tomentose. Petiole slender, 1–1.3(–2) cm, densely brownish villous, glabrate later; leaf blade elliptic or narrowly oblanceolate, 7.5–11(–15) × 2–4(–5) cm, leathery, abaxially densely brownish villous initially, sparsely pubescent except for midrib and lateral veins later, adaxially sparsely brownish villous but densely villous along midrib and lateral veins when young, becoming glabrate to glabrous later, midrib elevated abaxially, concave adaxially, lateral veins 8–12 pairs, slightly conspicuous, base cuneate, apex shortly acuminate to acute. Cymose panicles on lower part of 1-year-old branchlet, 4–10 cm, branched at middle or

upper part of peduncle, densely brownish villous. Perianth lobes equal, ca. 4 mm, densely pubescent on both surfaces. Filaments glabrous. Infructescence 5–10 cm, puberulent. Fruit compressed globose, ca. 7 mm in diam. Fl. May, fr. Sep.

• Mountain slopes, mixed broad-leaved forests; ca. 800 m. Guangdong, N Guizhou, W Hubei, Hunan, Sichuan.

44. *Machilus minkweiensis* S. K. Lee, Acta Phytotax. Sin. 17(2): 52. 1979 [*“mikweiensis”*].

闽桂润楠 min gui run nan

Persea minkweiensis (S. K. Lee) Kostermans.

Trees, 5–14 m tall. Lower part of 1-year-old branchlet and shortened branchlet puberulent only, with sparse small lenticels. Buds small, densely dirty yellowish pubescent. Leaves congested on upper part of branchlet; petiole slender, 1.2–1.6(–2.2) cm, glabrous; leaf blade abaxially brownish, adaxially shiny, obovate or obovate-elliptic, 8–14 × 2.8–6.3 cm, thinly leathery, abaxially densely or sparsely pubescent, midrib elevated abaxially, concave adaxially, lateral veins 8–10 pairs, adaxially inconspicuous, veinlets slender, foveolate on both surfaces, base cuneate, apex shortly cuspidate or acute-acuminate, summit obtuse. Flowers unknown. Infructescences paniculate, arising from lower part of 1-year-old branchlet, 8–15 cm, puberulent, branched at upper part of peduncle; peduncle 4–8 cm. Fruit deep green when immature, globose, ca. 7 mm in diam.; persistent perianth lobes oblong, ca. 4 mm, outer ones shorter, puberulent on both surfaces; fruiting pedicel 6–8 mm. Fr. May.

Mountain slopes, open forests, mixed forests, valleys, streamsides. Fujian, Guangdong, Guangxi [Vietnam].

The spelling of the specific epithet, which derives from “闽桂” transliterated as “min kwei” (“min gui” in pinyin), meaning Fujian and Guangxi provinces, was corrected from “*mikweiensis*” to “*minkweiensis*” by S. K. Lee in FRPS (31: 48. 1982).

45. *Machilus fukienensis* Hung T. Chang ex S. K. Lee et al., Acta Phytotax. Sin. 17(2): 52. 1979.

闽润楠 min run nan

Persea fukienensis (Hung T. Chang ex S. K. Lee et al.) Kostermans.

Small trees, ca. 5 m tall. Branchlets pubescent; current year branchlets brownish tomentose. Terminal bud ferruginous tomentose. Leaves congested at apex of branchlet; petiole slender, 8–10 mm, pubescent; leaf blade elliptic to narrowly elliptic, 7–10.5 × 1.7–2.3 cm, thinly leathery, densely pubescent abaxially, puberulent becoming glabrate adaxially, midrib elevated abaxially, concave adaxially, lateral veins slender, 6–8 pairs, slightly conspicuous on both surfaces, veinlets densely reticulate, foveolate on both surfaces. Flowers unknown. Infructescences arising from lower part of 1-year-old branchlet, 7.5–11 cm, gray-white pubescent; peduncle 2.5–5 cm. Fruit 7–10 mm in diam.; persistent perianth lobes subequal, ca. 4 mm, pubescent on both surfaces; fruiting pedicel ca. 6 mm, gray-white pubescent. Fr. Jun.

• Hill slopes, thickets. Fujian.

46. *Machilus grandibracteata* S. K. Lee & F. N. Wei, Guihaia 4: 97. 1984.

大苞润楠 da bao run nan

Persea grandibracteata (S. K. Lee & F. N. Wei) Kostermans.

Trees, to 15 m tall. Branchlets terete, glabrous, older branchlet with leaf scars. Petiole ca. 1.5 cm, glabrous; leaf blade castaneous when dry, elliptic or obovate, 7–11 × 2–5 cm, thickly leathery, abaxially puberulent, adaxially glabrous, midrib adaxially concave, lateral veins 9–11 pairs, slender, visible on both surfaces, base cuneate, apex acute. Panicles terminal, ca. 6 cm, gray-white pubescent, many flowered; involucre bracts large, boat-shaped, 3–3.5 × 1.5–2 cm, densely appressed sericeous outside. Perianth lobes ovate, ca. 3 mm, sparsely pubescent on both surfaces. Filaments glabrous except for base; glands of 3rd series cordate, stipitate. Stamines sagittate, puberulent. Ovary ovoid; stigma capitate. Fruit unknown. Fl. Feb.

Mixed forests. SW Guangxi [Vietnam].

47. *Machilus longipes* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 1960(1): 20. 1960.

东莞润楠 dong guan run nan

Persea pedicellata Kostermans.

Shrubs, ca. 2 m tall. Young branchlets puberulent to glabrate. Petiole 6–10 mm; leaf blade abaxially slightly grayish white, oblong or narrowly elliptic, 10–15 × 2.5–4.8 cm, papery or thinly leathery, glabrous on both surfaces, lateral veins 7–9 pairs, visible on both surfaces, veinlets inconspicuous abaxially, somewhat conspicuous adaxially. Panicles on lower part of 1-year-old branchlet, 7–11 cm, hairy, branched at upper part of peduncle; peduncle 5–7 cm. Pedicel 8–12 mm. Flowers yellowish. Perianth lobes lanceolate, 4–5 mm, pubescent on both surfaces. Stamens shorter than perianth; glands of 3rd series stipitate. Stamines triangular. Ovary ovoid; style shorter than stamens. Fruit unknown. Fl. Mar.

• Guangdong (Dongguan).

48. *Machilus austroguizhouensis* S. K. Lee & F. N. Wei, Guihaia 4: 95. 1984 [*“austro-guizhouensis”*].

黔南润楠 qian nan run nan

Persea austroguizhouensis (S. K. Lee & F. N. Wei) Kostermans.

Trees, ca. 10 m tall. Branchlets glabrous. Winter buds ovoid; bud scales orbicular or ovate, densely appressed brownish sericeous. Petiole 1.5–3 cm, glabrous; leaf blade shiny on both surfaces, lanceolate or oblanceolate, 10–20 × 2–4(–5) cm, thickly leathery, glabrous on both surfaces, midrib thick, elevated abaxially, impressed adaxially, lateral veins 12–15 pairs, conspicuously elevated abaxially, base cuneate, apex caudate-acuminate. Infructescences arising from base of newly sprouted branchlet, ca. 5 cm. Fruit ovoid, ca. 1.5 cm × 8 mm; persistent perianth lobes subequal, oblong, 5–6 × ca. 2.5 mm, puberulent on both surfaces; fruiting pedicel ca. 8 mm,

thickened. Fr. Aug.

