

6. **CHIONANTHUS** Linnaeus, Sp. Pl. 1: 8. 1753.

流苏树属 liu su shu shu

Linociera Swartz.

Trees or shrubs, usually evergreen. Leaves opposite, simple, petiolate; leaf blade entire. Inflorescences axillary or rarely terminal panicles, sometimes cymes, umbels, heads, racemes, or fascicles. Flowers bisexual. Calyx small, 4-toothed or 4-lobed. Corolla white or yellow, 4-parted; lobes almost free to base or united into a very short tube or joined in pairs at base, valvate in bud. Stamens 2, inserted at base of corolla lobes; anthers elliptic or long elliptic, subextrorse. Ovules 2 in each locule, pendulous. Style short; stigma entire or ± 2-cleft. Fruit a drupe; endocarp bony. Seeds usually 1; endosperm fleshy or absent; radicle upward.

About 80 species: tropical and subtropical Africa, America, Asia, and Australia; 7 species in China.

Chionanthus and *Linociera* were treated as independent genera in FRPS. Although *Chionanthus* species are evergreen and pantropical and those of *Linociera* are deciduous and grow in temperature E Asia and North America, the two genera are indistinguishable morphologically and are best treated as one. *Chionanthus caudatus* (Collett & Hemsley) Bahadur & Gaur has been recorded near the border in Myanmar but not, so far, from China. It would key out at *C. ramiflorus* in the following key, but would be distinguished by its oblong-elliptic leaf blades with caudate-acuminate apices and petioles 7–10 mm.

- 1a. Leaves deciduous; corolla 12–30 mm 1. *C. retusus*
- 1b. Leaves evergreen; corolla 2–8 mm.
 - 2a. Petiole 1–2 mm; inflorescences 1–1.5 cm 2. *C. brachythyrus*
 - 2b. Petioles usually longer than 1.5 cm; inflorescences at least 2 cm.
 - 3a. Corolla 5–8 mm 3. *C. longiflorus*
 - 3b. Corolla usually less than 5 mm.
 - 4a. Leaves 16–33 cm, oblanceolate; fruit 5–10 × 2.5–5 cm 5. *C. henryanus*
 - 4b. Leaves 5–20 cm (rarely to 30 cm in *C. ramiflorus*), elliptic, oblong, obovate-lanceolate,
 - to lanceolate or suborbicular; fruit 1–3 × 0.5–2.2 cm.
- 5a. Leaves with 5 or 6 primary veins on each side of midrib; young stems and inflorescences puberulent 7. *C. guangxiensis*
- 5b. Leaves with 7–10 primary veins on each side of midrib; young stems and inflorescences usually glabrous.
 - 6a. Leaves 5–11 × 1.5–4 cm, without dense, raised pimples beneath when dried; fruit longitudinally ribbed when dried 4. *C. hainanensis*
 - 6b. Leaves (5–)8–20(–30) × (2.5–)4–7(–12) cm, with dense, raised pimples beneath when dried; fruit without longitudinal ribs when dried 6. *C. ramiflorus*

1. *Chionanthus retusus* Lindley & Paxton in Paxton's Flow. Gard. 3: 85. 1852.

流苏树属 liu su shu

Chionanthus retusus var. *mairei* H. Léveillé.

Shrubs or trees to 20 m. Branchlets terete, spreading, glabrous, or pubescent when young. Petiole 0.5–2 cm, densely covered with curly hairs; leaf blade oblong, elliptic, or orbicular, sometimes ovate or obovate, 3–12 × 2–6.5 cm, usually somewhat leathery, adaxially villous along veins, abaxially villous or glabrescent except on veins, base rounded to cuneate, rarely subcordate, apex blunt, sometimes retuse or acute; primary veins 3 or 4 on each side of midrib, slightly raised. Cymose panicles terminal on lateral shoots, 3–12 cm, glabrescent. Pedicel slender, 0.5–2 cm, glabrous. Calyx 1–3 mm; lobes narrowly deltate or lanceolate, 0.5–2.5 mm. Corolla white; tube 1.5–4 mm; lobes linear-oblanceolate, (1–)1.5–2.5 cm. Anthers long ovate, 1.5–2 mm. Drupe blue-black or black, pruinose, ovoid, 1–1.5 cm × 6–10 mm. Fl. Mar–Jun, fr. Jun–Nov. $2n = 46^*$.

Mixed forests, thickets, along rivers; below 3000 m. Fujian, Gansu, Guangdong, Hebei, Henan, Jiangxi, Shaanxi, Shanxi, Sichuan, Taiwan, Yunnan [Japan, Korea].

