

11. BREDIA Blume, Mus. Bot. 1: 24. 1849.

野海棠属 ye hai tang shu

Tashiroea Matsumura.

Herbs or shrublets, erect or creeping to ascending. Stems terete or 4-sided. Leaves petiolate; leaf blade secondary veins 1–3 (or 4) on each side of midvein, tertiary veins parallel, margin denticulate, serrate, or almost entire. Inflorescences terminal, few-flowered cymes, cymose panicles, or rarely umbellate cymes; bract small, frequently caducous. Flowers (3 or)4-merous. Hypanthium funnel-shaped, turbinate, or nearly campanulate. Calyx lobes conspicuous. Petals pink to purplish red, ovate to broadly ovate, sometimes slightly oblique, apex acute, acuminate, or retuse. Stamens dimorphic, twice as many as petals, unequal in length; filaments filiform; anthers dimorphic, subulate, linear-subulate, or oblong-linear. Longer stamens usually without tuberculate base; connective decurrent, slightly prolonged. Ovary half inferior, turbinate, 4-celled. Style filiform; stigma apiculate. Capsule turbinate, usually obtusely 4-sided, woody, apex truncate but with crown usually exerted from calyx; calyx lobes usually persistent. Seed numerous, very minute, cuneate, densely granulate.

About 15 species: E and S Asia; 11 species (ten endemic) in China.

Bredia biglandularis cannot be reliably keyed out at this time because its flowers are unknown.

- 1a. Leaves sessile or subsessile 9. *B. sessilifolia*
 1b. Leaves petiolate.
 2a. Stems glabrous.
 3a. Petiole 5–10 cm; leaf blade with 3 secondary veins on each side of midvein 1. *B. biglandularis*
 3b. Petiole 0.6–1.2(–2.5) cm; leaf blade with 1 or 2 secondary veins on each side of midvein 8. *B. quadrangularis*
 2b. Stems pubescent or puberulous at least when young.
 4a. Leaf blade 0.8–1.7(–2) × 0.8–1.7(–2) cm, margin entire 6. *B. microphylla*
 4b. Leaf blade 2–11(–13.5) × 1.5–5.5(–10) cm, margin toothed at least to some extent.
 5a. Leaf blade adaxially glabrous.
 6a. Hypanthium not truncate at apex; persistent calyx lobes ca. 7 × 7 mm 10. *B. sinensis*
 6b. Hypanthium ± truncate at apex; persistent calyx lobes not conspicuous 7. *B. oldhamii*
 5b. Leaf blade adaxially ± densely pilose.
 7a. Inflorescences and hypanthia hirsute with whitish spreading trichomes 4. *B. hirsuta*
 7b. Inflorescences and hypanthia not hirsute.
 8a. Leaf blade base cordate; shrubs or shrublets.
 9a. Stems and hypanthia minutely glandular puberulous 2. *B. esquirolii*
 9b. Stems and hypanthia spreading pilose with glandular trichomes 3–4 mm 3. *B. fordii*
 8b. Leaf blade base obtuse or rounded; herbs or shrublets.
 10a. Calyx lobes linear-lanceolate, ca. 1 mm 5. *B. longiloba*
 10b. Calyx lobes narrowly triangular to lanceolate, ca. 3 mm 11. *B. yunnanensis*

1. *Bredia biglandularis* C. Chen, Bull. Bot. Res., Harbin 4(3): 39. 1984.

双腺野海棠 shuang xian ye hai tang

Shrubs to 60 cm tall, branched, base woody. Stems flat-terete when young but later terete, glabrous. Petiole 5–10 cm, glabrous; leaf blade ovate to suborbicular, 3–4.5 × 1.6–3.2 cm, stiffly papery, both surfaces puberulous, secondary veins 2 on each side of midvein and basally glandular between apical pair, base rounded, margin subentire to sparsely inconspicuous serrulate, apex obtuse, acute, or acuminate. Inflorescence a cymose panicle, 2- or 3-branched; peduncle 4-sided, glabrous. Flower unknown. Capsule cup-shaped, ca. 4 mm in diam., 4-sided, glabrous; persistent calyx lobes ca. 0.5 mm, apically apiculate. Fr. Oct.