- Mountain slopes, mixed forests. Guangxi (Napo), Guizhou.

49. *Machilus kurzii* King ex J. D. Hooker, Fl. Brit. India 5: 860. 1890.

秀枝润楠 tu zhi run nan

Persea kurzii (King ex J. D. Hooker) Kostermans.

Trees. Branchlets and young leaves glabrous. Petiole slender, 5–15 mm; leaf blade glaucous abaxially, obovate or oblanceolate to oblong, thinly leathery, lateral veins 10–12 pairs, inconspicuous, base cuneate, apex acute to acuminate. Inflorescences densely filiform hairy. Perianth linear-oblong, filiform hairy on both surfaces. Filaments subglabrous. Fruit ca. 1.3 cm in diam.

Mountain slopes, evergreen broad-leaved forests; 1500–2000 m. Yunnan (Gongshan) [N Myanmar].

50. *Machilus chekiangensis* S. K. Lee, Acta Phytotax. Sin. 17(2): 53. 1979.

浙江润楠 zhe jiang run nan

Machilus longipedunculata S. K. Lee & F. N. Wei; *Persea chekiangensis* (S. K. Lee) Kostermans; *P. longipedunculata* (S. K. Lee & F. N. Wei) Kostermans.

Trees, 4–10 m tall. Bark brownish. Branchlets glabrous. Leaves usually congested at apex of branchlet; petiole 8–15 mm, glabrous; leaf blade oblanceolate or elliptic to elliptic-lanceolate, leathery, abaxially glabrous, rarely appressed puberulent, adaxially glabrous, midrib abaxially elevated, adaxially somewhat impressed, lateral veins 10–12 pairs, veinlets slender, slightly foveolate on both surfaces, base attenuate, apex usually abruptly cuspidate, rarely acuminate, summit obtuse. Panicles arising from base of newly sprouted branchlet, gray pubescent or glabrate, variable in length, 7–18 cm; peduncle (3–)5.5–11 cm, slender to lignescent. Flowers yellowish green, ca. 4 mm. Perianth lobes subequal to equal, oblong (when dry), ca. 4 × 1.2 mm, pubescent on both surfaces. Filaments glabrous or sparsely puberulent at base; glands of 3rd series sessile. Stamines sagittate, hairy at base. Ovary ovoid. Fruit globose, ca. 7 mm in diam.; persistent perianth gray pubescent on both surfaces; fruiting pedicel together with peduncle purplish red when fresh. Fl. Feb, fr. Apr–May.

- Mixed broad-leaved forests. Fujian, Hong Kong, Zhejiang.

51. *Machilus duthiei* King ex J. D. Hooker, Fl. Brit. India 5: 861. 1890.

长梗润楠 chang geng run nan

Persea duthiei (King ex J. D. Hooker) Kostermans.

Trees, usually 3–8 m tall, sometimes up to 30 m; trunk 25–30(–50) cm d.b.h. Branchlets glabrous. Petiole 1–2 cm, glabrous; leaf blade oblong or elliptic-lanceolate to obovate-lanceolate, 6.5–20 × 2.5–5 cm, leathery, abaxially slightly sericeous-puberulent when young, glabrous on both surfaces when old, midrib abaxially elevated, adaxially impressed, lateral veins 12–18 pairs, ± conspicuous on both surfaces, veinlets

slightly foveolate on both surfaces, base attenuate, apex acuminate to long acuminate, summit usually falcate. Cymose panicles arising from lower part of current year branchlet, 5–13 cm; peduncle 3–6 cm, sericeous-puberulent. Pedicel 8–12 mm. Flowers yellowish green, 6–7 mm. Perianth lobes oblong, sericeous-puberulent on both surfaces. Filaments of perfect stamens pubescent at base; glands of 3rd series stipitate. Stamines ca. 2.5 mm, pubescent. Ovary globose, glabrous; style slender, to 3.5 mm. Fruit globose, ca. 7 mm in diam.; fruiting pedicel puberulent. Fl. May–Jun, fr. Aug–Oct.

Mountain valleys, mixed forests. SW Sichuan, S Xizang, C and NW Yunnan [Bhutan, India, Kashmir, Nepal].

This species was misidentified in FRPS (31: 49. 1982) as *Machilus longipedicellata* Lecomte. The present authors treat *M. longipedicellata* as a synonym of *M. yunnanensis* var. *yunnanensis*.

52. *Machilus fasciculata* H. W. Li, Acta Phytotax. Sin. 17(2): 53. 1979.

簇序润楠 cu xu run nan

Persea fasciculata (H. W. Li) Kostermans.

Shrubs to small trees, 3–10 m tall. Current year branchlets ± angular, longitudinally striate, yellowish brown puberulent. Petiole 0.5–1 cm, slightly yellowish brown puberulent; leaf blade abaxially farinose green, variable in shape, ovate, elliptic to oblong, or sublanceolate, 6–15 × 1.7–5(–6.5) cm, subleathery, abaxially yellowish brown appressed puberulent, midrib abaxially conspicuously elevated, adaxially concave, lateral veins 7–12 pairs, veinlets visible, base cuneate, apex shortly acuminate, sometimes acute or obtuse. Panicles terminal, short, 1.5–3(–6) cm, sericeous-puberulent; involucral bracts usually persistent in flowering stage, broadly ovate or suborbicular, densely yellowish brown sericeous-puberulent, apex obtuse. Pedicel 3–4 mm, yellowish brown puberulent. Flowers light green or yellowish. Perianth lobes subequal, ovate-oblong, hairy on both surfaces. Stamens yellowish brown pubescent at base; glands of 3rd series shortly stipitate. Stamines hairy. Ovary subglobose; style longer than ovary. Fruit unknown. Fl. Feb.

• Evergreen mixed broad-leaved forests; ca. 1000 m. SW Guangxi, SE Yunnan.

53. *Machilus foonchewii* S. K. Lee, Acta Phytotax. Sin. 8: 183. 1963.

琼桂润楠 qiong gui run nan

Persea foonchewii (S. K. Lee) Kostermans.

Trees, up to 12 m tall. Bark brownish or brownish red. Branchlets brownish or gray-brown, glabrous. Terminal buds ovoid or globose; bud scales densely puberulent outside, margin ciliate, apex suborbicular. Leaves usually congested at apex of branchlet; petiole slender, 5–10 mm, glabrous; leaf blade abaxially glaucous or gray-blue, obovate-elliptic to oblanceolate, 4–10 × 2–4 cm, leathery, abaxially glabrate, adaxially glabrous, midrib abaxially conspicuously elevated, adaxially concave, lateral veins 8–12 pairs, foveolate on both surfaces, base cuneate, slightly decurrent, apex obtuse or shortly acute-acuminate. Panicles terminal, ca. 1 cm, sometimes almost fasciculate. Pedi-

cel ca. 5 mm, upper half sericeous. Flowers green or greenish yellow, ca. 3 mm. Perianth lobes subequal, puberulent on both surfaces. Stamens 2–3 mm, those of 1st and 2nd series glabrous, those of 3rd series hairy at base, with shortly stipitate glands. Staminodes sagittate. Ovary glabrous; stigma dishlike. Fruit globose, ca. 1 cm in diam.; persistent perianth slightly enlarged; fruiting pedicel reddish when fresh, sparsely sericeous. Fl. Oct, fr. Oct–Dec.