2. *Chionanthus brachythyrus* (Merrill) P. S. Green, Kew Bull. 50: 326. 1995.

白支流苏树 bai zhi liu su shu

Linociera brachythyrusa Merrill, J. Arnold Arbor. 20: 351. 1939; *Chionanthus leucocladus* (Merrill & Chun) B. M. Miao; *Linociera leucoclada* Merrill & Chun.

Shrubs or small trees 4–12 m. Branchlets subterete, glabrous, slightly compressed at nodes. Petiole 1–2 mm; leaf blade oblong-elliptic or elliptic, 3.5–13(–20) × 1.5–5.5 cm, papery, glabrous, base cuneate or subobtusate, apex short caudate, with a blunt tip; primary veins 6–10 on each side of midrib, slender, slightly raised. Panicles terminal, 1–1.5 cm, scurfy hairy; peduncle absent or very short. Pedicel 1.2–3 mm. Calyx submembranous, scurfy hairy; lobes acute or acuminate, 1–1.5 mm. Corolla white, 5–7 mm; lobes narrowly

elliptic or linear, united in pairs at base. Drupe ovoid-ellipsoid, ca. 11 × 7 mm. Fl. Jan–Mar, fr. Jan of following year.

Mixed woods at mountain summits, forests in valley at lower altitudes. Hainan [Vietnam].

3. *Chionanthus longiflorus* (H. L. Li) B. M. Miao, Investig. Stud. Nat. 7: 18. 1987.

长花流苏树 chang hua liu su shu

Linociera longiflora H. L. Li, J. Arnold Arbor. 25: 313. 1944.

Trees ca. 10 m, glabrous. Branchlets subterete or slightly compressed, glabrous or nearly so. Petiole 2–3.5 cm; leaf blade ovate-elliptic or elliptic, 6–15 × 3–6.5 cm, papery, sparsely covered with white peltate scales, base attenuate, apex acuminate or long acuminate, rarely slightly obtuse; primary veins 8 or 9 on each side of midrib, raised. Panicles axillary, many flowered, 4–9 cm; peduncle 1.5–4 cm. Pedicel 1–2 mm. Calyx 1–1.5 mm; lobes ovate, 0.6–1 mm, acute or slightly blunt. Corolla 5–8 mm; tube 0.4–0.6 mm; lobes lanceolate, obtuse. Fruit not seen. Fl. Mar.

* Woods on slopes; ca. 1700 m. Yunnan.

4. *Chionanthus hainanensis* (Merrill & Chun) B. M. Miao, Investig. Stud. Nat. 7: 18. 1987.

海南流苏树 hai nan liu su shu

Linociera hainanensis Merrill & Chun, Sunyatsenia 5: 168. 1940; *L. ramiflora* (Roxburgh) Wallich ex G. Don f. *caudatifolia* L. C. Chia.

Shrubs or trees 3–12 m, glabrous. Branchlets slightly compressed, scabrous. Petiole (1–)1.5–3 cm; leaf blade obovate, obovate-lanceolate to lanceolate, sometimes elliptic, 5–11 × 1.5–4 cm, thin leathery, adaxially shiny, base attenuate, apex obtuse to short caudate; primary veins 7 or 8 on each side of midrib, slightly raised. Panicles axillary or terminal, 2–7.5 cm. Pedicel 1–2 mm. Calyx 0.5–1 mm; lobes deltate, ca. 0.5 mm, acute. Corolla white, 2–3 mm; lobes oblong, acute or rounded, united in pairs at base, extended in full bloom. Drupe ripening blue-black, ellipsoid, 1.3–1.5 cm × 8–9 mm, with several longitudinal ribs. Fl. Jul–Nov, fr. Mar.

* Dense forests; below 1500 m. Hainan.

5. *Chionanthus henryanus* P. S. Green, Kew Bull. 50: 326. 1995.

李榄 li lan

Linociera henryi H. L. Li (1944), not *Chionanthus henryae* H. L. Li (1966).

Shrubs or trees 4–18 m. Branchlets subterete, glabrous or glabrescent, compressed and slightly pubescent when young. Petiole stout, 2.5–4 cm, glabrous; leaf blade oblanceolate, 16–33 × 4–12.5 cm, leathery, glabrous, base attenuate and decurrent, apex abruptly and very short acuminate; primary veins 11 or 12 on each side of midrib, adaxially slightly impressed, abaxially raised. Panicles axillary, including

peduncle 9–15 cm, pilose. Flowers subsessile. Calyx pubescent; lobes oblong-ovate, 1–1.5 mm, blunt or acuminate. Corolla 2–3 mm, slightly puberulent or glabrous outside; lobes oblong, acuminate, slightly united at base. Drupe black, narrowly ovoid or narrowly ellipsoid, 5–10 × 2.5–5 mm, lenticellate. Fl. May–Jun, fr. Sep–Apr.