• Sparse forests, foothills, stream banks, shaded places. Guangxi (Huanjiang).

2. *Bredia esquirolii* (H. Léveillé) Lauener, Notes Roy. Bot. Gard. Edinburgh 31: 398. 1927.

赤水野海棠 chi shui ye hai tang

Barthea esquirolii H. Léveillé, Repert. Spec. Nov. Regni Veg. 11: 494. 1913; *Bredia cordata* H. L. Li; *B. esquirolii* var. *cordata* (H. L. Li) C. Chen.

Shrublets to 20(–50) cm tall, branched. Stems terete, obtusely 4-sided, densely pilose and minutely glandular puberulous. Petiole 1–3 cm, densely pilose and with glandular trichomes; leaf blade ovate to oblong-ovate, 3–10 × 1.7–5.5 cm, stiffly papery, both surfaces densely puberulous when young but glabrescent or abaxially puberulous and adaxially ± sparsely strigose, secondary veins 3 on each side of midvein, base cordate, margin serrulate with each tooth having a terminal seta, apex acuminate. Inflorescences terminal, cymose, 1–2 cm, 3–7-flowered. Pedicel ca. 1.4 cm, densely pilose and with glandular

trichomes. Hypanthium bell- or funnel-shaped, ca. 5 mm, pilose and with glandular trichomes. Calyx lobes linear-lanceolate, ca. 3 mm, both surfaces puberulous, margin with glandular trichomes. Petals purplish red, ovate, 6–10 × ca. 6 mm, oblique, outside puberulous, apex acute. Longer stamens ca. 1.8 cm; anthers linear, ca. 7 mm, minutely curved. Shorter stamens ca. 1.1 cm; anthers lanceolate, ca. 5 mm, tuberculate at base. Connective decurrent, forming a short spur. Ovary half inferior, ovate, glandular punctate, apex with a membranous crown, crown margin abruptly denticulate. Fl. Jun–Aug, fr. Sep–Oct.

• Forests, forest margins, hillsides, sunny slopes, damp places; 600–800 m. NW Guizhou, Sichuan.

3. *Bredia fordii* (Hance) Diels, Bot. Jahrb. Syst. 65: 110. 1932.

叶底红 ye di hong

Otanthera fordii Hance, J. Bot. 19: 47. 1881; *Bredia omeiensis* H. L. Li; *B. sepalosa* Diels; *B. tuberculata* (Guillaumin) Diels; *Fordiophyton tuberculatum* Guillaumin; *Phyllagathis fordii* (Hance) C. Chen; *P. fordii* var. *micrantha* C. Chen.

Shrubs or shrublets, 20–50(–100) cm tall. Stems pale brown or red, 4-sided, densely spreading pilose with 3–4 mm glandular trichomes. Petiole 2.5–6.5 cm, reddish pilose; leaf blade cordate, ovate-cordate, oblong, ovate-oblong, or elliptic, 4–10(–13.5) × 2–5.5(–10) cm, stiffly papery, abaxially purplish red and only sparsely strigose and puberulous, adaxially sparsely strigose, puberulous, and sometimes white punctate, secondary veins 2–4 on each side of midvein, base cordate, margin double denticulate with each tooth having a terminal seta, apex shortly acuminate to obtusely acute. Inflorescences terminal, umbellate, cymose, or cymose paniculate; peduncle 1–5.5 cm, densely pilose and with long glandular trichomes. Pedicel 0.8–2 cm, densely pilose and with long glandular trichomes. Hypanthium 5–7 mm. Calyx lobes linear-lanceolate to narrowly triangular, 3–5 mm. Petals purple to purplish red, ovate to broadly ovate, 7–14 × 6–8 mm, slightly oblique, outside apically puberulous, margin ciliate, apex acuminate. Longer stamens 1.6–1.8 cm; anthers lanceolate, 7–11 mm, geniculate or slightly curved; connective decurrent, minutely inflated at base. Shorter stamens ca. 1.1 cm; anthers shortly lanceolate, 5–7 mm; connective decurrent, forming a short spur, abaxially tuberculate. Ovary ovoid, apex with a membranous crown, crown margin truncate. Capsule cup-shaped; hypanthium 5–10 × 7–12 mm, setose, apex truncate. Fl. Jun–Aug, fr. Aug–Oct.