- Valleys, thickets. Guangxi, Hainan.

54. *Machilus shiwandashanica* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 1960(1): 19. 1960.

十万大山润楠 shi wan da shan run nan

Persea shiwandashanica (Hung T. Chang) Kostermans.

Shrubs, ca. 1.6 m tall. Young branchlets glabrous, older branchlets gray-brown. Petiole compressed, 6–10 mm; leaf blade castaneous when dry, obovate-oblong or oblong-oblancoolate, 5–13 × 2–5.5 cm, leathery, glabrous on both surfaces or abaxially puberulent when young, midrib abaxially elevated, adaxially impressed, lateral veins 7–9(–11) pairs, together with reticulate veinlets most conspicuous, foveolate on both surfaces, base attenuate, apex acuminate. Inflorescences terminal, umbel-like, 1–1.5 cm, glabrous, with 2–7 flowers; peduncle short, 1–4 mm. Pedicel 5–10 mm. Perianth lobes equal, oblong or lanceolate, ca. 4 mm, pubescent on both surfaces. Stamens ca. 3 mm; filaments of 3rd series hairy at base, with shortly stipitate glands. Staminodes triangular, glabrous. Ovary glabrous; style slender; stigma somewhat enlarged. Fruit unknown. Fl. Oct.

- Thickets. SW Guangxi.

This is a rare and endangered species apparently known only from the type gathering.

55. *Machilus pyramidalis* H. W. Li, Acta Phytotax. Sin. 17(2): 53. 1979.

塔序润楠 ta xu run nan

Persea pyramidalis (H. W. Li) Kostermans.

Shrubs or small trees, to 3 m tall. Terminal bud small, ovoid, ca. 5 mm; bud scales ovate or broadly ovate, golden yellow puberulent outside. Branchlets thick, terete, lenticellate, puberulent, later glabrate. Petiole 1–1.5 cm, slightly puberulent; leaf blade elliptic to oblong, 6–10 × 2–4 cm, leathery, abaxially slightly puberulent along midrib or glabrate, adaxially glabrous, midrib abaxially elevated, adaxially concave, lateral veins 6–8 pairs, conspicuous on both surfaces, veinlets foveolate on both surfaces, base cuneate, apex shortly acute-acuminate. Panicle subterminal, 5–8 cm, composed of 1–3-flowered cymes, pubescent, basal ramifications longest, 3.5–4.5 cm, gradually shorter toward inflorescence apex, pyramid-shaped, without peduncle. Perianth lobes oblong, outer ones smaller, inner ones longer, ca. 5 × 3 mm. Stamens pubescent at base only, those of 1st and 2nd series slightly short, those of 3rd series somewhat longer; glands shortly stipitate, sparsely hairy at base. Ovary subglobose; stigma as long as ovary. Fruit (immature) globose, ca. 5 mm in diam.; fruiting pedicel thickened,

summit to 2.5 mm in diam. Fr. Jun–Jul.

- Mountaintops, open forests. SE Yunnan.

56. *Machilus versicolora* S. K. Lee & F. N. Wei, Guihaia 4: 98. 1984.

黄枝润楠 huang zhi run nan

Persea versicolora (S. K. Lee & F. N. Wei) Kostermans.

Trees, to 30 m tall; trunk to 1 m d.b.h. Branchlets glabrous, yellowish or yellowish brown, conspicuously lenticellate. Petiole 1–2.5 cm, glabrous; leaf blade elliptic, 9–15 × 2.5–4.5 cm, leathery, abaxially appressed pubescent, adaxially glabrous, midrib abaxially elevated, adaxially concave, lateral veins 8–13 pairs, slender, conspicuous abaxially, base narrowly cuneate, apex acuminate. Inflorescences terminal, to 10 cm, usually 5–8 cm, puberulent. Perianth lobes ovate or suboblong, apex obtuse, pubescent on both surfaces, unequal, outer ones somewhat short, ca. 4 × 2 mm, inner ones ca. 5 × 2.2 mm. Filaments of 1st and 2nd series glabrous except for base; glands of 3rd series stipitate, hairy. Staminodes sagittate, hairy. Ovary ovoid; style slender. Fruit compressed globose, ca. 1 cm in diam.; fruiting pedicel slightly thickened, pubescent. Fl. Mar–Apr, fr. Jul–Aug.

- Mountain slopes or valleys, mixed forests. Fujian, Guangdong, Guangxi, Hunan, Jiangxi.

57. *Machilus daozenensis* Y. K. Li, Acta Phytotax. Sin. 22: 77. 1984.

道真润楠 dao zhen run nan

Trees, ca. 16 m tall; trunk ca. 80 cm d.b.h. Bark opaque brownish, dehiscent. Branchlets slender, hairy. Petiole 1–2.2 cm, pubescent; leaf blade narrowly lanceolate, 6.5–15 × 1.9–3.5 cm, thinly leathery, abaxially yellowish brown pubescent, adaxially glabrous, midrib abaxially elevated, lateral veins 10–15 pairs, together with veinlets adaxially concave, base cuneate, apex acuminate. Panicles subterminal, 5–12 cm, branched at above middle of peduncle, densely pubescent. Pedicel 5–6 mm. Perianth lobes oblong, 4–5 × ca. 1.6 mm, unequal, inner ones longer, densely pubescent on both surfaces. Stamens 3–3.5 mm; filaments sparsely white pubescent; glands of 3rd series stipitate. Ovary glabrous. Inflorescences to 14 cm, pubescent. Fruit purple-black, compressed globose, 9–11 mm in diam.

- Mixed forests. Guizhou (Daozhen).

58. *Machilus glaucescens* (Nees) Wight, Icon. Pl. Ind. Orient. 5(2): 12. 1852.

柔毛润楠 rou mao run nan

Ocotea glaucescens Nees in Wallich, Pl. Asiat. Rar. 2: 71. 1831; *Laurus villosa* Roxburgh; *Machilus villosa* (Roxburgh) J. D. Hooker, nom. superfl.; *Persea glaucescens* (Nees) D. G. Long; *P. villosa* (Roxburgh) Kostermans; *Phoebe glaucescens* (Nees) Nees; *P. villosa* (Roxburgh) Wight.