Dense forests of valleys, thickets of ravines; 800–1600 m. Yunnan [Myanmar].

Records of this species have been misidentified as *Linociera insignis* C. B. Clarke.

6. *Chionanthus ramiflorus* Roxburgh, Fl. Ind. 1: 106. 1820.

枝花流苏树 zhi hua liu su shu

Linociera ramiflora (Roxburgh) Wallich ex G. Don, Gen. Hist. 4: 52. 1837.

Shrubs or trees 3–25 m. Branchlets terete, usually compressed. Petiole 2–5 cm, glabrous; leaf blade elliptic, oblong-elliptic, or ovate-elliptic, rarely lanceolate, (5–)8–20(–30) × (2.5–)4–7(–12) cm, leathery, glabrous, densely dotted with raised pimples especially abaxially, base attenuate, apex acuminate, acute, or obtuse; primary veins 7–10 on each side of midrib, slightly raised or obscure. Panicles axillary or rarely terminal, loose, 2.5–12(–25) cm. Pedicel 1–6 mm. Calyx ca. 1 mm, glabrous or puberulent; lobes ovate, ca. 0.5 mm, acute or obtuse. Corolla white or yellow, 2.5–5.5 mm; lobes oblong, rounded, slightly united at base. Anthers elliptic or oblong. Drupe blue-black, pruinose, ovoid-ellipsoid or ellipsoid, (1–)1.5–3 × 0.5–2.2 cm.

Woods, thickets, slopes, ravines; below 2000 m. Guangxi, Guizhou, Hainan, Taiwan, Yunnan [India, Nepal, Vietnam; Australia, Pacific Islands].

- 1a. Corolla 2.5–3 mm 6a. var. *ramiflorus*
- 1b. Corolla 3–5.5 mm 6b. var. *grandiflorus*

6a. *Chionanthus ramiflorus* var. *ramiflorus*

枝花流苏树(原变种) zhi hua liu su shu (yuan bian zhong)

Linociera ramiflora f. *pubisepala* L. C. Chia.

Pedicel 1–5 mm. Corolla lobes 2.5–3 mm. Anthers elliptic. Fl. Dec–Jun, fr. May–Mar of following year. 2n = 46*.

Woods, thickets, slopes, ravines; below 2000 m. Guangxi, Guizhou, Hainan, Taiwan, Yunnan [India, Nepal, Vietnam; Australia, Pacific Islands].

6b. *Chionanthus ramiflorus* var. *grandiflorus* B. M. Miao, Investig. Stud. Nat. 7: 17. 1987.

大花流苏树 da hua liu su shu

Linociera ramiflora var. *grandiflora* (B. M. Miao) B. M. Miao.

Flora of China 15: 293–295. 1996.

Pedice! 3–6 mm. Corolla lobes 3–5.5 mm. Anthers oblong. Fl. Aug, fr. unknown.

* Woods on slopes; ca. 1300 m. Guizhou.

7. *Chionanthus guangxiensis* B. M. Miao, *Guihaia* 5: 21. 1985.

广西流苏树 *guang xi liu su shu*

Linociera guangxiensis (B. M. Miao) B. M. Miao.

Shrubs or small trees 3–6 m. Branchlets terete, slightly compressed at nodes when young, puberulent. Petiole 1.2–2 cm, puberulent; leaf blade elliptic or narrowly elliptic, rarely suborbicular, 5–9.5 × 2–4.5 cm, leathery, glabrous, adaxially shiny, base attenuate and decurrent into a winged petiole, apex short acuminate, rarely rounded; primary veins 5 or 6 on each side of midrib, distinctly raised. Panicles axillary, 2–4 cm, puberulent; peduncle 4–13 mm. Pedicel 0.5–2 mm. Calyx ca. 1.1 mm, glabrous; lobes ovate-deltate, ca. 0.4 mm. Corolla 2–2.4 mm; lobes oblong, 1.8–2.2 mm, united near base. Drupe pruinose, ellipsoid, 1.2–1.9 × 0.9–1.2 cm. Endosperm absent. Fl. Apr, fr. Aug.

* Woods of calcareous rocky hills; below 600 m. Guangxi.