• Forests, hillsides, woodland margins, shaded damp places, valleys, stream banks, trailsides; 100–1400 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang.

4. *Bredia hirsuta* Blume var. ***scandens*** Ito & Matsumura, J. Coll. Sci. Imp. Univ. Tokyo 12: 487. 1898.

野海棠 ye hai tang

Bredia hirsuta Blume var. *rotundifolia* (Y. C. Liu & C. H. Ou) S. F. Huang & T. C. Huang; *B. rotundifolia* Y. C. Liu & C. H. Ou; *B. scandens* (Ito & Matsumura) Hayata.

Shrubs or shrublets, to 1 m tall, erect or climbing. Stems 4-

sided when young, later terete, closely spreading setose to hirsute, trichomes glandular. Petiole 1.3–4.5 cm, patently setose with glandular trichomes; leaf blade ovate, oblong-ovate, or elliptic, 2–11 × 2–5 cm, papery, abaxially puberulous and rarely setose on veins and otherwise glabrous, adaxially rarely strigose among veins, secondary veins 3 or 4 on each side of midvein, base rounded to cordate, margin serrulate, apex obtusely acuminate. Inflorescences terminal, cymose paniculate, 5–14 × 3–7 cm, patently setose with glandular trichomes. Pedicel 0.8–1.2 cm, glandular setose. Hypanthium turbinate, ca. 3 mm, 4-sided. Calyx lobes triangular, villous. Petals white or lavender, ovate-orbicular to oblong, 8–11 × 4–5(–6) mm, slightly oblique, outside slightly with glandular trichomes, apex shortly acute to acuminate. Longer stamens 1–1.2 cm; anthers lanceolate, 6–7 mm, tuberculate at base; connective decurrent, forming a short spur. Shorter stamens ca. 6.5 mm; anthers 2.5–3 mm, conspicuously tuberculate at base. Ovary half inferior, ovate. Capsule cup-shaped to turbinate; hypanthium 4–5 × ca. 5 mm, 4-sided, with glandular trichomes, apex truncate. Fl. Oct–Nov, fr. Nov.

• Forests, hillsides, valleys, moist shaded places, roadsides; 500–2000 m. Taiwan.

Bredia hirsuta var. *hirsuta* occurs in Japan.

5. *Bredia longiloba* (Handel-Mazzetti) Diels, Bot. Jahrb. Syst. 65: 111. 1932.

长萼野海棠 chang e ye hai tang

Fordiophyton gracile Handel-Mazzetti var. *longilobum* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 63: 10. 1926.

Shrublets 20–30 cm tall. Stems 4-sided, stoloniferous, densely pilose and with spreading glandular trichomes. Petiole 1–4.5 cm, patently setose; leaf blade ovate to elliptic-ovate, 5–8 × 2.3–4.5 cm, papery to stiffly papery, abaxially densely puberulous, adaxially puberulous and sparsely strigose or villous, secondary veins 3 on each side of midvein, base obtuse to rounded, margin serrulate with each tooth having a terminal seta, apex acute to shortly acuminate. Inflorescences terminal, umbellate cymes or umbellate, 3–7 cm, puberulous and with sparse glandular trichomes. Pedicel ca. 1 cm. Hypanthium funnel-shaped, ca. 5 mm, puberulous and with sparse glandular trichomes. Calyx lobes linear-lanceolate, ca. 1 mm. Petals purplish red, oblong-ovate, ca. 10 × 5 mm, slightly oblique, apex acuminate. Stamens subequal, 1–1.2 cm; anthers 5–6 mm. Longer stamens with connective slightly prolonged below anthers. Shorter stamens with connective decurrent, forming a short spur, abaxially setose tuberculate. Ovary ovoid, apex with a membranous crown, crown margin with glandular trichomes. Capsule cup-shaped; hypanthium ca. 5 × 4–6 mm, 4-sided, pilose and with sparse glandular trichomes. Fl. Aug–Oct, fr. Oct.