Medium-sized to large trees, 8–22 m tall; trunk to 25 cm d.b.h. Branchlets blackish brown, first densely dirty yellowish pubescent, becoming glabrate, longitudinally striate. Petiole 5–20 mm, pubescent; leaf blade elliptic, elliptic-lanceolate to

narrowly lanceolate, or oblanceolate, (6–)8.5–16(–21.5) × (1.5–)2.5–5.5 cm, leathery, abaxially densely yellowish brown pubescent and adaxially sparsely pubescent when young, abaxially sparsely pubescent and adaxially glabrate when old, midrib and lateral veins abaxially elevated, adaxially concave, lateral veins 6–8(–10) pairs, veinlets abaxially visible, somewhat foveolate. Cymose panicles subterminal, usually longer than leaf blade, (6.5–)11–18 cm, densely yellowish brown pubescent, branched at upper part of peduncle. Pedicel 3–10 mm. Flowers yellowish. Perianth lobes subequal, ovate or broadly ovate, densely yellowish brown pubescent on both surfaces. Stamens subequal, ca. 3 mm, pubescent; glands of 3rd series stipitate. Staminodes hairy. Ovary subglobose. Fruit globose, to 9 mm in diam.; fruiting pedicel somewhat thickened. Fl. Jan–Feb, fr. Mar.

Mountain valleys or slopes, open or dense forests. W Yunnan [Bangladesh, Bhutan, India, Myanmar, Nepal].

59. *Machilus glaucifolia* S. K. Lee & F. N. Wei, *Guihaia* 4: 98. 1984.

粉叶润楠 fen ye run nan

Machilus lipoensis C. S. Chao ex X. H. Song; *Persea glaucifolia* (S. K. Lee & F. N. Wei) Kostermans.

Trees, ca. 9 m tall. Branchlets slender, pubescent. Petiole 5–12 mm, glabrous; leaf blade abaxially glaucous, elliptic to ovate-elliptic, 8–12 × 2.5–4 cm, leathery, abaxially sparsely pubescent, adaxially glabrous, midrib abaxially elevated, adaxially impressed, lateral veins 8–10 pairs, slender, elevated on both surfaces, veinlets densely foveolate on both surfaces, base attenuate, apex acuminate. Panicles terminal or subterminal, ca. 5 cm, pubescent. Perianth lobes equal, ovate-oblong, ca. 5 × 2.5 mm, sparsely pubescent, apex obtuse. Fruit compressed globose, ca. 1 cm in diam.; fruiting pedicel ca. 6 mm, pubescent. Fr. Jun.

• Mountain slopes, mixed broad-leaved forests. NW Guangxi, SW Guizhou.

60. *Machilus submultinervia* Y. K. Li, *Acta Phytotax. Sin.* 22: 78. 1984.

册亨润楠 ce heng run nan

Machilus pachyclada D. Fang.

Trees, ca. 15 m tall. Branchlets thick, glabrous. Petiole 2–2.5 cm, glabrous; leaf blade lanceolate to oblong, rarely oblanceolate to elliptic-oblong, (11–)13–19(–29) × 2.5–4.5(–7.5) cm, leathery, abaxially sericeous-puberulent, adaxially glabrous, midrib thick, abaxially elevated, adaxially concave, lateral veins 15–18 pairs, base cuneate, apex acuminate. Flowers unknown. Infructescences paniculate, subterminal, 4–10 cm; peduncle thick, branched at below middle. Fruit globose, 8–15 mm in diam.; persistent perianth lobes narrowly oblong, subequal, ca. 5 × 2 mm, sericeous-puberulent on both surfaces; fruiting pedicel 5–7 mm.

• Mixed forests. W Guangxi, SW Guizhou.

61. *Machilus mangdangshanensis* Q. F. Zheng, *Fl. Fujian*. 2: 393. 1985.

茫荡山润楠 mang dang shan run nan

Shrubs or small trees. One-year-old branchlets purplish brown; older branchlets blackish brown, glabrous. Petiole 1.4–2.6 cm, glabrous; leaf blade obovate-elliptic or oblanceolate-elliptic, 12–20 × 4–7 cm, thinly leathery, abaxially sparsely gray-yellow sericeous-puberulent to glabrate, adaxially glabrous, midrib elevated abaxially, concave adaxially, lateral veins 10–12 pairs, veinlets foveolate on both surfaces. Panicles terminal, 5–8 cm, gray-yellow pubescent, branched nearly at top of peduncle. Pedicel 4–5 mm. Flowers greenish yellow. Perianth lobes oblong, 6–7 × ca. 4 mm, outer ones more narrow, gray-yellow sericeous-puberulent on both surfaces. Stamens glabrous; glands of 3rd series stipitate. Staminodes sagittate. Ovary ovoid-globose; style longer than ovary. Fruit globose, 8–12 mm in diam.; persistent perianth lobes ca. 7 × 4 mm; fruiting pedicel ca. 5 mm.

• Mixed mountain forests. Fujian.

62. *Machilus cicatricosa* S. K. Lee, *Acta Phytotax. Sin.* 8: 182. 1963.

刻节润楠 ke jie run nan

Persea cicatricosa (S. K. Lee) Kostermans.

Trees, to 15 m tall; trunk to 35 cm d.b.h. Bark gray-brown. Branchlets black-brown, with conspicuous bud scale scars, glabrous. Bud scales gray-brown, sericeous-puberulent on center, glabrous near margin. Petiole slender, 1–1.6 cm; leaf blade elliptic to oblanceolate, 5–10.5 × 1.5–2.8 cm, thinly leathery, abaxially sparsely gray-white sericeous to glabrate, adaxially glabrous, midrib abaxially raised, adaxially concave, lateral veins slender, 12–14 pairs, inconspicuous, reticulate veinlets slender, slightly foveolate, base cuneate, apex acute or shortly acuminate. Panicles 2–4.5 cm, gray puberulent, branched near top of peduncle. Pedicel ca. 3 mm, sericeous-puberulent. Flowers green, fragrant. Perianth lobes subequal, densely gray-white sericeous. Stamens hairy at base; glands of 3rd series subsessile. Staminodes sagittate, hairy. Ovary globose. Fruit oblong, ca. 12 × 8 mm. Fl. May, fr. Jul–Oct.

Mixed broad-leaved forests. Hainan [Vietnam].

63. *Machilus miaoshanensis* F. N. Wei & C. Q. Lin, *Guihaia* 8: 305. 1988.

苗山润楠 miao shan run nan

Trees, ca. 15 m tall. Branchlets deeply castaneous, subterete, glabrous or glabrate, longitudinally striate when dry. Buds ovoid, sericeous. Petiole 1–1.5 cm, glabrous; leaf blade obovate or elliptic, 6–9 × 3.5–4.5 cm, thinly leathery, glabrous on both surfaces or pubescent abaxially, midrib elevated abaxially, concave adaxially, lateral veins slender, 6–9 pairs, somewhat conspicuous on both surfaces, veinlets foveolate, visible on both surfaces, base broadly cuneate, apex acute or acuminate. Panicles numerous, terminal or subterminal, 4–5 cm, gray pubescent. Perianth lobes ovate or elliptic, 3–3.5 × ca. 2 mm, inner ones long hairy. Filaments of 3rd series with stipitate

glands. Ovary subovoid. Surviving infructescences ca. 9 cm. Persistent perianth lobe conspicuously reflexed. Fl. Oct.

- Dense mountain forests. N Guangxi.

64. *Machilus salicina* Hance, J. Bot. 23: 327. 1885.

柳叶润楠 liu ye run nan

Machilus salicina var. *glabra* C. K. Allen ex Tanaka & Odashima; *Persea salicina* (Hance) Kostermans.

Shrubs, usually 3–5 m tall. Branchlets brownish, glabrous. Petiole 7–15 mm, glabrous; leaf blade narrowly lanceolate, 4–12(–16) × 1–2.5(–3.2) cm, thinly leathery, glabrous on both surfaces or abaxially appressed puberulent when young, midrib raised abaxially, plane adaxially, lateral veins 6–8(–11) pairs, inconspicuous or somewhat conspicuous on both surfaces, veinlets slightly foveolate, base attenuate, apex acuminate. Cymose panicles usually 3 cm, glabrous or sometimes puberulent. Pedicel 2–5 mm. Flowers yellowish. Perianth lobes oblong, sericeous on both surfaces. Stamens hairy at base; glands of 3rd series pubescent. Ovary subglobose. Infructescences 3.5–7.5 cm, sometimes to 14 cm, as long as leaf blade. Fruit globose, 7–10 mm in diam., purple-black when mature; fruiting pedicel reddish when fresh. Fl. Feb–Mar, fr. Apr–Jun.

Streamsides and riversides of low elevations. Guangdong, Guangxi, S Guizhou, Hainan, S Yunnan [Cambodia, Laos, Vietnam].

65. *Machilus parabreviflora* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 1960(1): 17. 1960.

赛短花润楠 sai duan hua run nan

Shrubs, ca. 2 m tall. Branchlets glabrous. Terminal buds ovoid; bud scales densely yellowish brown appressed pubescent outside. Petiole 6–10 mm; leaf blade abaxially gray-white or yellowish brown, adaxially shiny when dry, narrowly oblanceolate, 6–11(–12) × 1–2(–2.7) cm, leathery, glabrous on both surfaces, midrib abaxially elevated, veinlets invisible on both surfaces. Panicles subterminal, 2–4 cm, glabrous or puberulent; peduncle 1–3 cm. Pedicel 3–5 mm. Perianth lobes conspicuously unequal, outer ones much shorter, puberulent on both surfaces. Stamens ca. 2 mm; filaments of 3rd series pubescent, with 2 sessile glands at base. Stamines sagittate, shortly stipitate. Ovary glabrous. Fruit globose, ca. 8 mm in diam.

- Lowland forests. S Guangxi.

66. *Machilus breviflora* (Benth) Hemsley, J. Linn. Soc., Bot. 26: 374. 1891.

短序润楠 duan xu run nan

Alseodaphne breviflora Benth, Fl. Hongk. 292. 1861; *Persea breviflora* (Benth) Pax.

Trees, ca. 8 m tall. Bark gray-brown. Branchlets glabrous. Terminal buds ovoid, ca. 5 mm; bud scales tomentose. Petiole 3–5 mm or less; leaf blade obovate to obovate-lanceolate, 4–5 × 1.5–2 cm, rarely more, glabrous on both surfaces, midrib raised abaxially, concave adaxially, lateral veins and veinlets slender, almost invisible, base attenuate, apex obtuse. Panicles terminal, 2–5 cm. Flowers green-white, 7–9 mm. Perianth lobes some-

what unequal, outer ones smaller, persistent in fruiting stage. Stamens slightly unequal in length, those of 1st and 2nd series ca. 2 mm, those of 3rd series longer; glands shortly stipitate. Stamines sagittate, stalked; stalk pubescent. Fruit globose, 8–10 mm in diam. Fl. Jul–Aug, fr. Oct–Dec.

- Mountain slopes or valleys, mixed broad-leaved forests, stream-sides. Guangdong, Guangxi, Hainan.

67. *Machilus chinensis* (Benth) Hemsley, J. Linn. Soc., Bot. 26: 374. 1891.

华润楠 hua run nan

Alseodaphne chinensis Benth, Hooker's J. Bot. Kew Gard. Misc. 5: 198. 1853; *Persea chinensis* (Benth) Pax.

Trees, 8–11 m tall. Branchlets glabrous. Terminal buds small; bud scales glabrous or sometimes with hairs. Petiole 6–14 mm; leaf blade obovate-oblong to oblong-oblong, 5–8(–10) × 2–3(–4) cm, leathery, glabrous on both surfaces, midrib raised abaxially, concave adaxially, lateral veins ca. 8 pairs, reticulate veinlets foveolate on both surfaces, base attenuate, apex obtuse or shortly acuminate. Panicles usually terminal, ca. 3.5 cm, shorter than leaf blade, with 5–10 flowers, branched at upper part of peduncle. Pedicel ca. 3 mm. Flowers white. Perianth lobes slightly unequal, 3.5–4 × 1.8–2.5 mm, puberulent on both surfaces or sometimes glabrate outside. Stamens ca. 3.5 mm; glands of 3rd series almost sessile. Stamines hairy. Ovary globose. Fruit globose, 8–11 mm in diam.; perianth lobes caducous, rarely persistent in fruiting stage. Fl. Sep, fr. Feb.

Mountain slopes, open or dense mixed broad-leaved forests. Guangdong, Guangxi, Hainan [Vietnam].

68. *Machilus lenticellata* S. K. Lee & F. N. Wei, Guihaia 4: 97. 1984.

疣序润楠 you xu run nan

Persea lenticellata (S. K. Lee & F. N. Wei) Kostermans.

Trees, up to 14 m tall. Branchlets slender, terete, glabrous. Petiole 5–10 mm, glabrous; leaf blade abaxially gray-white, elliptic-oblong, 7–11 × 2–3.5 cm, leathery, glabrous on both surfaces, midrib elevated abaxially, somewhat impressed or flat adaxially, lateral veins 10–13 pairs, thin, slightly visible on both surfaces, base attenuate, slightly decurrent, margin revolute. Infructescences usually terminal, ca. 4.5 cm, sparsely pubescent, conspicuously lenticellate. Fruit globose, 6–7 mm in diam.; persistent perianth lobes oblong, ca. 5 × 2.5 mm, pubescent on both surfaces. Fr. Dec.

- Mountain slopes, mixed broad-leaved forests. Guangxi (Pingnan, Zhaoping).

69. *Machilus tenuipilis* H. W. Li, Acta Phytotax. Sin. 17(2): 54. 1979.

细毛润楠 xi mao run nan

Persea tenuipilis (H. W. Li) Kostermans.

Trees, 8–20 m tall. One-year-old branchlets terete, gray-brown, with lenticels and large leaf scars, glabrous; current year shoots sparsely puberulent. Petiole 5–15 mm, glabrous; leaf

blade elliptic to oblong, 5.5–15 × 2–4.5 cm, firmly papery, glabrous on both surfaces, midrib raised abaxially, concave adaxially, lateral veins 8–12 pairs, slender, almost invisible on both surfaces, base cuneate, margin revolute, apex shortly acuminate. Panicles subterminal, 5.5–8(–11) cm, few flowered, yellowish puberulent; peduncle 2.5–3.5(–7) cm; bracts and bracteole densely yellowish puberulent. Flowers green-white, ca. 4.5 mm. Perianth lobes subequal, ovate-oblong, pale yellow puberulent on both surfaces, apex obtuse. Stamens sparsely white pubescent; glands of 3rd series shortly stipitate. Staminodes triangular-sagittate; stalks sparsely white pubescent. Ovary subglobose, glabrous. Fruit globose, 7–10 mm in diam., blue-black when mature; persistent perianth lobes membranous; fruiting pedicel thickened, ca. 2 mm in diam. Fl. Mar–Apr, fr. Aug–Sep.