• Forests, sparse forests, hillsides, valleys, stream banks, damp places, trailsides; 600–900 m. Guangdong, Hunan, Jiangxi, Yunnan.

6. *Bredia microphylla* H. L. Li, J. Arnold Arbor. 25: 23. 1944.

小叶野海棠 xiao ye ye hai tang

Shrublets or herbs, to 20 cm tall, creeping, branched.

Stems terete, densely reddish brown pubescent. Petiole 0.5–1.5 cm, densely pubescent; leaf blade ovate to ovate-orbicular, 0.8–1.7(–2) × 0.8–1.7(–2) cm, stiffly papery to nearly papery, abaxially only rarely strigose on veins, adaxially densely pubescent and rarely strigose, secondary veins 2 on each side of midvein, base broadly cuneate to nearly cordate, margin entire and ciliate, apex broadly acute. Inflorescences terminal, cymes, 1–3-flowered. Pedicel 1.3–1.5 cm, densely pubescent and with glandular trichomes. Hypanthium campanulate, ca. 3 mm, 4-sided. Calyx lobes linear, 3–4 mm. Petals lavender red, oblong, ca. 9 × 6 mm, slightly oblique, apex abruptly acute. Longer stamens ca. 7 mm; anthers narrowly lanceolate, slightly curved, ca. 4 mm; connective decurrent and slightly prolonged, shortly spurred at base. Shorter stamens ca. 5.5 mm; anthers lanceolate, ca. 3 mm, tubercular at base; connective decurrent, forming a short spur. Ovary half inferior, ovate, ciliate. Capsule cup-shaped, ca. 5 × 4 mm, 4-sided, 8-ribbed, apex truncate. Fl. Oct.

• Forests, hillsides, moist shaded places. Guangdong, Guangxi, Jiangxi.

7. *Bredia oldhamii* J. D. Hooker, Icon. Pl. 11: 68. t. 1085. 1871.

金石榴 jin shi liu

Bredia gibba Ohwi; *B. oldhamii* var. *ovata* Ohwi; *B. penduliflora* S. S. Ying.

Shrubs 1.5–2 m tall, many-branched. Stems terete, farinose, glaucous; young branches blackish brown, obtusely 4-sided, nearly glabrous to puberulous. Petiole 0.5–1.5(–2.5) cm, puberulous; leaf blade lanceolate, oblong-elliptic, or elliptic-ovate, 5–11 × 1.5–2.5(–3.5) cm, stiffly papery, abaxially very minutely puberulous on veins, often glaucous, drying pale tan or whitish, adaxially farinose-puberulous or glabrous, secondary veins 1–3 on each side of midvein and originating 1–1.5 cm from base, base cuneate to obtuse, margin nearly entire to densely serrulate, apex acuminate. Inflorescences cymose panicles, ca. 7 × 11 cm, glabrous. Pedicel ca. 1.1 cm to nearly absent, subglabrous. Hypanthium funnel-shaped, ca. 5 mm, obtusely 4-sided, puberulous or glabrous. Calyx lobes broadly triangular, less than 1 cm. Petals ovate-oblong, 7–10 mm, apex acute. Longer stamens 1.4–1.6 cm; anthers linear-lanceolate, 6–7 mm, slightly curved; connective decurrent, forming a short spur. Shorter stamens with anthers 3–3.5 mm; connective decurrent, abaxially constricted, adaxially 2 tuberculate. Ovary half inferior, ovoid. Capsule cup-shaped; hypanthium cup-shaped, 6–5 × 3.5–5 mm, obtusely 4-sided, almost glabrous, apex truncate; calyx lobes not conspicuous. Fl. Apr–May, fr. May–Jun.