- Mountains, open forests or thickets; 1400–2400 m. SW Yunnan.

70. *Machilus reticulata* K. M. Lan, Fl. Guizhou. 2: 674. 1986.

网脉润楠 wang mai run nan

Trees, 5–6 m tall. Branchlets glabrous, black-brown when dry. Petiole 1–2 cm; leaf blade oblong or oblong-lanceolate, 10–15.5 × 3–3.7 cm, rarely to 4 cm wide, leathery, glabrous on both surfaces, midrib elevated abaxially, flat or somewhat impressed adaxially, lateral veins 10 or 11 pairs, raised on both surfaces, veinlets slender, densely foveolate on both surfaces, base cuneate, apex long acuminate. Panicles terminal to subterminal, composed of 3–5-flowered cymes, 4–6.5 cm, yellowish white pubescent. Pedicel 1–2 mm, hairy. Flowers small. Perianth lobes oblong, ca. 2 mm, densely yellowish white pubescent outside, villous inside toward apex. Stamens ca. 2 mm, hairy at base; glands of 3rd series sessile. Staminodes sagittate. Ovary glabrous. Fruit not seen.

- Mountain slopes, broad-leaved forests. SW Guizhou.

71. *Machilus melanophylla* H. W. Li, Acta Phytotax. Sin. 17(2): 54. 1979.

暗叶润楠 an ye run nan

Persea melanophylla (H. W. Li) Kostermans.

Trees, ca. 15 m tall. Branchlets brownish, usually mixed with black spots, first yellowish brown puberulent, glabrate after. Buds small, densely yellowish brown tomentose. Petiole 1–1.2 cm, somewhat yellowish brown puberulent; leaf blade elliptic, 8–13 × 2.5–5 cm, leathery, sparsely yellowish puberulent abaxially, glabrous adaxially, midrib elevated abaxially, concave adaxially, lateral veins 8–10 pairs, raised abaxially, flat adaxially, veinlets densely reticulate, abaxially conspicuous, adaxially inconspicuous, base cuneate, apex shortly acuminate, summit obtuse. Panicles subterminal, 3.5–9 cm, branched at or above middle of peduncle, densely yellowish brown puberulent; peduncle 2.5–4 cm. Flowers not seen. Fruit ovoid-globose, ca. 2.2 × 1.8 cm; persistent perianth lobes unequal, apex acute, outer ones ca. 5 × 2 mm, inner ca. 8 × 1.8 mm, yellowish brown puberulent; fruiting pedicel thickened, ca. 2 mm in diam.

- Secondary forests, moist places. S Yunnan.

72. *Machilus bonii* Lecomte, Nouv. Arch. Mus. Hist. Nat., sér. 5, 5: 58, 102. 1913.

枇杷叶润楠 pi pa ye run nan

Persea bonii (Lecomte) Kostermans.

Trees, to 20 m tall. Branchlets somewhat angular, ± compressed when young, glabrous. Petiole 1–1.5 cm, glabrous; leaf blade obovate or oblanceolate, rarely narrowly obovate, 13–24 × 5.5–8(–10) cm, subleathery, ± densely yellowish brown pubescent abaxially, glabrous adaxially, midrib elevated abaxially, concave adaxially, lateral veins 14–16 pairs or more, abaxially raised, adaxially subflat, veinlets slightly densely reticulate, base cuneate, apex shortly acuminate. Inflorescences subterminal, 4–10 cm, ± yellowish brown pubescent; peduncle 2.5–4 cm; bracts sublanceolate, 7–10 × 3–4 mm, densely yellowish brown pubescent outside, glabrous inside. Perianth lobes unequal, hairy on both surfaces, outer ones smaller, ca. 5 × 1.5 mm, inner ones ca. 7 × 3 mm. Stamens hairy at base; glands of 3rd series shortly stipitate. Staminodes triangular-sagittate. Ovary glabrous. Fruit suboblong, ca. 2.8 × 1 cm. Fl. Apr, fr. Oct.

Limestone hills or acidic soil in sparse mountain forests; 800–1200 m. NW and SW Guangxi, SW Guizhou, SE Yunnan [Vietnam].

73. *Machilus viridis* Handel-Mazzetti, Symb. Sin. 7: 253. 1931.

绿叶润楠 lü ye run nan

Persea viridis (Handel-Mazzetti) Kostermans.

Small to large trees, 5–25 m tall; trunk 20 cm d.b.h. or more. Bark blackish gray or blackish gray-brown. Branchlets angular, slightly sericeous, becoming glabrate. Bud scales dirty yellowish sericeous. Petiole slender, 1–1.8 cm, somewhat sericeous; leaf blade glaucous abaxially when old, narrowly lanceolate, 7–17 × 1.8–3.5 cm, thinly leathery, densely golden yellow sericeous on both surfaces when young, becoming puberulent to glabrate, midrib elevated abaxially, slightly concave adaxially, lateral veins 5–10 pairs, veinlets densely foveolate on both surfaces, base cuneate, margin slightly revolute, apex usually long acuminate, occasionally obtuse. Panicles arising from base of young branchlet, 3–5 cm, with 3–6 flowers; peduncle 1.5–2.5(–4.5) cm; bracts and bracteoles sericeous. Pedicel as long as flower. Flowers pale yellow or yellowish green. Perianth lobes oblong, pubescent on both surfaces, outer ones smaller. Stamens subequal, those of 3rd series hairy at base; glands long stipitate. Staminodes villous at base. Ovary ca. 5 mm, glabrous. Fruit globose, 1.3–1.5 cm in diam., black or black-purple when mature; summit of fruiting pedicel ca. 2 mm in diam. Fl. May–Jun, fr. Sep–Nov.

- Mountain slopes or valleys, *Tsuga* forests, mixed broad-leaved forests, thickets; 2500–3000 m. SW Sichuan, NW Yunnan.

74. *Machilus rufipes* H. W. Li, Acta Phytotax. Sin. 17(2): 55. 1979.

红梗润楠 hong geng run nan

Persea rufipes (H. W. Li) Kostermans.

Trees, 10–25(–30) m tall; trunk to 40 cm d.b.h. Bark brownish. Branchlets gray-brown, thick, glabrous. Buds small, globose, ca. 7 mm wide; bud scales broadly ovate or suborbicular, apex slightly emarginate, densely yellowish brown pubes-

cent outside, margin long ciliate. Petiole 5–15 mm, glabrous; leaf blade abaxially pale green or glaucous, oblong, 8.5–20 × 1.5–4 cm, subleathery, abaxially densely golden yellow villous and adaxially glabrous when young, glabrous on both surfaces when old, midrib elevated abaxially, concave adaxially, lateral veins (15 or) 16–22 pairs, slightly conspicuous on both surfaces, veinlets inconspicuous, base cuneate, apex shortly or nearly long acuminate. Panicles 3.5–10 cm, composed from 1–3-flowered cymes; peduncle 1.5–3.3 cm, glabrous or glabrate. Pedicel to 6 mm. Flowers large, to 9 mm. Perianth lobes oblong, densely yellow-brown pubescent, outer ones smaller, 6–6.5 × ca. 2.5 mm, inner ones larger, ca. 7 × 3 mm. Stamens hairy, 5–5.2 mm; glands of 3rd series stipitate. Staminodes ca. 2 mm. Ovary ovoid, ca. 2 mm, glabrous. Fruit globose, 1.5–2(–2.7) cm, glabrous, purple-black when mature; fruiting pedicel enlarged to 3 mm in diam. Fl. Mar–Apr, fr. May–Sep.

• Mountain ridges, mossy forests, evergreen broad-leaved forests; 1500–2000 m. SE Xizang, S and SE Yunnan.

75. *Machilus oculodracontis* Chun, Acta Phytotax. Sin. 2: 168. 1953.

龙眼润楠 long yan run nan

Persea oculodracontis (Chun) Kostermans.

Trees, 10–18 m tall. Young branchlets and leaf blade puberulent; current year branchlets with conspicuous lenticels. Petiole 1–1.5 cm; leaf blade elliptic-oblancoolate or elliptic-lan- ceolate, 11–16 × 2–4 cm, midrib elevated abaxially, impressed adaxially, lateral veins 10–12 pairs, distant, veinlets densely reticulate, foveolate, base cuneate, decurrent, apex obtuse to broadly acute. Inflorescences arranged at apex of branchlet, sometimes solitary, 3–10.5 cm, farinaceous-puberulent. Pedicel slender, ca. 8 mm. Flowers yellowish green, ca. 6 mm. Perianth lobes oblong-elliptic, slightly unequal, puberulent on both surfaces. Stamens hairy at base; glands of 3rd series stipitate. Staminodes triangular-ovoid. Ovary ovoid, glabrous. Fruit glo-bose, 1.8–2 cm in diam., blue-black when mature; fruiting pedi- cel ca. 5 mm, slightly enlarged. Fr. Oct–Dec.

• Mixed broad-leaved forests. Guangdong, S Jiangxi.

76. *Machilus monticola* S. K. Lee, Acta Phytotax. Sin. 8: 185. 1963.

尖峰润楠 jian feng run nan

Persea monticola (S. K. Lee) Kostermans.

Trees, up to 20 m tall. Branchlets gray-brown, glabrous. Leaves subopposite or subverticillate; petiole 1–1.2 cm, gla- brous; leaf blade obovate, obovate-elliptic, or elliptic, 6–12.5 × 2–5.6 cm, leathery, glabrous on both surfaces, abaxially slightly glaucous, midrib abaxially raised, concave adaxially, lateral veins 5–7 pairs, veinlets inconspicuous on both surfaces, base attenuate, apex obtuse or subrounded. Panicles terminal, 2–7.5 cm, branched at middle of peduncle. Pedicel slender, 4–6 mm. Flowers white. Perianth lobes unequal, ovate, sparsely puber- ulent outside, densely pubescent inside. Stamens subequal. Sta- minodes triangular. Ovary ovoid, ca. 1 mm; style as long as ovary. Fruit globose, ca. 2 cm in diam.; fruiting pedicel ca. 5 mm, slightly enlarged. Fl. Oct, fr. Dec.

• Mountain valleys, mixed broad-leaved forests. Hainan.

77. *Machilus velutinoides* S. K. Lee & F. N. Wei, Guihaia 4: 101. 1984.

东兴润楠 dong xing run nan

Persea velutinoides (S. K. Lee & F. N. Wei) Kostermans.

Shrubs, ca. 1 m tall. Branchlets blackish, gray-black to- mentose. Petiole 3–4 cm, black or gray-brown tomentose; leaf blade oblanceolate, 14–17 × 4–5 cm, abaxially densely gray- brown tomentose, adaxially glabrous, midrib raised abaxially, concave adaxially, lateral veins 11–17 pairs, conspicuously ele- vated abaxially, veinlets inconspicuous, base cuneate, apex cau- date-acuminate. Inflorescences terminal, ca. 2.2 cm, with a few flowers; peduncle 1–1.2 cm. Pedicel 8–10 mm, gray-black to- mentose or pubescent. Perianth lobes subequal, oblong, 5–6 × ca. 3 mm, sparsely pubescent on both surfaces. Fruit com- pressed globose, ca. 3.5 cm in diam.; fruiting pedicel slightly enlarged. Fr. Apr.

• Mountain slopes, mixed broad-leaved forests. S Guangxi.

78. *Machilus shweliensis* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 170. 1921.

瑞丽润楠 rui li run nan

Persea shweliensis (W. W. Smith) Kostermans.

Shrubs to trees, 9–12 m tall. Branchlets blackish, glabrous, longitudinally striate. Petiole 1.5–1.8 cm; leaf blade abaxially glaucous-green, elliptic or elliptic-oblancoolate, usually 11–18 × 2.5–6 cm, leathery, glabrous on both surfaces, midrib con- spicuously raised abaxially, concave adaxially, lateral veins 16– 20 pairs, conspicuous on both surfaces, veinlets densely retic- ulate, slightly conspicuous or not, base cuneate, apex shortly acuminate. Inflorescences 6 or 7 in cymose panicles, 7–9 cm, with densely yellowish brown sericeous involucre bracts at base, branched ca. at middle of peduncle, glabrous or glabrate. Pedicel 3–5 mm. Perianth lobes lanceolate or narrowly elliptic, 4–6 mm, sericeous on both surfaces. Stamens pubescent; glands of 3rd series long stipitate. Ovary subglobose, ca. 1.5 mm in diam. Fruit globose, ca. 2.5 cm in diam.

• Mountain slope thickets or open forests; 1900–2400 m. W Yun- nan.

79. *Machilus pomifera* (Kostermans) S. K. Lee, Acta Phyto- tax. Sin. 8: 186. 1963.

梨润楠 li run nan

Persea pomifera Kostermans, Reinwardtia 5: 394. 1961.

Trees, to 20 m tall. Branchlets gray-brown, glabrous, lenti- cellate, young branchlets sericeous. Terminal buds subglobose; bud scales brownish tomentose. Petiole 1–2.5 cm, sericeous to glabrate; leaf blade abaxially glaucous, elliptic, subobovate- elliptic, or oblanceolate, 5–12 × 2–5 cm, glabrous on both sur- faces, midrib raised abaxially, slightly concave adaxially, lateral veins ca. 10 pairs, veinlets reticulate, inconspicuous. Panicles subterminal, to 9 cm, sparsely sericeous, with a few flowers. Flowers 3–4 mm. Perianth lobes equal, ca. 2 mm, sparsely seri- ceous. Stamens hairy; glands of 3rd series large, shortly stipi-

tate. Staminodes sagittate, hairy. Ovary glabrous. Fruit globose, ca. 3 cm in diam.; fruiting pedicel somewhat enlarged, ca. 7 mm; persistent perianth lobes patent or reflexed. Fl. Jul–Sep, fr. Sep–Feb.