• Forests, open forests, forest margins, hillsides; 100–2500 m. Taiwan.

8. *Bredia quadrangularis* Cogniaux, Monogr. Phan. 7: 473. 1891.

过路惊 guo lu jing

Bredia amoena Diels; *B. amoena* var. *eglandulata* B. Y. Ding; *B. amoena* var. *serrata* H. L. Li; *B. amoena* var. *trimera* C. Chen; *B. chinensis* Merrill; *B. pricei* F. P. Metcalf.

Shrubs or shrublets, 25–120 cm tall. Stems terete or slightly 4-sided; branchlets 4-sided, ± narrowly winged on ribs,

glabrous. Petiole 0.6–1.2(–2.5) mm, puberulous or glabrous; leaf blade ovate to elliptic, (2.5–)4–10 × 1.5–2.5(–5) cm, stiffly papery, both surfaces glabrous, secondary veins 1 or 2 on each side of midvein, base rounded to cuneate, margin remotely serrulate to nearly entire, apex shortly acuminate. Inflorescences terminal at tips of branchlets, cymose, 3–10 × 2–5 cm, 3–9-flowered or sometimes with more flowers. Peduncles, pedicels, and calyces densely puberulous and with glandular trichomes or densely puberulous brownish ferruginous hirsute but sometimes calyces mostly glabrous. Pedicel 3–5 mm. Hypanthium shortly campanulate, (3 or)4-sided, 5–6 mm. Calyx lobes repand, 1–2 mm, apex small apiculate. Petals rose red to purple, ovate to oblong, 5–8 × 3–3.5 mm, slightly oblique, apex acute. Longer (3 or)4 stamens ca. 8.5 mm; anthers lanceolate, ca. 3.5 mm, geniculate; connective decurrent, slightly prolonged. Shorter (3 or)4 stamens 0.7–1.3 cm; anthers 4–6 mm, base tuberculate; connective decurrent, forming a short spur. Ovary half inferior, apex with glandular trichomes, otherwise glabrous, apex 4-lobed. Capsule cup-shaped, ca. 4 × 3.5 mm, (3 or)4-sided, apex truncate; hypanthium 3–4 × 3.5–4 mm, puberulous and glandular or densely puberulous brownish ferruginous hirsute. Fl. Jun–Oct, fr. Aug–Oct.

• Open or dense forests, valleys, slopes, stream banks, trailsides; 300–1500 m. Anhui, Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Zhejiang (Taishun).

9. *Bredia sessilifolia* H. L. Li, J. Arnold Arbor. 25: 22. 1944.

短柄野海棠 duan bing ye hai tang

Shrubs 20–100 cm tall. Stems terete or slightly 4-sided; branchlets 4-sided, glabrous. Leaves sessile or subsessile; leaf blade ovate to elliptic, 5.5–14(–17) × 2.8–5(–7) cm, stiffly papery, both surfaces glabrous or very minutely puberulous with 1 line setose trichomes among veins, secondary veins 2 on each side of midvein, base rounded to subcordate, margin entire or minutely serrulate, apex acuminate to sometimes obtuse. Inflorescences terminal, cymose, 3–6.5 cm, 3–5(–15)-flowered, glabrous. Pedicel ca. 4 mm, glabrous. Calyx lobes repand. Petals pink, oblong to suborbicular, ca. 8 × 4.5–6 mm, slightly oblique, apex minutely acute. Longer stamens ca. 1.5 cm; anthers linear-lanceolate, ca. 6 mm; connective decurrent, slightly prolonged. Shorter stamens ca. 1.1 cm; anthers lanceolate, ca. 5 mm, base tuberculate; connective decurrent, forming a short spur. Ovary half inferior, ovate-globular, apex with a few glandular trichomes. Capsule subglobular; hypanthium bell- or funnel-shaped, ca. 5 × 5 mm, 4-sided, apex truncate. Fl. Jun–Jul, fr. Jul–Aug.

• Forests, valleys, slopes, shaded damp places, stream banks, rock crevices; 800–1200 m. Guangdong, Guangxi, Guizhou.

10. *Bredia sinensis* (Diels) H. L. Li, J. Arnold Arbor. 25: 22. 1944.

鸭脚茶 ya jiao cha

Tashiroea sinensis Diels, Notizbl. Bot. Gart. Berlin-Dahlem 9: 198. 1924; *Bredia glabra* Merrill.

Shrubs 60–100 cm tall. Stems terete; branchlets slightly 4-sided, with stellate trichomes when young but later glabrous or puberulous. Petiole ca. 1 cm; leaf blade lanceolate, ovate, or

elliptic, 5–11(–13) × 2–6 cm, stiffly papery, mostly glabrous, base cuneate to very obtuse, margin nearly entire to remotely serrulate, apex acuminate to obtuse. Inflorescences terminal, cymes, 4–6 × 4–6 cm, (5–)20-flowered, mostly glabrous or with stellate trichomes; bracts caducous. Pedicel 5–8 mm. Calyx

lobes crenate. Petals pink to purple, oblong, ca. 10 × 6 mm, oblique, apex acute. Stamens 8, either subequal or distinctly unequal. Longer stamens ca. 1.6 cm; anthers lanceolate, ca. 1 cm; connective decurrent, slightly prolonged. Shorter stamens ca. 1 cm; anthers ca. 7 mm, tuberculate at base; connective decurrent, forming a short spur. Ovary half inferior, ovate-globular, apex puberulous. Capsule subglobular, enclosed by hypanthium; hypanthium bell- or funnel-shaped, 4-sided, apex truncate; calyx lobes ca. 7 × 7 mm, sometimes with stellate trichomes. Fl. Jun–Jul, fr. Aug–Oct.

• Mixed forests, valleys, slopes, damp places, grasslands, stream banks; 400–1400 m. Fujian, Guangdong, Hunan, Jiangxi, Zhejiang.

11. *Bredia yunnanensis* (H. Léveillé) Diels, Bot. Jahrb. Syst. 65: 111. 1932.

云南野海棠 yun nan ye hai tang

Blastus yunnanensis H. Léveillé, Repert. Spec. Nov. Regni Veg. 11: 300. 1912; *B. mairei* H. Léveillé.

Herbs or shrublets, to 30 cm tall, branched. Stems obtusely 4-sided, densely puberulous or with glandular trichomes. Petiole 2–4 cm, densely puberulous to patently villous; leaf blade ovate-lanceolate, oblong-ovate, or nearly elliptic, 6.5–11 × 2.5–4.3 cm, papery, abaxially puberulous but strigose on veins, adaxially puberulous and slightly strigose, secondary veins 2 or 3 on each side of midvein, base rounded, margin densely serrulate with each tooth having a terminal seta, apex shortly acuminate. Inflorescences terminal, umbellate, densely puberulous and slightly with glandular trichomes. Pedicel ca. 1 cm. Hypanthium purplish red, ca. 3.5 mm. Calyx lobes narrowly triangular to lanceolate, ca. 3 mm, inside densely puberulous. Petals pink, broadly ovate, 4.5–6 mm, outside only puberulous on ridge, apex acute. Longer stamens with connective minutely inflated at base. Shorter stamens with connective decurrent, inflated, forming a short triangular spur. Ovary half inferior. Fl. Sep.

• Secondary forests, valleys, stream banks, rock crevices; 600–700 m. Sichuan, Yunnan.

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