- Evergreen mixed broad-leaved forests. Hainan.

80. *Machilus robusta* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 169. 1921.

粗壮润楠 cu zhuang run nan

Machilus liangkwanensis Chun; *Persea liangkwanensis* (Chun) Kostermans; *P. robusta* (W. W. Smith) Kostermans.

Trees, 15(–20) m tall; trunk to 40 cm d.b.h. Bark blackish gray, rough. Branchlets thick, terete, ± compressed and puberulent when young, becoming glabrate after, lenticellate. Buds small; bud scales light brown, densely puberulent outside. Petiole 2.5–5 cm; leaf blade sometimes slightly glaucous abaxially, elliptic to obovate-elliptic or suboblong, 10–20(–26) × (2.5–)5.5–8.5 cm, leathery, glabrous on both surfaces, midrib raised abaxially, reddish when fresh, concave adaxially, lateral veins (5–)7–9 pairs, distant, abaxially raised, adaxially subflat, veinlets reticulate, foveolate on both surfaces, base subrounded or broadly cuneate, apex subacute, sometimes shortly acuminate. Panicles terminal or subterminal, 4–12(–16) cm, much branched, many flowered; peduncle 2.5–11.5 cm, thick, compressed, reddish when fresh, densely pubescent, becoming glabrate. Pedicel 5–8 mm, pubescent, reddish when fresh. Flowers yellowish green or pale yellow, large, 7–8(–10) mm. Perianth lobes subequal, ovate-lanceolate, 6–7(–9) × 2–3(–3.5) mm, pubescent to glabrate on both surfaces. Stamens 6–7 mm, ± hairy at base; glands of 3rd series shortly stipitate. Staminodes glabrous. Ovary subglobose, ca. 2.5 mm, glabrous. Fruit globose, 2.5–3 cm in diam., blue-black when mature; fruiting pedicel thickened, 1–1.5 cm, to 3 mm in diam. Fl. Jan–Apr, fr. Apr–Jun.

Evergreen mixed broad-leaved forests, especially valleys; 600–2100 m. Guangdong, Guangxi, S Guizhou, Hainan, SE Xizang (Mêdog), S Yunnan [Myanmar].

81. *Machilus verruculosa* H. W. Li, Acta Phytotax. Sin. 17(2): 55. 1979.

疣枝润楠 you zhi run nan

Persea verruculosa (H. W. Li) Kostermans.

Trees, 4–10 m tall; trunk 6–15 cm d.b.h. One-year-old

branchlets gray-brown, subterete, verruculose, glabrous; current year shoots reddish brown, longitudinally striate, slightly yellowish brown puberulent. Petiole 1–1.5 cm, puberulent; leaf blade abaxially pale reddish brown and glaucous, adaxially reddish brown when dry, elliptic to oblong, 6–15.5 × 2–4.8 cm, firmly papery, abaxially densely yellowish puberulent, adaxially glabrous, midrib abaxially raised, adaxially concave, lateral veins 9–11 pairs, abaxially raised, veinlets reticulate, conspicuous on both surfaces, base cuneate, apex shortly acuminate, summit sharp. Panicles arising from near base of current year branchlet, 2.5–5.5 cm, with (5–)7–12 flowers, branched at or above middle of peduncle, densely yellowish puberulent; peduncle 0.9–4 cm. Flowers white, 2.5–3.5 mm. Perianth lobes subequal, ovate, densely yellowish puberulent on both surfaces. Filaments of 3rd series sparsely white pubescent; glands reniform, stipitate; stipe sparsely pubescent. Staminodes triangular-sagittate; stalks hairy. Ovary ovoid. Fruit globose, ca. 1.5 cm in diam., glabrous; fruiting pedicel ca. 1 mm in diam. Fl. Mar, fr. May–Jun.

Mountain ridges or valleys, evergreen broad-leaved forests; 1400–1800 m. SE Yunnan [Vietnam].

82. *Machilus ovatiloba* S. K. Lee, Acta Phytotax. Sin. 17(2): 56. 1979.

糙枝润楠 cao zhi run nan

Persea ovatiloba (S. K. Lee) Kostermans.

Trees, 15–20 m tall. Branchlets gray-brown, conspicuously lenticellate, rough; current year branchlets reddish brown, slender, compressed and angular, glabrous. Petiole 1–2 cm, glabrous; leaf blade abaxially ± glaucous, elliptic to oblong, 10.5–20 × 3.5–7 cm, firmly papery, abaxially appressed puberulent, adaxially glabrous, midrib abaxially raised, adaxially impressed, lateral veins 9–13 pairs, slender, veinlets adaxially densely reticulate, foveolate, base broadly cuneate, decurrent, sometimes oblique, apex acuminate, summit occasionally falcate. Flowers not seen. Inflorescences terminal, 12–15 cm, glabrous; peduncle compressed and angular, branched at middle or upper part of peduncle. Fruit globose, 2.3–3 cm in diam.; persistent perianth lobes subequal, ovate, ca. 3 mm, glabrous outside, sericeous inside; fruiting pedicel ca. 5 mm, angular, reddish when fresh.

• Mountain slopes, evergreen mixed forests; ca. 1100 m. SE Xizang (Mêdog).

Species incertae sedis

Machilus holadena H. Liu, Laurac. Chine & Indochine, 54. 1932 [*“holadenus”*].

全腺润楠 quan xian run nan

Trees. Branchlets purple-brown, slender, ± angular, subglabrous. Terminal bud small; bud scales 3–5 mm. Leaves subopposite; petiole 1–1.5 cm; leaf blade dull abaxially, shiny adaxially, elliptic, 10–11 × 3.5–4.5 cm, leathery, glabrous on both surfaces, midrib and lateral veins conspicuous on both surfaces, lateral veins ca. 10 pairs, veinlets anastomosing, some-

what visible abaxially, base cuneate, apex acuminate, acumen ca. 1 cm. Cymose panicles few flowered, inserted on short shoots in upper leaf axils or in axils of deciduous bracts; short shoots 2.5–5 mm; peduncles 1.5–4.5 cm. Pedicel 5–10 mm (terminal one longer), glabrous. Flowers yellow. Perianth tube long; lobes (6–)9 or 12, oblong, equal, 3.5–5 mm, glabrous abaxially, pilose adaxially, glandular. Stamens 9 or 12, 3–4 mm, all 2-glandular; glands at middle part of filament, stipitate, sublan-ceolate; filaments pilose; anthers subovoid, 2(or 4)-celled. Staminodes 3, somewhat pilose, apex deltoid. Pistil 4.5–5 mm,

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glabrous; ovary subovoid, almost covered by perianth tube, apex attenuate into a style 2.5–3 mm; stigma 3-lobed. Fruit unknown. Fl. May.

- Mountain slopes. Sichuan (Emei Shan), NE Yunnan.

Li Jie and Li Xiwen note that this species has subopposite leaves, a long perianth tube, (6–)9 or 12 perianth lobes, and mostly 2-celled (rarely 4-celled) anthers. They consider that it may perhaps be a species of *Beilschmiedia*, but they have not yet seen its fruit and therefore include it here as a species incertae sedis.

